



Town of Kiawah Island

2015 Comprehensive Plan

Adopted: December 8, 2015
Amended September 3, 2019



NATURAL RESOURCES ELEMENT

Background

Kiawah Island, the largest barrier island in the state of South Carolina, is located just south of Charleston. The Island has a rich variety of maritime habitats and scenic natural resources that include over 10 miles of beach, a broad salt marsh with tidal creeks, freshwater wetlands, and extensive maritime forest and shrub thickets.

In 1975, the Kiawah Island Company introduced plans to develop Kiawah Island as a scenic residential and Resort community, which capitalized on its natural beauty. Residential areas are interlaced with recreational open space, a system of lagoons and ponds, wildlife corridors and nature trails that are functional and aesthetically pleasing. The intra-Island brackish and fresh water ponds serve multiple purposes including storm water retention and removal. Roadway and other pavement runoff are naturally filtered through the marshes, protecting river and ocean water quality.



As a result of environmentally sensitive planning, Kiawah Island has been recognized nationally for its creative balance between natural and developed areas by the Urban Land Institute and the American Planning Association. Map V.1 below shows the parks, trails and open spaces that exist in the Town as of November 2



- | | | | | |
|----------------------------------|-------------------------------|------------------------------|-----------------------------------|---------------------------|
| 1 BEACH | 7 EAST BEACH TENNIS | 13 LITTLE BEAR ISLAND | 19 OCEAN MARSH ROAD BEACH PARKING | 25 TURTLE POINT GOLF |
| 2 BEACHWALKER PARK | 8 FALCON POINT/SUMMER ISLANDS | 14 MARSH ISLAND PARK | 20 OCEAN OAKS | 26 WEST BEACH TENNIS |
| 3 CANVASBACK MINIPARK | 9 GLOSSY IBIS MINI PARK | 15 MARSH VIEW TOWER OVERLOOK | 21 OSPREY POINT GOLF | 27 WILLET POND |
| 4 COUGAR ISLAND | 10 IBIS POND | 16 MINGO POINT | 22 PROPERTY OWNERS REC CENTER | 28 RIVER COURSE CLUBHOUSE |
| 5 COUGAR POINT GOLF | 11 KIAWAH BEACH CLUB | 17 NIGHT HERON PARK | 23 RHETT'S BLUFF | |
| 6 EAST BEACH CONFERENCE/TOWN CTR | 12 BASS POND | 18 OCEAN COURSE GOLF | 24 THE PRESERVE | |



Map V.1:
Town of Kiawah Island
PARKS, TRAILS, AND OPEN SPACE SYSTEM

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THIS MAP HAS BEEN PREPARED FROM DEEDS, PLATS, AND OTHER PUBLIC RECORDS AND DATA RECORDED TO DATE. PROPERTY LINES DEPICTED DO NOT NECESSARILY REPRESENT ACTUAL LAND SURVEYS. THIS MAP IS NOT A LEGAL DOCUMENT. GRID IS BASED ON THE SOUTH CAROLINA STATE PLANE COORDINATES.



Existing Conditions

Beach and Dune Preservation

Oceanfront beach and dunes serve several important functions. These include storm protection for upland areas, habitat for a variety of plant and animal species (very important for daytime resting cover for bobcats), nesting habitat for sea turtles and recreation for Town residents, property owners and guests.

The beach and dune system is currently in very good shape and is monitored annually by Dr. Tim Kana of Coastal Science and Engineering (CSE). The beach is currently divided into 6 reaches or zones (Figure V.2) and annual erosion and accretion rates are calculated each year. This is done by conducting beach profile monitoring at 61 locations along the beachfront. Between 2012 and 2013, all reaches accreted sand with the exception of the Lagoon and Stono Inlet reaches. These 2 reaches are located on the eastern end of Kiawah and are very dynamic due to their location near the Stono River Inlet. Neither of these reaches is adjacent to any homes or structures.



Figure V.2. Map of Kiawah Island showing the location of the 6 beach reaches used for monitoring and reporting erosion and accretion rates.



Changing Beachfront

Even with Kiawah's healthy beach and dune system, the beach still faces erosion challenges as a result of both short term and long-term causes. In the future, short term erosion from tropical storms and hurricanes may occur more frequently. Kiawah has experienced several storm or flood events since 2015 which have impacted the physical character of the beach, including the 2015 1,000-year flood event, Hurricane Matthew (2016) and Hurricane Irma (2017). Although Kiawah's beach currently accretes, more frequent storm events may slow down or even override this trend. Rising sea levels will impact the beach character as dune systems potentially move landward toward buildings along the beach front. To mitigate these erosion impacts, the Town has conducted several beach renourishment and restoration projects and continues to monitor the beach front development through the Town's Beach Management Plan.

2006 East End Beach Restoration Project

In 2006, the Town conducted a large scale Beach Restoration Project on the eastern end of Kiawah Island. This project successfully stopped intensive erosion on the eastern end of the island adjacent to the Ocean Course clubhouse. A total of 550,000 cubic yards of sand was moved onto the beach by land-based equipment. The total project cost was \$3.6 million, the majority of which was paid by the Town of Kiawah Island. Financial contributions to the project also came from the Kiawah Island Golf Resort, Kiawah Island Community Association, as well as the Kiawah Resort Association. The mitigation plan for the project required monitoring of habitat changes (including ground elevation surveys and aerial orthophotography) and periodic piping plover surveys of the project area through 2012.

2015 East End Beach Restoration Project

The eastern end of Kiawah Island experienced severe erosion during 2014-2015, mainly due the presence of a tidal inlet located parallel to the beach adjacent to the Ocean Course driving range. The Town applied for federal and state permits to close the tidal inlet, excavate a new inlet a half-mile to the east, and renourished portions of the eroded areas in May of 2014. The restoration took place in May of 2015 and moved 100,000 cubic yards of sand. Mitigation requirements for this project are similar to the 2006 project and involve macroinvertebrate monitoring, piping plover surveys, sea turtle nest monitoring, and aerial photography. The total cost of the project including follow up monitoring was \$1 million.

2017 Beach Restoration Project

This project was conducted in 2017-18 to restore the primary dune after the effects of Hurricane Irma. Sand was scraped from the adjacent low-tide beach and used to rebuild the primary dune. The project was conducted in two phases and work was performed by RE Goodson Construction. Phase 1 (October 10-November 1, 2017) was completed under an



emergency permit and rebuilt the primary dune along 7,010 feet of beach, primarily along the Turtle Point and Ocean Course golf courses. Phase 2 (December 11, 2017-January 11, 2018) was completed under an individual OCRM permit following the same guidelines as Phase 1. The second phase restored the primary dune along 8,700 feet of beach shoreline. The total cost of this project was \$176,552.50 (Phase 1 - \$112,119, Phase 2 - \$64,433.50).

Baseline and Setback Lines

The South Carolina Office of Coastal Resource Management as required in the 1990 Beach Management Act establishes baseline and setback lines. No new development is allowed seaward of the setback line and existing structures located in these areas typically cannot be rebuilt if destroyed. The baseline is set at the “crest of the primary dune” for most areas. Setback lines are drawn 20 feet landward of the baseline for stable and accreting beaches. In erosional areas, the setback line is located landward of the baseline a distance equal to 40 times the annual long term erosion rate.

The baseline and setback lines for Kiawah Island were created in July 1991 and must be revised every 8-10 years. Kiawah’s lines were revised in September 1999 and again in October 2009. At this time, there are no homes or structures seaward of the setback line.

Salt Marsh Preservation

One of Kiawah’s largest natural resources is its salt marsh. Approximately 34 percent of Kiawah consists of marshland. Just like the beach, the salt marsh serves several important functions. Not only does the salt marsh furnish wildlife habitat, natural beauty and recreation opportunities but it also provides critical protection from erosion by reducing wave action. Kiawah has a significant amount of residential development along the salt marsh, primarily on the eastern and northern parts of the Island. Rising sea levels will likely have a negative impact on the salt marsh, which may reduce its effectiveness at protecting Kiawah’s highlands. The loss of critical salt marsh would have significant impacts on undeveloped portions of the island.

Critical Habitat Areas

In October 2009, Town Council designated both ends of Kiawah’s beach as critical habitat. The critical habitat designation prohibits pets from entering these areas at any time. Both areas provide vital habitat for a variety of shorebirds, including: piping plovers, Wilson’s plovers, American oystercatchers, least terns, Black skimmers, and red knots. An interactive map of these areas, including all beach pet restrictions, can be found on the following web page: <http://www.wildlifeatkiawah.com/dogleash.html>.



Maritime Forest Preservation

The extensive maritime forest and understory serve to enhance Kiawah's natural beauty and shelter a diversity of wildlife. As Island development progresses, careful attention and planning must be given to preserving and maintaining maritime forest, understory, and the quality of the Island's lakes and ponds. Data obtained from wildlife research and monitoring efforts should be used to help plan future developments to minimize impacts to native wildlife species.

Groundwater & Saltwater Intrusion

The health and viability of Kiawah's maritime forest and other ecosystems depends on the Island's groundwater. The freshwater lens of groundwater floats above the denser saltwater and could be impacted by rising sea levels and more frequent storm surge events. This would increase the opportunity for salt water intrusion that would destroy trees and shrubs and other plant life, resulting in habitat loss. Examples of this can be found in the Preserve, where the fresh water lens extends to the edge of the island.

