



Natural Resources 4

The Town of Bluffton is located in southern Beaufort County and is the **mainland's** easternmost coastal town. It is bordered by the New River to the west, the Okatie River to the north, and the Cooper River to the south. The May River runs to the south of Old Town and north of Palmetto Bluff. These four water bodies help form fragile ecosystems that are located in Bluffton and its surrounding environs.

Bluffton's quality of life is based on the fundamental principal that healthy ecosystems support healthy people, which in turn, promote a healthy economy. While quality of life can be preserved by protecting and enhancing **the area's** natural resources, unchecked development pressure may negatively affect local ecology and result in a wide range of environmental and economic problems.

In order to grow economically, preserve our natural heritage, and promote a high quality of life, there is an overarching desire to achieve

Vision

We will inventory and protect critical resources in a manner which sustains the vitality, function, and beauty of Bluffton's natural heritage.

a balance between economic development and natural resource preservation. **This section summarizes Bluffton's critical natural resource issues, which help guide the development of applicable needs, goals and implementation strategies.**

4.1 Climate and Weather

Data from the South Carolina Climatology Office for the years 1930-2004, reports that **Bluffton's** annual average temperature is 76.3 **degrees Fahrenheit. The area's average annual rainfall is 48.97 inches** and the mean snowfall is 0.2 inches. The largest snowfall ever recorded was 6 inches in 1973.

Bluffton has avoided most major hurricanes in recent years. The last one was Hugo, which made landfall at the Isle of Palms on September 21, 1989. It had winds at 140-160 mph and a storm surge in excess of 20 feet. A description of other extreme weather events can be found in Appendix A.

4.2 Water Resources

Watersheds

Successful habitat, open space, and water quality plans are supported by watershed analysis and planning because relationships between prime habitats and ideal regional stormwater management techniques and facilities should be determined at this level. Therefore, in order to maintain the integrity of local streams and critical habitats, Bluffton should base planning and land use decisions, including stormwater treatment, on the potential impacts to its watersheds.

A watershed is the land basin that drains into a body of water through runoff, recharge and subsurface water movement above the normal groundwater zone. This process is affected by soil, slope, and surface cover. Bluffton has three main watersheds:

- New River Watershed - 67,697 acres
- Okatie River Watershed - 15,744 acres
- May River Watershed - 25,582 acres

Watershed planning is founded on three principles:

- Plan with a regional focus, based on surface and ground water drainage areas.
- Use sound management techniques, based on proven methods and accurate data.
- Implement plans through partnerships with various stakeholders including local, state, and federal governments, resource users, environmental groups, and the general public.

As a first step, Bluffton should establish extraterritorial land management authority within the May River watershed and in conjunction with Beaufort County, create a joint action agency. This agency should then designate a May River Overlay Protection District that clearly identifies authority over all land and water related activities. Bluffton should have authority to oversee zoning and land use decisions and could also deal with emergency situations. A similar plan could be expanded to include the New and Okatie River watersheds.

To help gain public understanding and support for water quality protection Bluffton should organize a watershed education campaign. Signs could announce entry into a community watershed similar to those seen across North Carolina, Pennsylvania, Maryland, and Virginia. Also, to foster community accountability, storm drains should be marked **with statements or symbols such as “This flows into the May River.”**

Coastal Resources

The three major watersheds **in Bluffton’s** jurisdiction are highly productive grounds for shellfish such as shrimp, crabs and oysters, as well as numerous finfish species. They include the May, New, and Okatie Rivers as shown on Map 4.1 Bluffton Water Resources.

The rivers’ mix of salty ocean water and fresh water inputs from artesian wells and stormwater runoff, coupled with the widespread presence of smooth cord grass (*Spartina alterniflora*), creates a system which supplies shelter and **nutrients to the area’s** wildlife. Thus, the tidal creeks are sensitive and are critical nursery habitats for fish and crustaceans, while open water is crucial to their later stages of life.

The numerous natural resource populations that are recreationally and commercially harvested from all three rivers contribute to the quality of life of Bluffton residents. In fact, each river carries specific water classification and standards from the SC Department of Health & Environmental Control (SCDHEC).

Both the May and Okatie Rivers are designated as Outstanding Resource Waters (ORW) by SCDHEC. According to SCDHEC, an ORW is either a freshwater or saltwater system that is recognized as an outstanding recreational or ecological resource.

Additionally, both the May and Okatie Rivers support recreational and commercial oyster harvesting which is a great economic and ecological value for Bluffton and all of South Carolina. According to SCDHEC shellfish harvesting waters are tidal saltwaters protected for shellfish harvesting as well as recreational contact, crabbing, and fishing.

The New River is classified as Class SA **defined by SCDHEC to be** “tidal saltwaters suitable for primary and secondary contact recreation, crabbing, and fishing, except harvesting of clams, mussels, or oysters for market purposes or human consumption.”

Rivers

May River (Hydrologic Unit Code – 030601100301): The May River is comprised of oyster bars, inter-tidal marshes, small and large tidal creeks and shallow bays or mud flats. According to the report, “Environmental and Ecological Assessment of the May River,” thirty percent (30%) of the oysters consumed in the state come from here. **The Bluffton Oyster Factory, dating back to the early 1900’s, is the oldest shucking facility in continuous use in South Carolina.** Furthermore, it was recognized in 1999 as one of the ten oldest businesses in the state and holds state business permit #10. Not only are oysters a local food favorite, but they are also highly effective water filters, recycling nutrients, and controlling phytoplankton blooms. **Preserving May River’s water quality is a high priority** for the Town.