Invasive Plant Control

Invasive exotic plants species can cause considerable damage to native ecosystems. On Kiawah Island, the Chinese Tallow Tree has emerged as a significant threat to freshwater wetland areas as well as other habitat types. The Town of Kiawah Island began a Tallow Tree Control Program in 2013. A contractor was hired to kill Tallow Trees in specific areas using herbicides. During 2013, 130 acres as well as all leisure trail and road right-of-ways were treated and an additional 240 acres were treated in 2014. Follow up treatments will be necessary in the future to prevent Tallow Trees from recolonizing these areas.



Wildlife Management on Kiawah Island

An extensive environmental inventory of Kiawah Island was conducted in 1975. This study examined all portions of Kiawah, "pre-development," and provides good baseline documentation for use in tracking changes as a result of development. Since 1990, there has been a committee of citizens and experts that has been at the forefront of managing and surveying the island's wildlife species. From 1990-1994, the Wildlife and Fisheries Committee had responsibility. In 1994, this responsibility was taken over by the Town's Wildlife Committee, renamed in 2003 to the Environmental Committee.



In September 2000, the Town hired a full-time wildlife biologist to oversee all wildlife management and research activities on the island. In addition, an assistant wildlife biologist position was created and filled in August 2008 to help with and expand existing wildlife research and monitoring efforts.

Surveys of wildlife abundance have been conducted since 1990, although most surveys were initiated in 1996. The Town, with support from the Kiawah Conservancy, has conducted five (5) major wildlife research projects to better understand the island's native wildlife species.

Wildlife Research on Kiawah

Deer Ecology Study (1996-1998)

This study was conducted as part of a Master of Science (MS) project at the University of Georgia (UGA). James D. Jordan working under Dr. Robert J. Warren at UGA conducted the project. The project was designed mainly to provide a baseline ecological assessment of deer and bobcat populations on the island.

Results and recommendations

- Deer are very abundant on Kiawah Island (100 deer per square mile)
- Deer-vehicle collision rates are high on Kiawah Island (50 or more per year)
- Bobcats serve as the primary natural predator on deer
- Bobcats are more abundant in undeveloped areas of Kiawah



Fertility Control Study (1999-2002)

This study was conducted by James D. Jordan working as a consultant for the Town of Kiawah Island, with support from Dr. Robert J. Warren at UGA. The project was designed to test the efficacy of a fertility control drug (prostaglandin) in controlling deer numbers within the central portion of Kiawah Island.

Results and recommendations

- Fertility control was effective initially and reduced fawn numbers by an average of 50% each year compared to the control area
- Fertility control is not feasible long term because deer quickly learn to avoid being treated



- Fertility control was not necessary based on increasing bobcat predation rates on deer fawns which provided a better, more natural control of rising deer numbers
- Future research should focus on bobcats and their role in controlling deer numbers

Bobcat Ecology Study (2000-2001)

This study was conducted as part of a Master of Science (MS) project at the University of Georgia (UGA). The project was conducted by John C. Griffin working under Dr. Robert J. Warren at UGA and James D. Jordan (Town of Kiawah Island biologist). The project was designed mainly to provide a more in depth look at the bobcat population on the island. Twelve bobcats were captured and fitted with very high frequency collars and tracked for 1 year to determine home range size and general habitat requirements.



Results and recommendations

- Bobcats in developed areas exhibited greater movements and higher mortality rates than bobcats in less developed areas
- Bobcats in developed areas had home ranges that were almost twice the size of bobcats in less developed areas
- Bobcats feed primarily on rodents but deer are an important component of their diet
- Future research should look at predation rates on deer fawns

Predator-Prey Ecology Study (2002-2005)

This study was conducted as part of a Doctorate project at the University of Georgia (UGA). The project was conducted by Shane B. Roberts working under Dr. Robert J. Warren at UGA and James D. Jordan (Town of Kiawah Island biologist). The project was designed to determine predation rates on deer fawns (2002-2005) and to replicate the 2000 Bobcat Ecology Study with the addition of gray foxes (2004-2005). A total of 124 fawns were fitted with very high frequency collars and monitored between 2002 and 2005. In addition, 16 bobcats and 5 gray foxes were fitted with very high frequency collars and monitored for 1 year.

Results and recommendations

- Bobcats are the most important predator of deer fawns on Kiawah, responsible for killing 70 of 124 fawns monitored during the study (56% predation rate)
- Bobcat population has low mortality rate



- Bobcat reproduction rate is high
- Gray fox population has a high mortality rate (40%)
- Future research should focus on maintaining bobcat numbers



Bobcat GPS Study (2007-2015)

Primarily the Town's wildlife staff conducted this study, with support from the Kiawah Conservancy. The project was designed primarily to determine fine-scale habitat use by bobcats on Kiawah using GPS collars. These collars provide much more accurate locations and allow Town biologists to collect many more locations than conventional very high frequency studies. A total of 64 bobcats (5 in 2007, 8 in 2008, 10 in 2009, 6 in 2010, 8 in 2011, 9 in 2012, 6 in 2013, 6 in 2014, and 6 in 2015) have been captured and fitted with GPS collars during this project. More than 75,000 individual locations have been obtained during this study. Data was also used to prepare a detailed Bobcat Management Plan for the island, which includes the designation of Important Bobcat Areas (IBA) and an action plan to protect and enhance these areas. This document was created in 2008 and updated in 2011 and 2014. The current version can be downloaded here: <http://www.wildlifeatkiawah.com/linked/2014bobcatmanagementplan.pdf>

Results and recommendations

- Bobcats spend the majority of daylight hours in patches of thick cover and do not move very often
- Daytime cover is critical for bobcats and this cover consists primarily of dense scrub-shrub habitat found primarily in the secondary dunes and along marsh edges
- Denning cover is very important for bobcats and bobcats typically seek larger, more secluded patches of undeveloped cover for denning
- Bobcats move throughout developed portions of the island during nighttime hours in search of food and often use road buffers and corridors for travel

Wildlife Population Monitoring

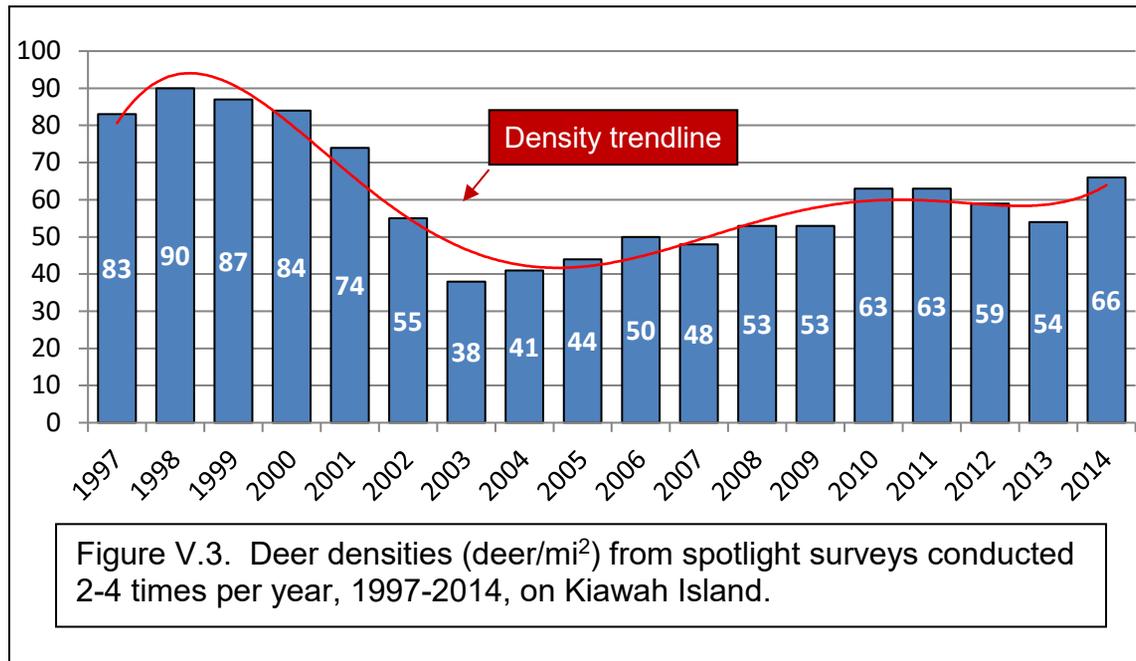


Town biologists conduct a variety of surveys to determine population size and health of many of the wildlife species that live on Kiawah Island. Many of these surveys are conducted in coordination with state and federal agencies as well as other island entities.

White-tailed Deer In 1975, deer were common on Kiawah Island although no detailed population estimates were obtained. Likely, deer were not as abundant pre-development since the habitat was not ideal. Activities associated with development, such as removal of trees and the creation of openings in the forest, allowed the growth of vegetation preferred by deer. This boosted the carrying capacity of the Island (i.e., the number of deer) that the Island could support. In addition, fertilization and irrigation further increased the quality of the food sources available to deer. The current deer population estimate on Kiawah is 500.

Spotlight surveys were used beginning in 1990 to track changes in abundance of deer on Kiawah. Initial surveys estimated a deer population of 100/square mile. Island residents and volunteers conducted surveys until 1997, when the Town and UGA initiated their first wildlife project. Deer numbers were still stable at 100/square mile at this time, but research showed that deer-vehicle collisions were at very high levels (50 annually). In 1999, the Town initiated a 4-year study to investigate the efficacy of a fertility control drug in reducing deer numbers on the Island. The study was the first of its kind in the nation. It was discontinued in 2002 when the deer population and deer-vehicle incidents had been reduced to acceptable levels. It was concluded that the reduction in deer abundance (Figure V.3) occurred due to the combined effect of fertility control and natural predation by bobcats and alligators.





Bobcats

Bobcats were estimated to be “fairly common” in the 1975 study. The onset of development likely had a similar effect on bobcat numbers as it did on deer numbers, although in a delayed fashion. The creation of openings within the existing forest increased the amount of cover and food available for small mammals such as rabbits and rodents. As rabbit, rodent and deer populations increased, bobcat numbers likely increased as well to take advantage of these readily available food sources.

Bobcats play a vital role on Kiawah Island in helping to maintain the current deer population size. A Town/UGA study conducted during 2002-2005 determined that bobcats are capable of killing more than 50% of fawns produced in a given year. This reduces the number of deer that are added to the population each year and allows the island deer herd to remain stable. It is clear that bobcats are the primary reason why deer numbers continue to remain relatively low on Kiawah.



Bobcats typically do not respond well to development and are often pushed out of these types of areas. Kiawah's bobcats are unique in that they have adapted quite well to development and are commonly seen throughout the island. This is due mainly to the large amount of cover that is still presently available on Kiawah, but is typically the limiting factor in other developed communities. Studies have shown that bobcats utilize all parts of Kiawah, but that they are more abundant on the less-developed eastern end of the island. Since bobcats in more developed areas have to travel further in order to find the food and cover that they need to survive, these areas cannot support as many bobcats. Since 2007, the Town, with support from the Kiawah Conservancy, has been conducting a Bobcat GPS study to provide more detailed data to aid in the preservation and protection of the island's bobcat population. Town biologists have also developed a detailed Bobcat Management Plan for the island.

Gray Foxes

The 1975 study described gray foxes as "uncommon". As with bobcats, the onset of development caused an increase in the number of prey species available to gray foxes, which likely led to an increase in fox numbers. Gray foxes play an important role in helping to control rodent populations. In recent years, the gray fox population has fluctuated dramatically. The fluctuation has primarily been caused by periodic outbreaks of canine distemper. Canine distemper is a common wildlife disease that is present in raccoon populations. It is nature's way of controlling overabundant raccoon populations. In most areas, raccoon populations rarely achieve the high numbers required for a distemper outbreak to occur, but outbreaks have taken place on Kiawah. Although distemper is less than 50% fatal to raccoons, it is almost 100% fatal to gray foxes. Gray fox numbers are currently very low on Kiawah.



Red Foxes

The 1975 study did not find any red foxes on Kiawah Island. The only confirmed red fox on Kiawah Island was captured during bobcat trapping efforts in January 2010. It is possible that red fox numbers may increase in the future and since they are not native to South Carolina it will be important to monitor any population increase and any resultant effects on our native wildlife.



Coyotes



The 1975 study did not find any coyotes on Kiawah Island. The first coyote confirmed in the vicinity of Kiawah Island was on January 9, 2008. This coyote was hit and killed by a car on the exterior Kiawah Island Parkway near Cassique. Coyote numbers have increased in recent years, peaking in 2013. Currently, numbers have stabilized and it is estimated there are 6-8 coyotes on the island. GPS collars have been placed on 2 coyotes (an adult female in 2013 and an adult male in 2014). Data from these 2 animals indicates that coyotes spend most their time in undeveloped portions of the island. There have been no negative encounters between coyotes and either humans or pets on Kiawah. It is important to continue to monitor coyote numbers, habitat use, and any effects on endemic wildlife species.

Raccoons

The 1975 study categorized raccoons as “abundant.” Raccoons are very adaptable animals and will live in very close proximity to people. They will readily consume trash, carrion, dog food, birdseed, and almost anything else they can find. Raccoon populations can quickly become overabundant in suburban areas since they do not have any natural predators. Overabundant raccoon populations can be a nuisance as they will readily enter homes, garages and attics in search of food or denning sites and, in doing so, can cause substantial damage to structures. They can also be very detrimental to loggerhead sea turtle nests and beachfront nesting birds. Nature’s way of controlling raccoons is canine distemper. The raccoon population on Kiawah has undergone fluctuations over the last few years, tied to distemper outbreaks, but is currently very high.

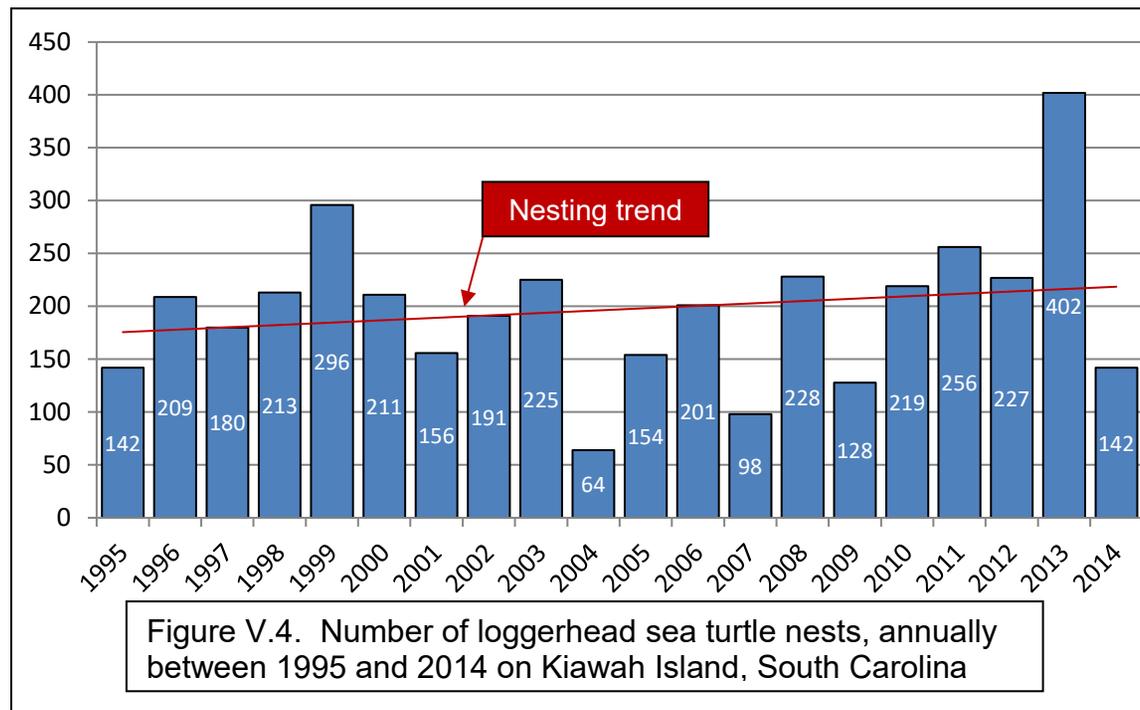
Loggerhead Sea Turtles

A program to protect the nests of loggerhead turtles on the beach of Kiawah Island has been in operation since 1973. In the early years, support came from the Kiawah Island Community Association and the Island’s developers, but since 1990 the Town of Kiawah Island has provided funding for the program. The program operates under a permit from the South Carolina Department of Natural Resources (SCDNR); all activities strictly conform to the guidelines set forth by that agency. The program is carried out entirely by volunteers from the community whose numbers have increased each year; approximately 150 property owners and regular visitors participated during 2014. The mission of the Turtle Patrol is



fourfold: protection of the rookery, maintenance of records of activity, education of tourists and residents and the conduct of occasional research projects.

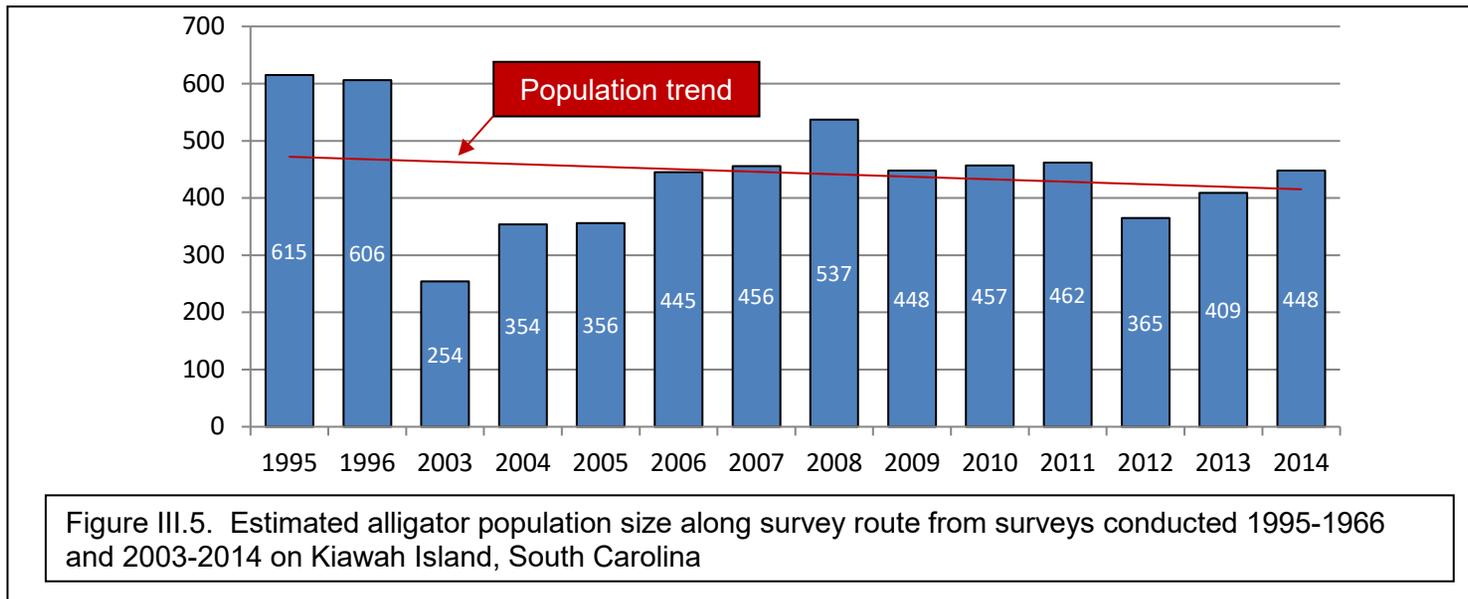
The activities related to protection of the rookery occur during the nesting phase (mid-May to mid-August) when the adult female turtles come ashore to lay nests along the edge of the dunes and the hatching phase when, after an incubation period of 55 to 60 days, the new hatchlings emerge from the nests and make their way to the surf. During both phases, the Patrol's objective is to protect the eggs and the hatchlings from harm by predators and loss due to beach erosion during storms and spring high tides. To this end, nests laid seaward of the expected high tide line are relocated landward on the first morning after being laid. A protective screen is used in some areas to protect nests from predation by raccoons and foxes. Nesting totals for the last 20 years can be found in Figure III.4