As a result of rising fecal coliform levels in the headwaters of the May River, shellfish monitoring stations 19-19, 19-19A, 19-19B, and 19-19C are included in the 2012 SCDHEC 303(d) list of impaired waterbodies. The Town has adopted the May River Watershed Action Plan in 2011 as a restoration and prevention plan to protect the river and shellfish harvesting into the future. A more detailed description of the May River can be found in Appendix A.

New River (Hydrologic Unit Code – 030601100201): The New River is the natural boundary between Beaufort and Jasper Counties and empties into the Atlantic Ocean. Due to high mercury and fecal coliform levels, **he river’s** water quality is not as high as that of the May River; however, the majority of the watershed has a diverse and valuable landscape. There is a fish consumption advisory due to high mercury levels for a portion of the New River north of SCDHEC water quality monitoring station MD-118, located where the New River and SC170 intersect. Additionally, recreational contact is limited due to high fecal coliform levels at SCDHEC RT-06021, located 3.4 miles south-southeast of the SC170 bridge over the New River. A more detailed description of the New River can be found in Appendix A.

Okatie River (Hydrologic Unit Code – 030502080606): According to the Okatie River Baseline Study, the Okatie is a narrow tidal creek which flows into the Colleton River. Tides can fluctuate 8.5 feet every six hours and is considered one of the highest along the southeast coast. The Okatie has great historic and ecological significance. The river once supported a healthy and prosperous

shellfish population but agriculture and development have reduced its overall harvest. The Okatie was part of a five-year, multidisciplinary research and outreach program funded by the NOAA Coastal Ocean Program, South Carolina and Georgia Sea Grant, known as LUC-ES. Scientists from South Carolina and Georgia are working collaboratively to examine how changes in land use affect marine resources. In addition, the headwaters of the Okatie River have been an area of great interest to Beaufort County. The purchase of development rights from property adjacent to its headwaters is a tool that can help restore water quality.

Due to high levels of fecal coliform in the headwaters of the Okatie, SCDHEC developed a Total Maximum Daily Load (TMDL) for shellfish monitoring stations 18-07, 18-08, 18-16, and 18-17. The Town must work, in cooperation with Beaufort County, to reduce levels of fecal coliform to meet this regulatory requirement.

Floodplains

Floodplains are flat or nearly flat lands adjacent to a stream or river that experience occasional or periodic flooding, particularly during wet seasons. It includes the floodway (the stream channel and the area adjacent carrying flood flows) and the flood fringe (the area inundated by flood waters but not experiencing strong currents). The May, New, and Okatie floodplains provide benefits that are essential to a healthy community and must be protected. These include: enhancing stormwater management, water quality, control of flooding and erosion, and preservation of biological productivity and wildlife habitats.

In 1993, Bluffton adopted a Flood Prevention Ordinance to promote public health, safety and welfare by minimizing losses resulting from floods. The floodplain map referenced in the Ordinance is from the Flood Insurance Rate Map (FIRM) and is used to calculate flood insurance ratings, land use regulations and for lenders, to determine where flood insurance must be purchased. Bluffton should use the latest information, collected as part of local developments and from Beaufort County, to prepare an official floodplain map. This map can be adjusted as necessary to reflect collective development impacts. The Floodplain Ordinance should also be revised to promote floodplain conservation for environmental and ecological benefits.

In 2003, Bluffton participated in the creation of the Beaufort County Hazard and Flood Mitigation Plan. While floodplain management is conducted by Beaufort County, agencies such as SCDNR and FEMA have strongly recommended that Bluffton be certified in a qualified program for floodplain management.

Wetlands

Wetlands are a vital link between land and water and are among the most productive of environments. Their economic benefits include: fish and shellfish production; waterfowl habitat; maintenance of water tables; water storage and flood control; shoreline stabilization;



water purification; and recreational opportunities. Despite great strides in their preservation by the Center for Oceanic Engineering (COE) and SCDHEC, Bluffton is experiencing an annual loss of wetlands. While the majority of these are smaller in scale, commonly referred to as isolated wetlands, nevertheless, they serve as important reproductive grounds and nurseries for amphibians. Often, due to past logging and tree removal practices, they also contain the few remaining wooded areas and trees on a development site. This makes them even more valuable. Gum-Tupelo and Pond Pine depressions comprise a majority of **Bluffton's freshwater wetlands**.

Approximately 400 acres of the Great Swamp, draining into the New River, are also found in Bluffton. Historically, it was a cypress swamp, but unfortunately, clear cutting occurred in the late 20th century and new growth is primarily maple and gum trees instead of native cypress. An ordinance that is based on national standards should be implemented to regulate and manage these wetlands so that disturbed areas are replenished with cypress and restored to their original habitat. To help mitigate development impacts on the other side of the county line, Bluffton should collaborate with neighboring Jasper County to address the future of the Great Swamp.

The practices associated with harvesting forest products have also had **a large impact on Bluffton's wetlands**. Drainage ditches, dug during the

process to harvest trees, have resulted in changing **the area's** hydrology and rarely is it ever restored, except in cases where additional impacts associated with future development are being mitigated. A great need to monitor wetlands is emerging because of these past activities.

The impacts associated with new, adjacent urbanization can further stress wetlands, resulting in increased amounts of fertilizer and insecticides in stormwater runoff, altered drainage patterns, and an invasion of exotic and aggressive plant species. The health and continued function of preserved wetlands should be monitored by conducting plant, bird and animal inventories. Volunteers organized from the area could accomplish this task with proper training.

Ground Water

Groundwater saturates geologic or soil formations and is a valuable source of potable water. The subsurface area saturated with groundwater is known as the saturation zone. The top of this zone is the water table, which is confined by a low permeable material such as clay. When water levels rise, artesian or free-flowing wells are formed. Historically, the Old Town has had several artesian wells and two have recently been reported along the high bluff adjacent to Alljoy Road.

Various studies addressing groundwater recommend using strict best management practices in the Stony and Rose Dhu Creek sub-watersheds. These include large vegetated buffers, lining stormwater lagoons and limiting septic system use. Bluffton should also apply recommendations from recent USGS and SCDNR groundwater studies.

The May River Baseline Study recommends quantifying ground water contributions to the May River and the results would also be very useful in revealing groundwater levels and quality. These should be analyzed and, if appropriate, used as an additional reference guide for groundwater conservation policies.

Water Quality

Excellent water quality is a benchmark for a healthy community. Long time Bluffton residents know how important it is to preserve water quality and are concerned with possible development threats and impacts. That is why preserving the quality **of Bluffton's rivers** while accommodating development is such a tremendous task and obligation and it is precisely why a baseline study for the May River was requested by the community. It was done to monitor water quality in the watershed. Additional information and recommendations from the study can be found in Appendix A. All development in Bluffton must adhere to the provisions outlined in the Beaufort County Best Management Practice (BMP) Manual, which is discussed in more detail in Appendix A. However, despite the County BMP Manual and implementation of the previously identified Watershed Plan, stormwater management, with respect to water quality, will continue to be a point of strong contention and debate.

Bluffton's Stormwater Ordinance should be used to guide stormwater management **based on the community's desire to** protect, maintain, and enhance its environment and to protect the health, safety, and general welfare of its citizens. It establishes requirements and procedures to control potential adverse effects of increased stormwater runoff associated with future development, re-development, and existing developed land. Further, it articulates proper methods to control stormwater runoff to minimize property damage, ensure functional drainage systems, reduce erosion, attain and maintain water quality standards, reduce flooding, reduce pollutant loading and balance economic benefits while minimizing pollutant, flooding, and drainage impacts.

| Water Resources | | |
|--|--------------------------|------------|
| Need: Preservation of water quality in the May River and enhancement of water quality in the Okatie and New Rivers. | | |
| Goal: Facilitate the new population's ownership in protecting Bluffton's rivers and estuaries. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Develop an interactive watershed website | Environmental Protection | Short |
| 2. Establish volunteer monitoring programs for the May, Okatie, and New Rivers. | Environmental Protection | Medium |

| Water Resources | | |
|---|--|------------|
| Goal: Provide greater protection for floodplains. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Revise Floodplain Ordinance to include protection of floodplains for purposes of habitat conservation and water quality functions. | Environmental Protection | Medium |
| 2. Complete Staff floodplain management certification. | Environmental Protection | Medium |
| Goal: Preserve and increase wetlands to the greatest extent possible. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Adopt a wetlands preservation ordinance. | Planning, Environmental Protection | Short |
| 2. Use the national standard of rating to determine wetland values. | Environmental Protection | Short |
| 3. Increase man-made engineered wetlands to mitigate the effects of wetland loss to development. | Environmental Protection | Medium |
| Goal: Use available information to monitor ground water levels and quality. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Analyze the recent USGS and SCDNR ground water study and adopt recommendations if applicable. | Environmental Protection | Long |
| Goal: Protect the hydrologic and habitat components of local watersheds. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Adopt standards which maintain integrity of intermittent and epherial streams and wetlands. | Environmental Protection | Short |
| 2. Use watershed planning tools to preserve and connect critical habitats. | Environmental Protection | Short |
| 3. Post signs which denote watershed boundaries on major highways. | Environmental Protection, Public Works | Short |
| 4. Mark stormdrains which signify connection to rivers. | Environmental Protection | Short |
| 5. Develop watershed and drainage basin plans. Begin with drainage basins that identified as releasing high levels of pollutants. | Environmental Protection | Short |
| Goal: Establish authority over all land and water related activities impacting the May River. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Develop a protocol for emergency situations i.e. oil spills, illicit discharges, sediment plumes, etc. | Environmental Protection | Short |
| 2. Establish local authority over planning and development within the May River watershed. | Planning, Environmental Protection | Short |

| Water Resources | | |
|--|----------------------------|-------------------|
| Goal: Protect shellfish resources for ecological and economic value. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Complete recommendations of Environmental and Ecological Assessment of the May River Report. | Environmental Protection | Long |
| 2. Assist County in implementing recommendations of the Okatie Baseline Study. | Environmental Protection | Medium |
| 3. Support Stormwater Utility efforts to complete Beaufort County Special Area Management Plan recommendations. | Environmental Protection | Medium |
| 4. Support establishment of a local SCDHEC certified laboratory. | Environmental Protection | Medium |
| 5. Assist Stormwater Utility with establishing water quality protocol. | Environmental Protection | Short |
| 6. Continue monitoring efforts which target and identify point sources. | Environmental Protection | Short |
| 7. Develop additional shellfish beds near outfalls into rivers to increase water quality. | Environmental Protection | Medium |
| Goal: Adopt the most efficient and effective stormwater best management practices. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Support the monitoring for all pollutants of concern (fecal coliform, total nitrogen, total phosphorus, turbidity). | Environmental Protection | Short |
| 2. Adopt a Stormwater Ordinance to regulate stormwater controls | Environmental Protection | Short |
| 3. Continue frequent construction site inspections and enforcements by staff. | Environmental Protection | Short |
| 4. Update the Stormwater Ordinance Design Manual at least once every 18 months. | Environmental Protection | On-going |

4.3 Geology and Soils

Bluffton lies in the Coastal Zone of the Atlantic Coastal Plain between two large river basins, the Savannah and Broad Rivers. **Bluffton's soils** can be characterized as sandy and clayey coastal sediment, which have a tendency to be strongly acidic. The abundant moisture and thick vegetative cover enhance the replenishment of any minerals that are lost to normal weathering. Soil wetness varies from well-drained to very poorly-drained. The best-drained soils are found on elevated sandy marine deposits in the Upper Coastal Plain. The most poorly drained soils are found near the coast where broad expanses of muddy marsh and floodplain deposits are barely above the water table.