American alligators

Kiawah Island is home to a very healthy population of American alligators. Alligators can be seen in almost all of the 183 brackish and freshwater ponds which are interspersed throughout the island. Alligator numbers have been monitored annually since 2003 by Town biologists in conjunction with KICA Lakes Department staff. In addition, surveys were conducted in 1995 and 1996 by Lakes Department staff and SCDNR. (Figure V.5) In January of 2015, the Kiawah Conservancy announced the undertaking of an Alligator Study. This study will provide critical information on how these reptiles continue to adapt to rapidly changing environments along the southeastern coastal plain.



Town biologists are also responsible for responding to and removing aggressive alligators from the island under the state’s Nuisance Alligator Program. These are alligators that have lost their fear of humans typically as a result of being fed by people. Biologists typically remove 2-4 alligators per year under this program.



Piping Plovers

Piping plovers are a federally endangered shorebird that uses Kiawah Island for feeding and resting during the fall, winter, and spring. Surveys have been conducted seasonally for plovers since 2006. These surveys were required as mitigation for the 2006 East End Beach Restoration Project and are also required as part the 2015 Beach Project. Piping plover numbers on Kiawah Island vary by season, peaking during the months of March and April as they migrate north to their breeding grounds.



Wilson's plovers



The Wilson's plover is listed as threatened in South Carolina and is declining in numbers because of coastal development, habitat destruction, and disturbance from beachgoers and their pets. Kiawah Island beaches are home to Wilson's plovers year-round but it is a particularly important area for nesting. For several years up to 2014, an independent researcher conducted research on Wilson's Plovers on the beaches around Charleston including Kiawah Island. He trapped plovers and placed a green flag (band) with a unique three-letter code on one leg. The coded flag allows the bird to be identified without it being captured again. The combination of banding and resighting data allows greater understanding of the habitat uses and needs, movements, and survivorship of Wilson's Plovers. In 2015, the Town continued this research and began flagging Wilson's Plovers at the west and east end of Kiawah Island. A priority should be placed on continued monitoring and banding efforts for Wilson's plovers in the future.

Red Knots

Red Knots were listed as a federally threatened species in 2014 based on a long-term population decline. Red knots have one of the longest migrations of any bird, traveling up to 9,300 miles from Tierra del Fuego in southern South America to its Arctic breeding grounds. Kiawah Island is an important stop-over site for large numbers of red knots during the spring so they can rest and refuel as they continue their journey north. Researchers have placed unique alpha-numeric flags on these birds to gather more information on migration patterns and survival. Town





Biologists conduct periodic surveys for red knots on the island and report flag combinations to aid in this research. Because of the importance of Kiawah Island to migrating and wintering red knots, SCDNR and USFWS began a capture and banding program in 2010.

Bird Banding

Capturing birds and banding them with a unique identifier gives biologists insight into the health and demographics of Kiawah’s bird population. Important information on the productivity, survivorship, and movements of many species can be attained through a banding program. The Town of Kiawah has initiated 4 major projects that use banding as the primary tool to study populations of different birds. These projects are discussed in detail below and additional banding information is available on the following web page: <http://www.wildlifeatkiawah.com/birdbanding.html>.

1. Fall Migration Banding

Banding is conducted each fall to monitor songbird populations during their migration. Kiawah Island provides important stop-over habitat that migrating birds rely on to rest and refuel before continuing their journey. During our pilot season in 2009, we banded at two sites - one on each end of the island (Captain Sam's Spit and Cougar Island). After evaluating our results, we decided that it would be more effective to concentrate our effort at Captain Sam's Spit, located on the west end of the island. Fall migration banding is currently conducted annually from August 15 to November 30. Between 20-25 mist nets are operated daily (weather permitting) beginning at sunrise and continuing for 5-6 hours. The table below provides detailed results from this effort.

	2009		2010	2011	2012	2013	2014	TOTAL
	Cougar	Captain Sam's						
# of Birds Banded	283	549	910	2263	4725	4529	5086	18345
# of Recaptures	27	85	157	289	885	1144	1312	3899
# of Species	39	41	54	66	89	82	78	115
Effort (net-hours)	258.0	537.0	1000.7	2409.8	7220.8	9566.6	11565.6	32558.5
Capture Rate (birds/100 net-hours)	120.2	118.1	106.6	105.9	77.7	59.3	55.3	68.3
# of Days	8	14	27	57	98	98	103	405



2. Winter Banding

Banding is conducted during the winter months to monitor wintering songbirds. A large population of Yellow-Rumped Warblers spends the winter on Kiawah Island which allows a unique opportunity to study many aspects of their wintering ecology. Winter banding is conducted annually at the west end of the island on Captain Sam's Spit. The nets are operated about twice a month from December to March. Data from this effort is presented in the table below.

	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	TOTAL
# of Birds Banded	424	179	212	353	340	263	1771
# of Recaptures	32	68	65	195	141	83	584
# of Species	15	11	18	17	16	20	34
Effort (net-hours)	115.3	210.1	461.5	781.8	510.8	305.6	2385.1
Capture Rate (birds/100 net-hours)	395.7	117.6	60.0	70.1	91.4	113.2	98.7
# of Days	3	6	9	7	5	5	35

3. Marsh Sparrow Banding

Three species of coastal "marsh" sparrows' winter in the salt marshes of Kiawah Island: Seaside Sparrow, Nelson's Sparrow, and Saltmarsh Sparrow. This group is considered species of high conservation concern due to their specialization of habitat that is considered spatially restricted. This group may be particularly vulnerable to sea-level rise and loss of saltmarsh habitat along their wintering grounds along the southeast United States. Sparrows are captured in mist nets at 10-12 sites around the saltmarshes of Kiawah Island. The nets are deployed to coincide with high tide which concentrates the sparrows into smaller patches of habitat. Each sparrow is identified to species, banded, and a series of morphological measurements are taken. The project began during the winter of 2011-2012 with the objectives of determining habitat requirements, site fidelity, relative abundance, and distribution of the species. The table below provides the number of birds banded each year by species (numbers in parenthesis indicate recaptures of previously banded birds).

	2011-2012	2012-2013	2013-2014	2014-2015	TOTAL
Seaside Sparrow	106	245 (107)	109 (118)	99 (111)	559 (336)
Nelson's Sparrow	115	39 (13)	10 (5)	50 (21)	214 (39)
Saltmarsh Sparrow	64 (1)	24 (28)	28 (10)	46 (30)	162 (69)
Other Species	23	15 (1)	9 (1)	24 (1)	71 (3)
TOTAL	308 (1)	323 (149)	156 (134)	219 (163)	1006 (447)
# of Sessions	21	23	16	24	84



4. Painted Bunting Banding

In 2011, we started intensely trapping and banding Painted Buntings for a long-term project studying their movements, distribution, and site fidelity. The eastern population of Painted Buntings has shown steady, long-term declines over the past several decades. Much of these declines can be attributed to the loss of coastal habitat for development. Painted Buntings readily come to feeders offering white millet and the birds are easily captured in a specially designed cage with a feeder placed inside. Banding occurs from May-August at Kiawah Island resident's homes. The table below provides the number of birds banded each year by species (numbers in parenthesis indicate recaptures of previously banded birds).