Soil characteristics can greatly impact the type of development that the land will support. They can also influence engineering and construction practices that are used in the development process. Development in some areas of Bluffton may be challenging due to the following limitations: soils are unsuitable for urban development, high water tables are present and soils percolate slowly. While the Natural Resources Conservation Service provides a soil suitability guide to help determine development capability, individual sites should be proactively tested to ensure that proper soils are present. Additional discussion on the geology and soils found in Bluffton is located in Appendix A.

Prime Farmland

Prime farmland is defined as land that has the best combination of physical and chemical characteristics for agricultural production. It has the soil quality, growing season, and moisture supply needed to sustain high crop yields efficiently and economically. The Natural Resources Conservation Service (NRCS) categorizes the soil types by their value for agricultural applications. The four most valuable soil types and listed as prime farmland are Cecil sandy loam, Georgeville silt loam, Herndon silt loam, and Hiwassee sandy loam.

While the majority of the soil in the Town of Bluffton is not considered optimal for prime farmland applications, there are a few isolated areas that contain sufficient soils for agricultural use and therefore are zoned Agriculture as depicted on Map 4.2.

Slope Characteristics

The majority of land in Bluffton is relatively flat with elevations ranging from mean sea level to 80 feet above mean sea level. The lowest points in the Town are found along the May River and adjacent to the various coves. The highest point is found along the east side of Route 170 with elevations ranging between 50 and 80 feet above mean sea level. (See Map 4.3)

| Geology and Soils | | |
|---|--|------------|
| Need: Usage of soil characteristics information for the basis of stormwater treatment and development practices. | | |
| Goal: Use local soil classifications to maximize benefits and understand limitations of soil types. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Extrapolate existing Beaufort Jasper Soil Classification information onto a Town map which designates the ideal stormwater treatment practice for the soil conditions. | Environmental Protection | Medium |
| 2. Publish document which provides maintenance instructions and option for retrofitting an older septic system. | Environmental Protection | Short |
| 3. Continue assisting BJWSA to complete sewer coverage of the entire Town. | Environmental Protection | Short |
| 4. Use soil data to locate prime habitat for conservation. | Environmental Protection | Short |
| 5. Use soil data to identify appropriate vegetation to use in development landscaping. | Environmental Protection | Medium |
| 6. Use soil classifications to help identify and purchase land that contains well drained soils to allow for the regional infiltration of stormwater runoff. | Town Council, Administration, Environmental Protection, Planning | Medium |

4.4 Flora and Fauna

Bluffton is in the process of completing a Critical Resources Survey and Map, which will be used to record, monitor, and protect its critical ecosystems, habitats and species. It will also serve as an excellent planning tool to insure that proposed developments are compatible with and sensitive to adjacent environments.

In addition, the South Carolina Department of Natural Resources (SCDNR) is creating a State Conservation Master Plan with local participation from Bluffton and Beaufort County. The plan will include species of concern, their associated habitats and federal and state listed, threatened and endangered species.

Biodiversity

Biodiversity is the measuring stick of a community's natural health and includes the full range of ecosystems and ecological processes and their constituent plants, animals, and microorganisms. The term biodiversity relates to the full range and variety of plants, animals, and microorganisms, the ecosystems found in an area, and the ecological interactions and processes which enables them to exist. A healthy ecosystem can have a positive influence on air and water quality, soil stability and fertility, insect control, and the decomposition of waste.

Habitats

Bluffton is fortunate to have a variety of habitats, which support an abundance of wildlife. An adequate balance, food supply, and habitat are needed for the survival of individual species. Therefore, to help maintain a balanced and healthy community these unique habitats must be preserved. A list of the habitats found in Bluffton can be found in Appendix A.

Threatened and Endangered Species

The previously mentioned Critical Resources Map will identify and record locations of threatened and endangered species, as well as species of concern. This information will be distributed to US Fish and Wildlife and SCDNR to assist them with research and project review within Bluffton. The collected data will be used to target land for

habitat preservation. A list of the threatened and endangered flora and fauna that are found in Bluffton can be found in Appendix A.

Exotic and Invasive Species

Exotic and invasive species are non-native species that have been intentionally and/or unintentionally introduced. Because they may lack natural predators or have faster growth rates they can wreak havoc on native habitats and animal populations by crowding them out. In 1996 the Nature Conservancy reported that invasive species have contributed to the decline of 42% of the endangered and threatened species in the United States. The Zebra mussel, Japanese Climbing Fern, Wisteria, Kudzu, Ligustrum, and the Tallow Tree are a few notorious species. Some have caused considerable damage to national landmarks and local state heritage sites.

To avoid losing our native heritage, citizens and landscaping companies must be educated on the benefits of landscaping with indigenous species. To assist with that, a list of exotic and invasive plant species has been added to the Bluffton Landscape Ordinance. Bluffton should also require that all landscaping plans include at least 85% indigenous species and the use of exotic and invasive species should be restricted. The Town Hall landscaping plan and Pritchard Street Park are examples of plants that are appropriate for the community.

Prime Forest Lands

Forestry practices have **eliminated most of Bluffton's pristine hardwood** and pine forests. There are only sparse remnants of the maritime, bottom hardwood, cypress, and longleaf forest stands that once prevailed. Currently, Palmetto Bluff is executing a forestry management plan that replenishes and preserves unique habitats for wildlife conservation and research. This effort provides an excellent example of environmental stewardship.

By preserving existing stands, managing urban forests and by natural or assisted forest succession, Bluffton can regain these important habitats. In support of this goal, Bluffton can purchase the CITYgreen software program, which enables the environmental and economic benefits of forests to be analyzed. Bluffton can also help educate landowners about the benefits of establishing and maintaining Longleaf Pine forests and provide incentives.

A more detailed description of the types of forests located in Bluffton and a discussion on silviculture can be found in Appendix A.

| Flora and Fauna | | |
|--|------------------------------------|------------|
| <p>Need: Preservation of the health, function, and aesthetic value of Bluffton's ecosystems to support a diverse range of plant and animal species. Protection of trees and forests which serve to stabilize values of improved and unimproved property through buffering, noise abatement, oxygen generation, habitat, and aesthetic function.</p> | | |
| <p>Goal: Create a critical resources map which is the basis for a fish and wildlife habitat conservation ordinance.</p> | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Inventory and assess the remaining undeveloped areas and prioritize based on attributes such as size, connectivity, quality, value, and compatibility with community needs. | Environmental Protection, Planning | Medium |
| 2. Utilize CIB funds, grants, and incentive programs to secure preservation of priority areas. | Environmental Protection, Planning | Short |
| <p>Goal: Provide protection for remaining threatened and endangered species and associated habitats.</p> | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Support the South Carolina Department of Natural Resources Habitat Conservation Program. | Environmental Protection | Medium |
| 2. Pursue grants and other funds to purchase habitat. | Environmental Protection | Medium |
| 3. Expand Bluffton's existing Critical Resources Survey. | Environmental Protection | Medium |
| <p>Goal: Provide citizens assistance in landscaping with natives or non invasive species.</p> | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Enhance list of native trees to indicate growth characteristics and needs. | Environmental Protection | Medium |
| 2. Conduct workshops to demonstrate creating transition areas between yards and wetlands. | Environmental Protection | Medium |
| 3. Educate the public on ecologically-friendly landscaping practices. | Environmental Protection | Medium |

| Flora and Fauna | | |
|---|--------------------------|------------|
| Goal: Enforce forestry best management practices. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Distribute summary of silviculture practices allowed within the Town. | Environmental Protection | Short |
| 2. Supplement silviculture areas with native hardwoods or Longleaf Pine to replenish function of original forests within areas such as road and PUD buffers, recreational sites, and community open spaces. | Environmental Protection | Short |
| Goal: Maintain and generate healthy urban forests. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Establish landscape standards which designate landscaping which thrive in urban settings. | Environmental Protection | Medium |
| 2. Assess and monitor existing and new tree cover. | Environmental Protection | Short |
| 3. Adopt a replanting program which targets areas in need of tree cover along highway corridors using native species. | Environmental Protection | Short |
| 4. Work with POAs to increase the number of trees and shrubbery. | Environmental Protection | On-going |

4.5 Open Space

Open space includes undeveloped, public or private land that is used to preserve or protect natural resources. Open space may include passive and/or active recreational areas, wetlands, and stormwater lagoons. Planned unit developments (PUDs) currently require that at least 35% of a site be maintained as open space. For individual developments the minimum is 10%.

To address the national campaign encouraging children, adults, and senior citizens to be active, Bluffton needs more usable open space. Unfortunately, in PUDs, wetlands typically comprise the overwhelming majority of open space. While it is important to preserve them, wetlands should comprise only a small percentage of **a development's** total open space area. When connected and located outside of fragile and dynamic systems like wetlands, useable open spaces are more effective for recreation purposes. Therefore, Bluffton should research and establish a standard that requires a minimum percentage of upland open space based on acres per household, which is higher than the national **average**. **A campaign to eliminate "Nature Deficit Disorder" in children** could generate public enthusiasm and support for securing adequate upland open space.

Financing Open Space, Land Acquisition

As the South Carolina Department of Natural Resources develops a statewide conservation plan, federal funds to buy land will become available. Bluffton has established a Community Infrastructure Bank, which contains \$1 million to purchase land. This resource should also be considered for grants where matching funds are required. Bluffton must employ several methods to preserve land including: outright purchase; purchase of development rights; acquisition by installments; lease development rights; and/or a combination of these. In addition, Bluffton could utilize multi-year tax revenues, bonds, and special taxes for this purpose.

The Trust for Public Lands (TPL) has been retained by Beaufort County to help plan, prioritize, negotiate and purchase land for public purposes. Among the supporting objectives are:

- Reduce traffic impacts

- Protect water quality
- Provide opportunities for public enjoyment and recreation

Since TPL funds are relatively limited, Bluffton will end up competing with the entire county for financing. Therefore, for the long-term, successful completion of a viable open space and habitat conservation plan, and to offset increasingly limited federal, state, and county funds, Bluffton must plan for and employ local control and funding to acquire land.