	2011	2012	2013	2014	TOTAL
Painted Bunting	122 (22)	156 (52)	20 (23)	110 (73)	408 (170)
Other Species	115 (1)	71 (1)	24 (1)	47 (1)	257 (4)
TOTAL	237 (23)	227 (53)	44 (24)	157 (74)	665 (174)
# of Sessions	19	32	8	20	79

Breeding Bird Point Counts

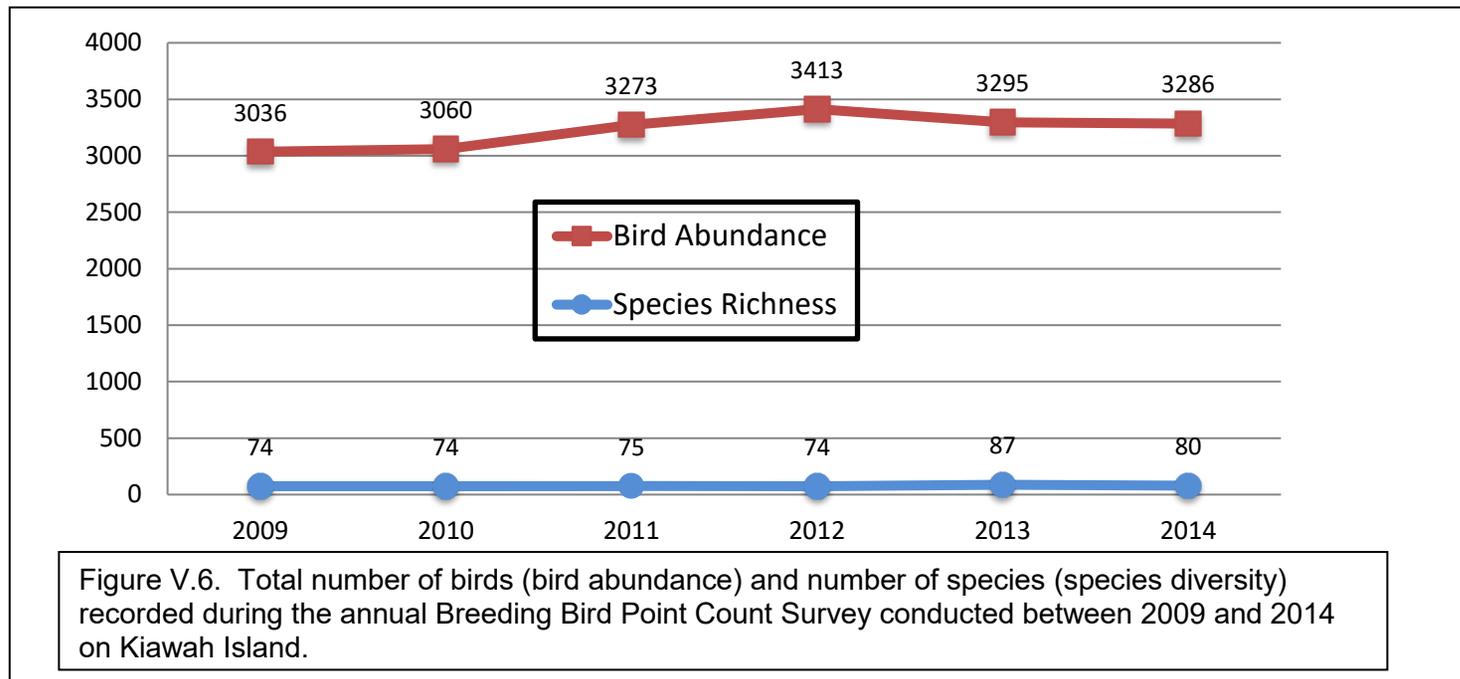
Point count surveys are conducted annually during late spring (end of May) to inventory and monitor breeding birds on Kiawah Island. The points are located across the island from Captain Sam's Spit to Little Bear Island in all major upland cover types. For logistical convenience, a majority of the points are located on secondary and tertiary roads and trails; however in areas where roads or trails are not present, points are located off-road. The minimum distance between point-count stations is 250 meters in order to reduce the possibility of recording the same bird twice. All individuals heard or

seen within a 5-minute period are recorded. Birds flying over the area are recorded separately from all other birds. The point count survey is divided into 9 separate routes with each route consisting of 15-34 points. One route is conducted per day during the count period with each route beginning at sunrise and ending no later than 11:00am. Each route is conducted in the same order and during the same time period each year. Figure V.6 provides the results of this survey.

provide an artificial nesting cavity for bluebirds and other cavity nesting birds. The boxes are primarily occupied by Eastern Bluebirds and Carolina Chickadees, although Tufted Titmice and Carolina Wrens will occasionally use them as well. Approximately 216 boxes are monitored once per week from March through August by the volunteers. Data collected at the nest includes: species, date, number of eggs laid, number of young hatched, and number of young fledged. Data



resulting from this program is used to track the status and trends in the reproductive biology of the birds using the nest boxes. During 2013, these nest boxes produced 459 Eastern Bluebird fledglings, 234 Carolina Chickadees, and 8 Carolina Wrens. Figure V.7 below depicts this information.



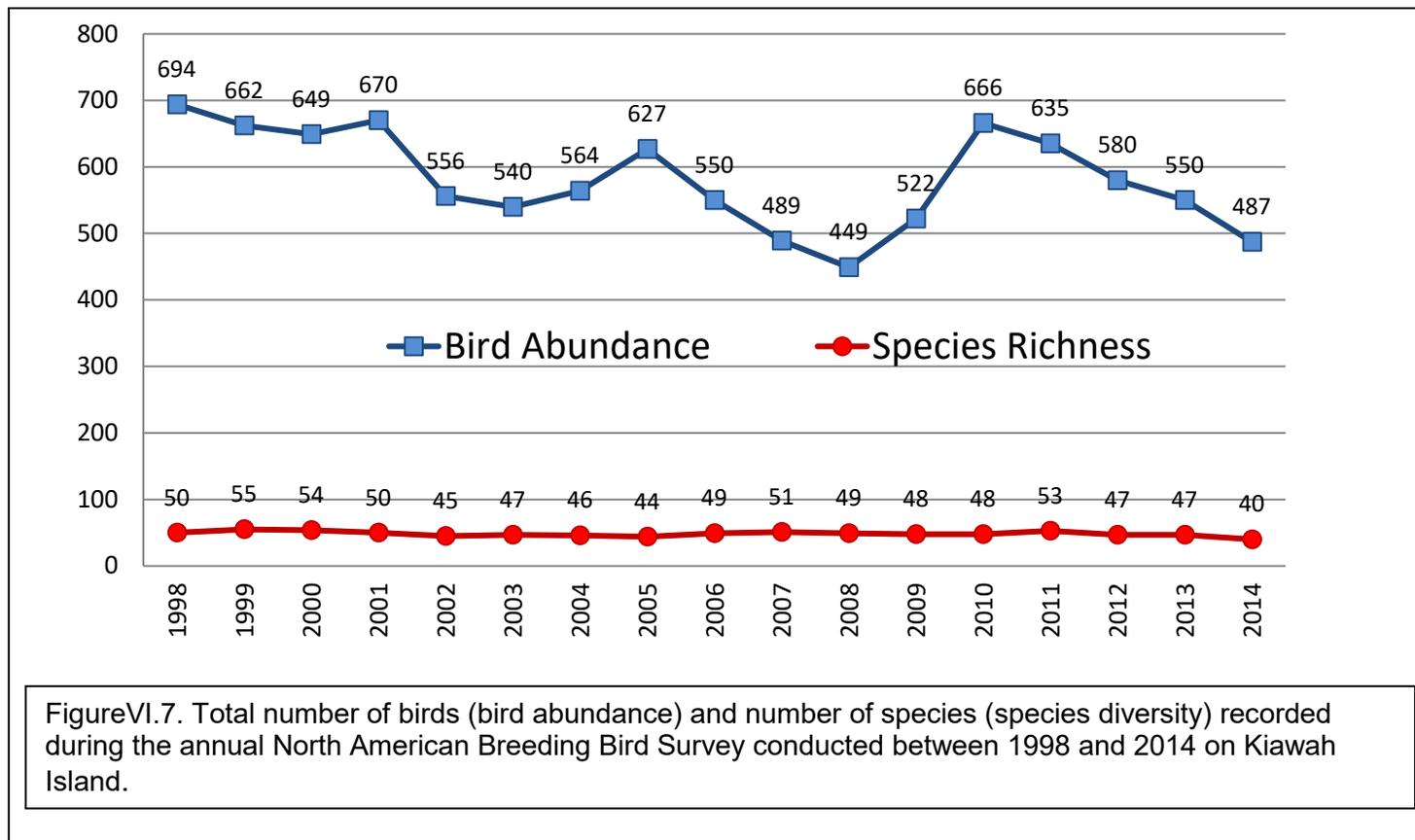
North American Breeding Bird Survey

The annual North American Breeding Bird Survey headed up by the United States Geological Survey (USGS) has been conducted on Kiawah Island since 1998. The survey consists of 50 stops during which all birds seen or heard during a 3-minute period are recorded. Data from this survey is submitted to USGS and is used to monitor trends and changes in bird populations at a landscape level. Results are available in Figure III.7 on the next page.



Nest Box Monitoring Program

In 2011, the Town took over managing the Kiawah Island Nest Box Monitoring Program from the Kiawah Island Naturalist Group who had been managing the program since its inception in 1997. A dedicated group of volunteers monitors a series of nest boxes on the grounds all five golf courses, Night Heron Park, the Sanctuary, and the Preserve. The boxes





Beach bird nest monitoring

Least terns, Wilson's plovers, American oystercatchers, and Black skimmers typically nest along Kiawah's beachfront. Town Biologists monitoring nesting colonies of birds and initiate nest monitoring and protection efforts as necessary.

Least terns, a threatened species in South Carolina, nested regularly on Kiawah Island from the 1970's through the early 1990's but then disappeared. In 2006, least terns returned to Kiawah Island with a small nesting colony on the east end of the island. Unfortunately the colony failed when all nests were overwashed but they have continued to nest with varying degrees of success each year since 2006.

Nesting areas are closed to all traffic (people and dogs) during the nesting season (April-September). It is vitally important that these birds are given the best possible chance to successfully raise young.