Habitat Conservation

Wildlife habitat conservation can help prevent unpleasant interfaces between wildlife and residents. This can be accomplished by providing wildlife with the essentials of water, shelter, and food. In support of this, the fragmentation of their habitats must be minimized by establishing interconnected open space areas and corridors. Whenever possible, it is extremely important that large, contiguous, undisturbed tracts, similar to the Palmetto Bluff conservation easements within the Headwaters Tract, the Managed Forest, and Phase Two, be protected. Connecting these areas to the Jones and Buckwalter tracts would result in conserving prime habitats and corridors.

The Critical Resource Survey provides a preliminary list of areas and habitat types and should be prioritized based on attributes such as:

- Size
- Connectivity
- Habitat quality
- Local habitat diversity
- Local ecological importance
- Compatibility with existing and anticipated needs

Once the Critical Resources Survey and Map have been completed, Bluffton should focus on protecting the priority areas and incorporating them into the Land Use Map.

Wildlife Corridors

Wildlife corridors are interconnected land and landscape features that support and facilitate effective animal movement between their habitats. These are transitional areas with sizes that vary from 50 to

200 feet wide. They facilitate different kinds of animal traffic, such as frequent foraging, seasonal migration and dispersion of juveniles.

The Jones Tract Development Agreement requires designating corridors at the time of wetland permitting and Bluffton should require a connection to the Palmetto Bluff conservation areas, as well as promote interconnections between corridors. The existing land use map should also be examined to determine how connections between corridors can be made using techniques such as buffers, open space, and conservation easements.

Scenic Resource Viewsheds

Scenic resource protection of certain marsh, water and rural views from public roads, bridges, and pedestrian pathways strengthen and preserve **Bluffton's** unique environmental heritage and character. Aesthetic, scenic resources can be directly related to increased property values, economic development, tourism, and quality of life. A scenic resource or vista is a defined angle of perception within the landscape, which limits the view to a particular part of the landscape. The viewer is provided with an unobstructed sight line to distant land, water, historic or culturally significant structures.

Significant forests, wildlife habitats, and areas of steep slope add to the natural beauty and foster civic pride in the community. Because of their significance, Bluffton should inventory, map, and designate the following as scenic corridors to be protected by limiting structures and variances. Collectively, they contribute to **Bluffton's sense of place, are** highly unique and distinctive resources and are valued by the community. These resources are vulnerable and subject to change if not formally recognized. In addition, communication towers and docks should be carefully located so as not to interrupt the scenic quality of the landscape.

Natural Scenic Corridors include the following:

- Huger/Verdier/Heyward Coves
- SC Highway 46 and 170
- Rose Dhu & Stoney Creek
- New River and Trail
- Cooper River
- Trees and Stands of Undisturbed Forests
- Existing vegetation along steep ridges and bluffs (May River, Hwy 170 in Jones Tract and in Okatie watershed)

Parks and Recreation Areas

Bluffton and Southern Beaufort County’s active and passive parks and recreation facilities are an important component of the region’s quality of life. They are also an important component of the region’s economy. Natural amenities such as coastal waters, salt marshes, beaches, trees and local wildlife are an integral component of the region’s attractiveness to both tourists and newcomers. Parks and recreation facilities are an important means of making these natural amenities accessible to both residents and tourists.

A full description and listing of parks and recreation areas can be found in Chapter 7 Community Facilities, Section 7.7.

| Open Space | | |
|--|------------------------------------|------------|
| Need: Sustainability through open space diversity. | | |
| Goal: Determine types of open space needed to meet community needs. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Adopt clear definitions of the types of open space. | Planning, Environmental Protection | Short |
| 2. Require minimum sizes of all types of open space based on acres per household. | Planning, Environmental Protection | Short |
| 3. Maximize function of open spaces through a continuous connecting network of wildlife corridors. | Planning, Environmental Protection | Short |
| 4. Preserve open spaces to ensure water quality. | Planning, Environmental Protection | Short |
| Goal: Establish and protect areas which hold high scenic value. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Develop a scenic resources overlay district inventory and map. | Planning, Environmental Protection | Short |
| 2. Limit exposed structures and buffer variances within the view corridors. | Planning, Environmental Protection | Ongoing |
| 3. Complete application to designate the New River as a National Wild and Scenic River. | Environmental Protection | Medium |
| 4. Complete application to designate the New River and associated wetlands as a RAMSAR site. | Environmental Protection | Medium |

4.6 Air Quality

While so often taken for granted, Bluffton has excellent air quality and has been ranked in the top 10 urban places in the United States known for high air quality. To preserve that standing techniques to reduce vehicle travel will be required since that generates air pollution, greenhouse gas emissions, and noise. These include development patterns that provide mixed use communities, street trees, and sidewalks and paths that connect commercial and residential areas. These patterns can help reduce the need to drive and as a result can also reduce air pollution.

While air pollution does not dramatically affect Bluffton, it can still be addressed locally by:

- Prioritizing pedestrian modes of transportation
- Promoting mixed-use communities
- Preserving freshwater wetlands
- Insuring an abundance of tree cover within urban areas
- Planting a diverse assemblage of trees with different growth patterns to create a continuous canopy
- Develop urban forest management plans to maximize carbon sequestering and provide needed shade, habitat, and aesthetically pleasing spaces

| Air Quality | | |
|--|--------------------------|------------|
| Need: Preservation of existing high air quality. | | |
| Goal: Preserve the existing high air quality by reducing vehicular trips and preserving ambient cooling of shade trees. | | |
| Implementation Steps | Responsible Parties | Time Frame |
| 1. Adopt standards which specify viable multi-modal transportation systems. | Environmental Protection | Short |
| 2. Reduce vehicular trips by providing safe pedestrian and bicycle pathways. | Environmental Protection | Short |
| 3. Establish appropriate specifications to maximize carbon dioxide sequestering and shading of the built environment. | Environmental Protection | Medium |

Town of Bluffton
Beaufort County, SC

PLANNING
&
GROWTH MANAGEMENT
DEPARTMENT

**BLUFFTON
WATER
RESOURCES**

Map 4.1

August 21, 2007

Legend

JURISDICTIONAL

-  Bluffton
-  Hilton Head Island
-  Hardeeville
-  Beaufort County
-  Jasper County
-  Bluffton Town Limits

TRANSPORTATION

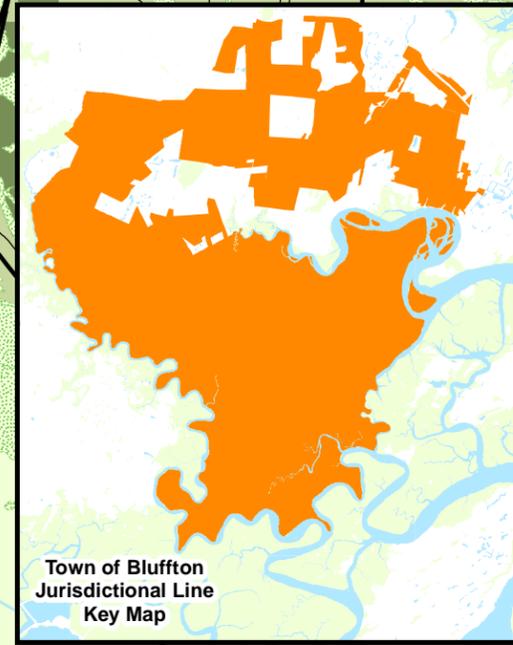
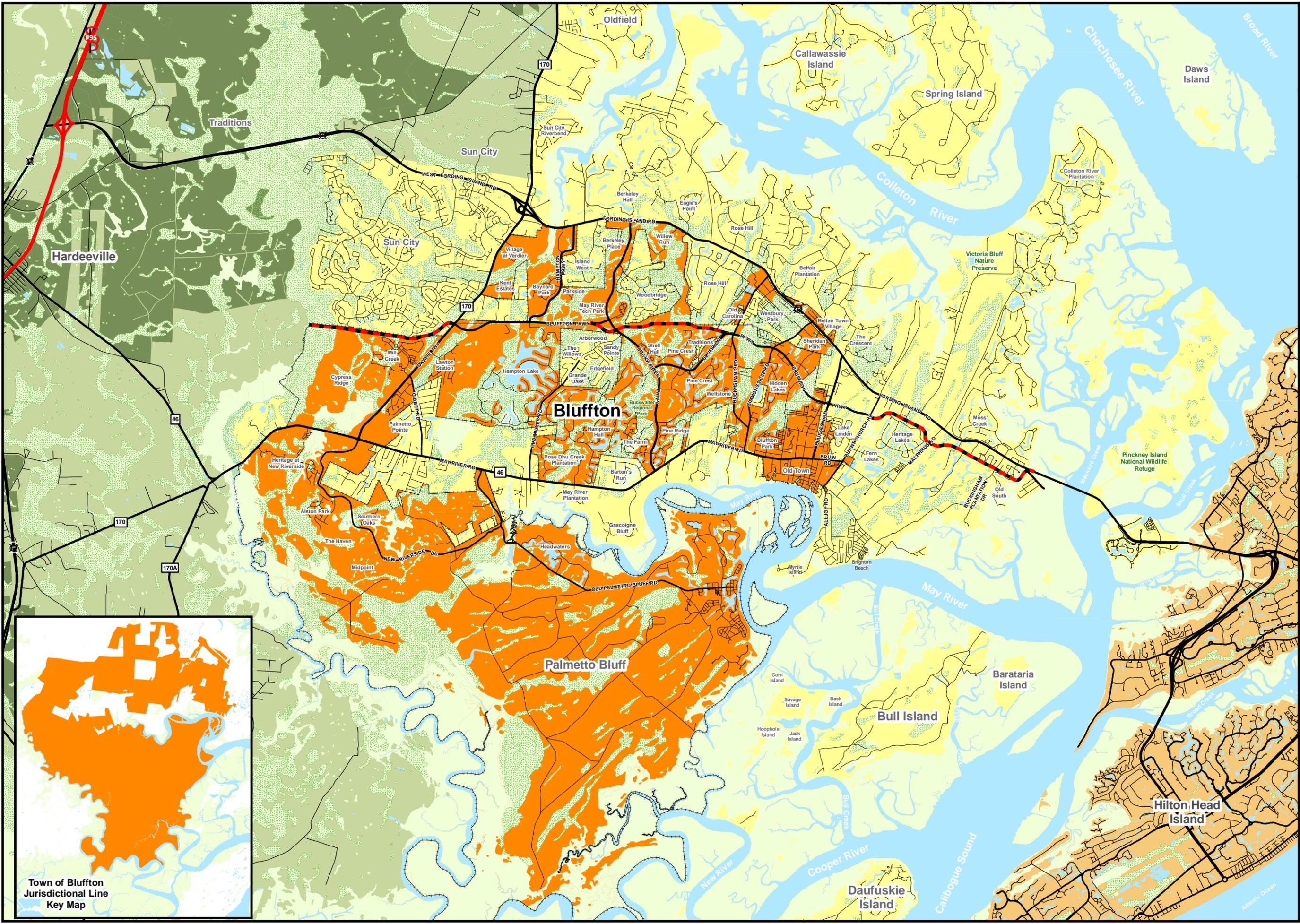
-  Roads
-  Interstate
-  Bluffton Parkway (Proposed)