Bald Eagle Nesting

An eagle nest was initiated on Kiawah Island in 2000 and successfully produced eaglets during 2002 and 2003. This was the first eagle nest recorded on Kiawah in over 20 years. This nest was destroyed during a hurricane in 2004 and subsequently relocated to a group of hammock islands located in the marsh near the Cassique golf course. The nest is no longer within the municipal limits of the Town of Kiawah Island. During 2014-2015, there were 2 active eagle nests on Kiawah Island. One nest was located adjacent to the Kiawah Island Parkway near the first Fire Station and the second nest was located on a hammock island north of Willet Pond.

Education and Public Outreach

TOKI Wildlife Website

A new standalone wildlife website was created by Town biologists in August 2009 (www.wildlifeatkiawah.com). The website contains a wealth of information on Kiawah's wildlife inhabitants, including videos and slideshows. There are also interactive maps showing all of the GPS locations for bobcats between 2009 and 2015, the best places to view wildlife, beach bird nesting areas, dog-leash restrictions, and much more. Use of the website has remained high since inception and averages approximately 2,500 visits per month. Visits to the site are highest during the summer months.

The table below shows the top 10 pages visited during June and July 2014 and the number of visits during that same time period



Rank	Page Name	Visits
1	Home	2,990
2	American Alligator	1,428
3	Where to see wildlife	1,050
4	Fish	767
5	Meet our Wildlife	717
6	Fishing Location Map	577
7	2014 Bobcats	565
8	Loggerhead Turtles	561
9	Pet Restrictions Map	487
10	Bobcat GPS Research	442

Bird Banding Blog

A blog (<http://kiawahislandbanding.blogspot.com>) was created in 2012 to provide daily updates on bird banding activities on Kiawah Island. This is a popular site and, as of April 2015, has been visited 53,123 times.

Conservation on Kiawah Island

Kiawah Conservancy

The Kiawah Conservancy is a chartered non-profit, Section 501(c)(3), grassroots organization that was established by Island residents in 1997, to preserve the natural habitat of Kiawah Island. The Conservancy has the capability to be a holder of land and conservation easements, and as such, it acts as a land trust. In this regard, the Kiawah Conservancy is a member of the Land Trust Alliance and has adopted and subscribes to the Land Trust Standards and Practices as a guide for its organization and operations. Since its inception in 1997, the Kiawah Conservancy has preserved 28 properties that total over 345 acres of pristine barrier island habitat. The Kiawah Conservancy benefits the community by enhancing the quality of life of residents and wildlife alike; fostering a long-term vision for land and habitat protection; providing a credible voice for land conservation on Kiawah Island; encouraging the preservation of natural habitat for native and migrating wildlife species and finally by making a positive impact on the socio-economic aspects of life for everyone in the area.



Publications

Brochures

Up until 2012, The Town of Kiawah Island Environmental Committee produced 12 different wildlife brochures that were made available free of charge to the public at the Nature Center at Night Heron Park and at the Town Hall Visitors Center. The list of brochures is as follows: American alligator, Bird Life, Birds of Prey, Bobcat, Crabs, Lakes and Ponds, Loggerhead turtles, other mammals, Seashore and river, Shorebirds, Snakes, and White-tailed deer. The brochures are no longer printed for distribution but are available for download on the TOKI wildlife website. <http://www.wildlifeatkiawah.com/brochures.html>

The Nature of Kiawah Field Guide

This booklet was created in 2012 to provide a single publication provided all of the information contained in the brochures mentioned above, as well as a variety of additional information and details on island wildlife. This guide is available at Town Hall and at the Nature Center at Night Heron Park. It can also be downloaded from the TOKI wildlife website. <http://www.wildlifeatkiawah.com/linked/naturekiawah.pdf>

Parks and Recreation

Kiawah Island has more than ten miles of beach, a 20 mile leisure trail system maintained by KICA, two miles maintained by the Town, five championship golf courses, an extensive open space and trail system, and many parks. The beaches, parks, golf courses and open spaces are key attractions for this community. They meet important community needs for recreation and preserve natural areas.

Kiawah has an extensive pond system (owned and maintained by KICA) which is an important component of the Island's ecology. The pond system includes 117 ponds that encompass approximately 365 acres of water surface. These water bodies range from nearly fresh (>0.5 ppt) in the center of the Island to close to sea strength (30 ppt) on the edges of the Island. The system supports at least 30 species of fish, 3 species of bivalves, 6 species of crustaceans, 4 species of reptiles, and a host of smaller invertebrates. It also supports numerous avian species and is an important asset for migratory waterfowl.

Since 1994, there have been significant park and recreation facility additions. A private golf course and clubhouse (the Kiawah Island Club) was built at Bass Pond. In The Preserve at Cinder Creek, a park with trails, community pavilion, boat



and crabbing docks, canoe storage and observation deck were added. In addition, a boat ramp with boat trailer parking was added at Eagle Point on the eastern end of The Preserve. Community piers were added at Egret Pond, Falcon Point

Road and Salt Cedar Lane. A park with amenities was recently added at Ocean Park (Cougar Island). Also, most of Little Bear Island (145 acres of the 193 acres) is accessible for passive recreation and is protected by a conservation easement.

The table below lists the existing park sites on Kiawah Island. Park sites are those which provide for a variety of passive recreational activities, from nature observation to field sports. The numbers coincide with the numbers shown on Map V.1 entitled, “Kiawah Island Parks, Trails, and Open Space System.”

Beach (1)	Marsh View Tower Overlook (15)
Beachwalker Park (2)	Mingo Point (16)
Canvasback Minipark (3)	Night Heron Park (17)
Ocean Park (4)	Ocean Course Golf (18)
Cougar Point Golf (5)	Ocean Marsh Road Beach Parking (19)
East Beach Conference Center (6)	Ocean Oaks (Beach Parking Lot) (21)
East Beach Tennis (7)	Osprey Point Golf (22)
Falcon Point (8)	Property Owner’s Recreation Center (23)
Glossy Ibis Minipark (9)	Rhett’s Bluff (24)
Ibis Pond (10)	The Preserve (25)
Beach Club (private) (11)	Turtle Point Golf (26)
Bass Pond (12)	West Beach Tennis (27)
Little Bear Island (13)	Willet Pond (28)
Marsh Island Park (14)	River Course Golf – (Private) (29)

Amenities available at the recreational sites listed above include benches, bike rental, deck areas, boat docks, picnic areas, pools, river access, and fitness and leisure trails.



The management of dock placement is an important issue for the Town. The Town adopted the Dock Key Locations Ordinance 2003-5. The purpose of this ordinance is to control location and installation of all docks, floating and fixed so as to prevent their uncontrolled proliferation along the Island's river and stream frontage. The ordinance includes dock design criteria as well as tables and a map depicting where on the Island docks are permissible, by type.

Needs Assessments:

- As key natural resources of the Island, the beach, dunes, and salt marsh must be maintained and protected; and
- Saltwater intrusion from rising sea levels and flooding may impact the freshwater aquifer, which is critical to Kiawah's ecosystem; and
- As the Town is developed, an increasing amount of the Island's natural habitat is taken away; and
- Development also removes the connectivity between natural habitats, putting stress on the Island's wildlife to find alternate routes to move around the Island; and
- Continued monitoring and research of native wildlife species and their response to development will be vital to protecting these species; and
- Research and monitoring data should be taken into account when planning new developments or other projects; and
- Encourage property owners and island entities to eliminate existing invasive plant species and discourage future use of these plants; and
- Stormwater runoff exacerbates flooding problems and increases the opportunity for pollution in marshes, ponds and other natural environments
- As one of the Island's key natural resources, the beach and dunes must be maintained and protected.



Goals

The following goals related to the Island's natural resources shall be considered when evaluating proposals for change:

- 1. Complete the Island's development in a way that maintains the Island's environmental integrity and natural beauty and is consistent with the Vision of the Town.**
- 2. Develop and maintain an environmentally sustainable system of parks and open spaces which provide access to the beach and river; preserves, protects and enhances natural resources; and meets the diverse recreational needs of the Town's population.**
- 3. Maintain the existing quality of the natural resources on Kiawah Island, as well as the waters and marine environment surrounding the Island.**
- 4. Maintain and expand public education and outreach programs.**
- 5. Formalize a marsh management plan that explores various methods of protection for the Island's marsh and manages the interface between highlands and critical area that is vital to a healthy salt marsh.**
- 6. Coordinate with public and private organizations on the impacts to or preservation of marsh front properties.**



COMMUNITY FACILITIES ELEMENT

The Community Facilities Element considers water supply, treatment, and distribution; sewage system and wastewater treatment; solid waste collection and disposal; fire protection; public safety; emergency medical services; general government facilities; education facilities; and libraries and other community facilities.

Background

In most communities, a city or town government is the principal provider of community facilities and services. The Town of Kiawah Island is unique because most community services and facilities are provided and maintained by private entities. The Town of Kiawah Island is responsible for planning and zoning, emergency preparation, disaster recovery, code enforcement, public safety, garbage collection, and preservation of the beach. The Town has chosen to provide these services directly or through private contracts.



The Kiawah Island Community Association (KICA) owns the majority of the Island's infrastructure including roads, bridges, culverts, lagoons, and bike trails behind the main gate. Moreover, KICA owns and maintains approximately 50 miles of roads, 40 miles of drainage pipes, 20 miles of leisure trails, 25 community owned boardwalks, and 7 bridges. The association conducts an annual reserve study that estimates the replacement costs associated with these assets is approximately \$37 million.