HYDROLOGY

-  Water
-  Marsh
-  Wetland



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Legend

 Prime Farmland Soils

ZONING

 Agriculture

JURISDICTIONAL

-  Hardeeville
-  Beaufort County
-  Jasper County
-  Town of Bluffton

TRANSPORTATION

-  Paved Roads
-  Proposed Roads

HYDROLOGY

-  Marsh
-  Water

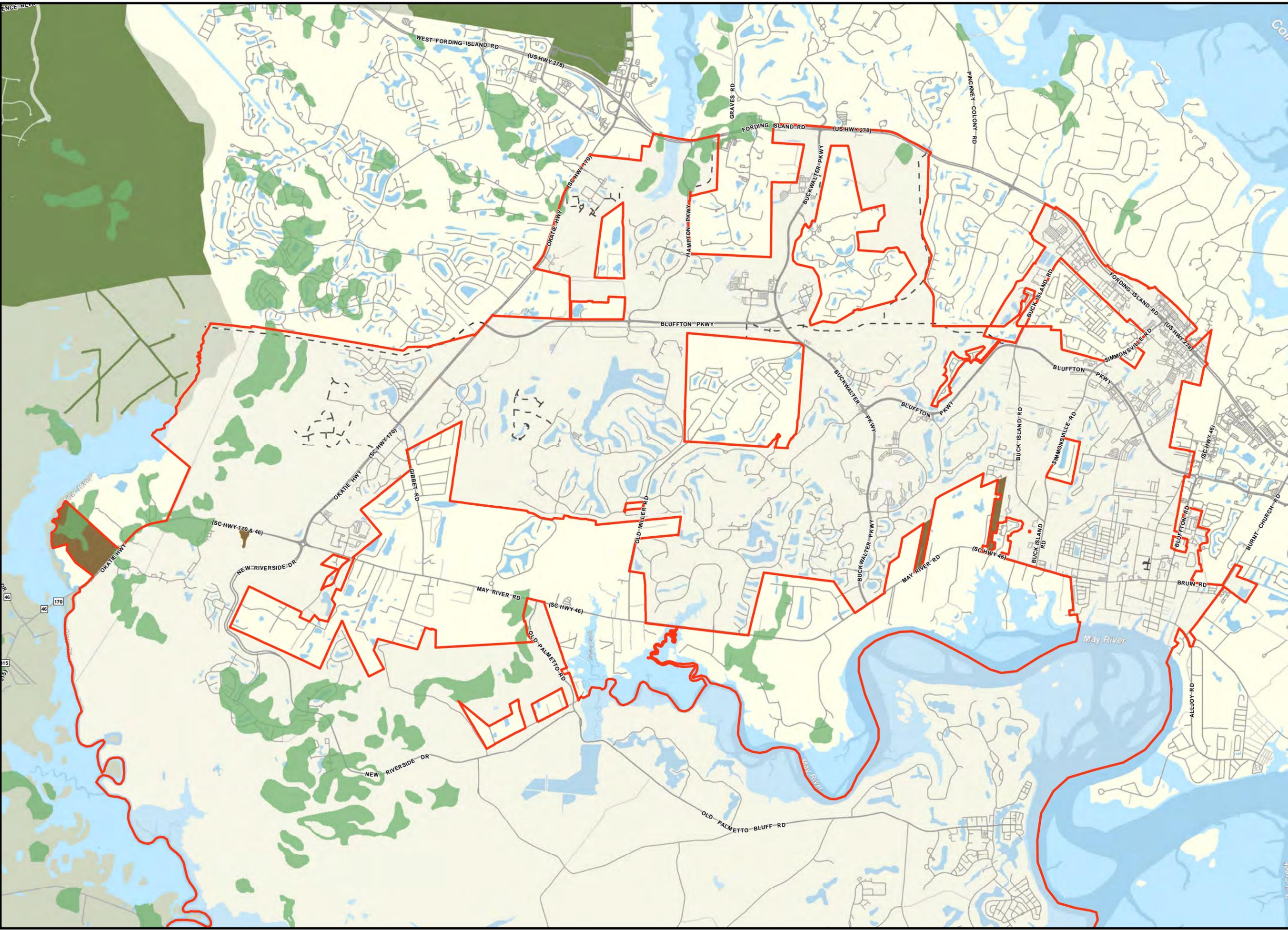
Effective
2014-09-18

Map Prepared By:
GIS Office

Prime Farmland Layer
Credits: UTC SEWF



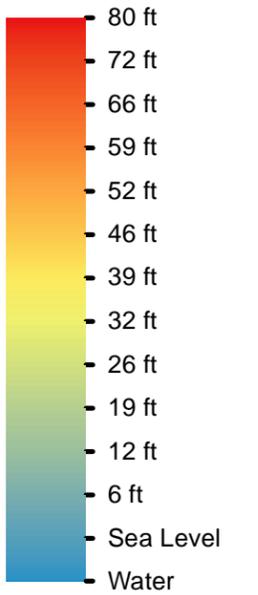
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Legend

Elevation

Value



— Town Limits

Streets

— Roads

- - - Future

Effective
2014-09-18

Map Prepared By:
GIS Office



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