Municipal Center

The Kiawah Island Municipal Center is located on Beachwalker Drive. The building was completed in 1997. It includes offices for the Town, KICA and a satellite office of the Charleston Convention and Visitor's Bureau, Council Chambers and



municipal court. Subsequent additions have included a Town garage and completion of additional office and storage space on the second floors of both wings.

Town Hall occupies one wing of the Kiawah Island Municipal Center, providing workspace for the Town's employees. The Council Chambers are used for Council meetings, municipal court proceedings, public meetings, and hearings and public interest meetings such as Census training. KICA occupies the second wing of the Municipal Center.

Office space is provided for the Administration Department and Commercial Pass Office. Since the Town is faced with a growing community, increased services and limited office space, and parking, the Town's Council has begun investigating municipal center expansion options. After trying to work with the confines of the existing building and parking lot, it was determined that onsite building modifications would be limited and would exacerbate the parking problem. Council then began a search for property both on and off the island and determined resources on the island proved to be too expensive. Council identified a 27.7-acre parcel on Betsy Kerrison Parkway that was purchased for \$2 million.

The Town's goal is to have the new municipal center completed and ready for occupancy in 2017. The Town's vision for the new Municipal Center and site is to create a "Gateway" to the Town of Kiawah Island. The facility will feature a high-quality entrance commensurate with The Sanctuary Hotel, and River Course Clubhouse. The facility will house the Town's current departments and allow for future growth. It will include Council Chambers, Municipal Court, Visitors Bureau space, public meeting space and customer service areas for the public.

The Charleston Convention and Visitor's Bureau operates a small, fully functional, satellite office in the lobby area of the Municipal Center. Kiawah Island's Visitor's Center offers information on regional and local area lodging, shopping, dining and special events.

Community Facilities and Services

The Town's objective regarding community facilities is to ensure that adequate facilities and services are provided to the community regardless of the entity providing the service.

The following services are available in the Town of Kiawah Island:



Water and Wastewater Facilities

Water and wastewater services are provided by the Kiawah Island Utility, Inc. (KIU) a private firm.

As of July, 2015, Kiawah Island Utility, Inc. (KIU) has 4,023 water customers. There is currently a total of 4.5 million gallons (mg) above ground storage on the Island; 3.5 at the Sora Rail facility and 1 mg at the Governors Drive facility.

KIU operates two Aquifer Storage and Recovery (ASR) systems. The first one, located at the main facility on Sora Rail Road was permitted in 2002. The second one, located on Governors Drive was permitted in 2003.

ASR is used for peak shaving and emergency situations by allowing KIU to store water in an underground aquifer during the non-peak season for use during emergencies and heavy demand periods.

A 100 HP variable speed pump was installed at the Governors Drive pump station in 2012. This upgrade was included as a part of the secondary water line project. Once the secondary line is completed a second 100 HP pump will be installed at this facility as demands dictate.

KIU is aggressively working toward the installation of a water supply line to the Island that will tie in to the Down Island Pump Station on Governors Drive. Easement acquisitions are being finalized and awaiting the issuance of all permits in anticipation of beginning construction by end of 2015 with approval to operate the new line by spring 2016. The line is necessary to ensure a redundant supply of water to the Island and enhance water pressures on the eastern end of the Island. The current water supply is by way of a single sixteen-inch pipeline that was installed in 1978.

In 2014, KIU provided service to 7,315 customers (3,972 for water and 3,343 for sewer). KIU maintains 148 miles of transmission lines throughout the Town. KIU is able to treat 1.7 million gallons of wastewater per day. KIU provides its customers with award winning service and water and from 2008 to 2011 KIU won the South Carolina Department of Health & Environmental Control Facility Excellence Award.

Overall, wastewater facilities have been well-maintained, but the effects of rising sea levels and more frequent flooding events may cause issues. The Town should be prepared to coordinate mitigation and attenuation of increased surface and sub-surface water volumes as well as mitigation of saltwater intrusion to avoid compromising wastewater treatment processes.



Solid Waste Management

An Island-wide residential solid waste management system was implemented to provide uniform collection for the Island. There are various types of garbage service including:

- Curbside;
- Backdoor (once per week); and
- Saturday backdoor (twice per week during the summer season and once per week during the off-season).



Curbside recycling is available to all single-family homes, homeowner associations, and some villa communities. The Town also provides two public recycling centers located on Sora Rail Road and at the Municipal Center. In 2008 the Town began expanding its recycling program and received a \$40,000 grant from the South Carolina Department of Health and Environmental Control (DHEC). These funds were used to procure 35-gallon roll-out recycling carts and expand recycling to 10 boardwalk locations on the Kiawah Beach. The Town launched an “Island-wide Recycling Initiative” that includes educating residents and visitors about the availability of recycling on the Island. The Town has developed promotional literature including magnets, door hangers, trifold and plastic bags to help expand the recycling program and increase its efficacy. Since 2009 the recycling levels on the Island have increased by 25 tons or 10% in 2010, the Town was named as the winner of DHEC’s Recycle Guys Distinguished Municipal Recycling Program.



Yard debris pickup is available to single-family homes and to all unimproved lots in the residential zoning districts. The Town also has an overflow dumpster for household garbage located on Sora Rail Road. Quarterly white goods collections are offered each year. Two household hazardous waste collections are also offered each year. Collection for villas and condos is handled directly by the regimes’ homeowners’ associations. Commercial entities are responsible for their own collection service.



In July of 2012, the Town contracted with a private entity, known as Carolina Waste, for collections and disposal of residential solid waste, recycling and collection and disposal of yard debris. In addition the Town has signed a contract with a sister company for dumpster pickup for multifamily developments throughout the Island. The total expenses for 2014 amounted to approximately \$760,000.

Electric and Communication Utilities

The utilities on the Island are provided by a variety of private firms:

Berkeley Electric Cooperative (BEC) is the electricity supplier to the Island and has a franchise agreement with the Town of Kiawah Island. Beginning in 2008, BEC began replacement of its 20-year-old electric lines along the Kiawah Island Parkway with a nine-duct line to the front gate. BEC completed the replacement of the electric lines from the main gate to the substation on Kestrel Court in the fall of 2010. BEC has completed a number of major projects on and off the main Island. Some include:

- Kiawah Island regulator station rebuild – Completed;
- Replacement of circuits from the front gate to the regulator station – Completed;
- Ocean Park phases one through five – Completed;
- Ocean Park phases six and seven are currently under construction;
- Riverview at Kiawah line construction – Completed.

AT&T is the largest telephone provider on the Island for residential and commercial customers. There are other telephone providers on the Island as well.

Comcast Cable has a non-exclusive franchise agreement with the Town to provide cable and internet services on the Island. In June 2010, the Town approved a 3% franchise fee for cable and internet services with AT&T and Comcast Cable.

Cellular service is also available on the Island with strict guidelines for cell towers. The current service providers include AT&T, T-Mobile, Verizon and Sprint. Ultimately, cellular service within the Town has improved with the building of a number of disguised cellular antennas.



Public Safety and Security

The Town of Kiawah Island does not operate its own police or security force. The Charleston County Sheriff's Department provides law enforcement and investigative support for the Town of Kiawah Island. Additionally, the Town contracts with the Sheriff's Office for four off-duty deputies to provide supplementary coverage for law enforcement patrols, traffic control, and enforcement. The Town funds 75% of the Sheriff's deputy costs through the State Accommodations Tax Fund and 25% is funded from the Town's General Fund. The Kiawah Island Community Association (KICA) provides limited private security services for the area inside the main gate. The Kiawah Island Golf Resort also manages limited premise security for their properties.

The Town's Public Safety Committee has assessed that the combined coverage provided by these multiple entities is sufficient for the Island's needs. Kiawah Island has a very low crime rate with only minor offenses and traffic violations recorded.

Fire and Emergency Medical Service (EMS)

The Charleston County EMS Department is responsible for the provision of EMS throughout Charleston County, which includes the Town of Kiawah Island. The system responded to approximately 55,000 9-1-1 calls for service in 2014; in which approximately 130 incidents occurred in the Town. Services are provided with a fleet of more than 24 paramedic staffed ambulances and 12 paramedic staffed quick response vehicles – and over the next 12-months, the department will have an assigned operational workforce of over 200 EMS personnel. All response units feature Automatic Vehicle Location (AVL) equipment, a GPS-based system that allows the Charleston County Consolidated Dispatch Center to dispatch the closest available units to any incident. This equipment includes an integrated application for both navigation and routing.

The Charleston County EMS Department has been acknowledged as a leader in the provision of pre-hospital emergency care – and is a recipient of the South Carolina's EMS Award of Excellence and was recognized as the 2010 National EMS System of the Year.

The St. Johns Fire District provides fire protection to the Town of Kiawah Island. The Town has three residents serving on the St. Johns Fire District Commission. Two fire stations are located in the Town. The first, Station 4, was built in 1984 in the East Beach area and services all of Kiawah Island and the southern portion of Johns Island. The second fire station, Station 6, was built in 1997 at the East End of the Island. The service area for Station 6 is Kiawah Island. The total staffing of the two stations on Kiawah Island is 4 crewmembers per apparatus for a total of 12 crew members per day. The total



number of employees for a shift of operations in the St. Johns Fire District is 38 and one Battalion Chief. Additionally there are eight administrative officers who are qualified to respond.

In 2005, the District added a platform vehicle to Station 4 that reaches the new, multi-level Sanctuary Hotel and existing multi-story structures. Fire apparatus replacement like this one is accomplished through a replacement scheduling system that determines service life for front line equipment in general this equates to fifteen (15) years for pumpers and twenty (20) years for ladders/platforms.

Emergency Preparedness/Disaster Planning

The Town of Kiawah Island Emergency Preparedness Plan is updated on an annual basis and was updated in June 2015. The purpose of this plan is to keep residents and organizations on Kiawah Island informed of conditions which may present a threat to life and/or property and to ensure that all information, recommendations, and/or orders coming from national, state, or local authorities are passed on to all residents and organizations.

The Town uses several outlets to make sure information, especially concerning evacuation and re-entry, is communicated to property owners, visitors and commercial interests in a timely manner. The Town has a telephone notification system, the "Code Red" system, to contact property owners, guests and commercial interests in times of emergency. "CodeRed" is essentially a high-speed emergency and community notification system used by state and local government organizations to effectively alert their residents of potential threats. The Town also holds an annual meeting to inform property owners about the dangers of being on a barrier island during a hurricane and to suggest appropriate preparations to make in advance of hurricane season. The purpose of this meeting is also to educate property owners on general preparedness procedures in other types of disasters as well, including earthquakes, tsunamis, tornados, fires and floods. The Town's entire Emergency Preparedness Plan is described on the Town's website.

To handle recovery from a natural disaster, the Town has a pre-positioned debris removal contract that allows for the removal of vegetative, construction, animal and white goods debris from the right of ways of all streets on the Island. This contract also provides for damage assessment, debris reduction, barge transportation, temporary housing, satellite phone service and meals in a post disaster scenario.

The Town is an active participant in the Charleston County Emergency Operations Center. In 2007 the Town began utilizing a major component of the center- Web Emergency Operations, which allows the Town to communicate status updates,



request resources and distribute public information notices with County, fire, law enforcement, medical personnel and news media from a remote location should an evacuation occur.

In 2008 all Town Council members completed the mandatory National Incident Management System (NIMS) for elected officials, and Town staff completed the prescribed Incident Command Structure (ICS) courses to ensure compliance with the required NIMS program. Since 2008, the Town Council members as well as the Town's staff have completed annual Disaster Preparedness training.

CERT (The Community Emergency Response Team)

The Community Emergency Response Team Program educates people about disaster preparedness for hazards that may impact their area and trains them in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. Through this training, citizens can manage utilities and put out small fires; treat the three killers by opening airways, controlling bleeding, and treating for shock; provide basic medical aid, search for and rescue victims safely; and organize themselves and spontaneous volunteers to be effective. CERT members can assist others in their neighborhood or workplace following an event when professional responders are not immediately available to help. CERT members are also encouraged to support emergency response agencies by taking a more active role in emergency preparedness projects in their community. CERT is about readiness, people helping people, rescuer safety, and doing the greatest good for the greatest number. Ultimately, CERT is a positive and realistic approach to emergency and disaster situations where citizens will be initially on their own and their actions can make a difference.



Recreation

There are numerous recreational facilities owned by the Kiawah Island Golf Resort (KIGR) and the private membership club, Kiawah Island Club (KIC). The Resort (KIGR) owns and maintains five golf courses (one just off the Island), two tennis facilities, two pools, and three premium-dining facilities, plus a full complement of 5-star amenities at the Sanctuary Hotel. The Resort also owns and maintains the Night Heron Park. This 21-acre Park is a hub for concerts, special functions, and sporting events. The park is also open year-round and features basketball and volleyball courts, soccer fields, a playground, nature center, pool complex, and fitness trail complete with cardio and strength training stations. The Kiawah Island Club



(KIC) owns and maintains two golf courses with clubhouses (one of which is located off-Island), a beach club, a spa and a sports pavilion.

In The Preserve, a park with trails, community pavilion, boat and crabbing docks, canoe storage and observation deck were added. Community piers were also added at Egret Pond, Falcon Point Road and Salt Cedar Lane. These are all owned and maintained by KICA. A major park with amenities is a central feature of Ocean Park, the newest area of residential development by the Kiawah Partners. This 55-acre park is located near the Ocean Course Golf facilities.

Other recent improvements include the following:

- Improvement of the boat launch and floating docks at Rhett's Bluff (KICA).
- A boat launch at Mingo Point (KIGR).
- In 2013, KICA repaired five different boardwalks, which provide access to the beach. These include, Boardwalks 8B, 22, 27, 30, and 25.
- Construction of the KICA facility "The Sandcastle" in 1997, which includes a pool complex that was enlarged in 2000, exercise facilities and meeting and administrative spaces and rooms for special events. In 2005, extensive improvements were made to this facility, along with the addition of three new fitness classes in 2013.
- In June of 2013, KICA's Major Repairs and Replacements Department installed an extension to the current dock at Cinder Creek, which features a gentle ramp into the water for a safe and easy way to access Cinder Creek by canoe or kayak.



There are approximately 193 acres of park and recreational areas in the Town of Kiawah Island. Map III.1 (See Natural Resource Element), entitled "Kiawah Island Parks, Trails, and Open Space System", identifies the parks on Island by number.



Annexation

Municipalities in South Carolina can expand their boundaries (corporate limits) through annexation, a legal procedure by which land outside a city or town can become a part of the municipality to receive its benefits and city services. The South Carolina General Assembly has delegated this authority to municipalities. The Legislature sets out responsibilities and authority of municipalities, and annexation of contiguous property is permitted. The process to annex a specific parcel is fairly simple. There are a number of different incentives to annex a piece of property including, municipal services at discounted costs, access to the beach, golf and other recreational activities, Arts Council events, dining and residency in the prestigious Kiawah Island community. Since 1988, the Town of Kiawah Island has annexed a number of different properties previously on or off the Island. These include:

- In 1988 the Town of Kiawah Island annexed the main portion of Kiawah Island. This annexation incorporated approximately 2970 acres, which included the lands from the Kiawah River in the west to approximately Flyway Drive in the east;
- In 1989 the Town of Kiawah Island annexed the rest of the main portion of Kiawah Island. This annexation included the lands north of the Governors Drive as well as the western end of Cougar Island, now known as Ocean Park;
- In 2010 the Town annexed the newly constructed Roundabout;
- In 2013 the Town annexed Freshfields Village;
- And in 2014, the Town annexed approximately 27.7 acres on Johns Island, which will soon be home to the Town's new Municipal Center.

For more information on the annexation process, please refer to South Carolina Code of Laws Title #5.

Need Assessments:

- Cooperating and coordinating with all private and public organizations on the Island for the provision of services and facilities;
- Identify plans in place and encourage the development of public and private infrastructure plans to address the future impacts of rising sea levels and flooding events;
- Continuing cooperation of public safety service providers;
- Availability and access to facilities for the entire community, including physically handicapped residents and visitors;
- Cooperating with KICA, the Developers (KDP), and the Resort (KIGR) in achieving community goals; and
- Due to the relative affluence and high-profile nature of segments of the Island's population, there is a need for higher levels of security for residents, non-resident property owners and visitors.



Goals

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change.

- 1. Coordinate with all public and private organizations for the provision of essential community services.**
- 2. Monitor and sustain the continued adequacy of emergency preparedness plans and communicate regularly such plans to resident, non-resident property owner, and visitor populations.**
- 3. Work to ensure an environmentally sustainable system of parks and open spaces are developed and maintained. This system should provide access to the beach and river; preserve, protect and enhance natural resources while meeting residents' diverse recreational needs.**
- 4. Maintain professional development and training for Town Council, Boards, Committees and Staff.**



TRANSPORTATION ELEMENT

Existing Conditions

Kiawah Island is unique in that all roads within the Island's front gate are privately owned, usually by the Kiawah Island Community Association but also, in some cases, by third parties. While the Town is not responsible for their maintenance and replacement, it is responsible for the safety and welfare of its citizens in driving these roads.

The Town is responsible, however, for the maintenance and replacement of the two roads outside the front security gate. The first is the Kiawah Island Parkway extending approximately 3.0 miles from the terminus of the Betsy Kerrison Parkway on the west to the front security gate of Kiawah Island. The Town owns this two-lane access road as well as the roundabout merging traffic to and from the Betsy Kerrison Parkway, the Kiawah Island Parkway, the Seabrook Island Parkway and the entrance/exit from the Freshfields shopping center. The roundabout was completed in 2005 at a cost of \$2.3 million. The Kiawah Island Parkway underwent a major improvement and resurfacing in 2009 and, as part of that project, a bike path and trestle bridge were installed adjacent to the road. Extensive landscaping revisions to the areas adjoining the Parkway were also part of the project. Costs for the Parkway project in total amounted to \$2.8 million. The second road owned by the Town is Beachwalker Drive, running from the Parkway to the County Park.



Road Design Standards

New roads constructed on the Island are required to be constructed to Town standards. The Town's Road Code establishes minimum standards which promote continued development of curvilinear streets. Such streets are designed to limit speeds and excess pavement. While narrow, curving streets help control speeds, they also have the potential to hinder emergency access if vehicles are parked on the roadway. It is important, therefore, that curbside parking be strictly controlled.



Road Usage

Figure X.1 below shows the inbound and outbound traffic at both the Main Gate and the Vanderhorst Gate from 2010 to 2014, while Figure X.2 shows the seasonal traffic numbers through the Main Gate. The total traffic count has risen approximately 5 percent during this period. It is important to note that based on the number of commercial passes issued

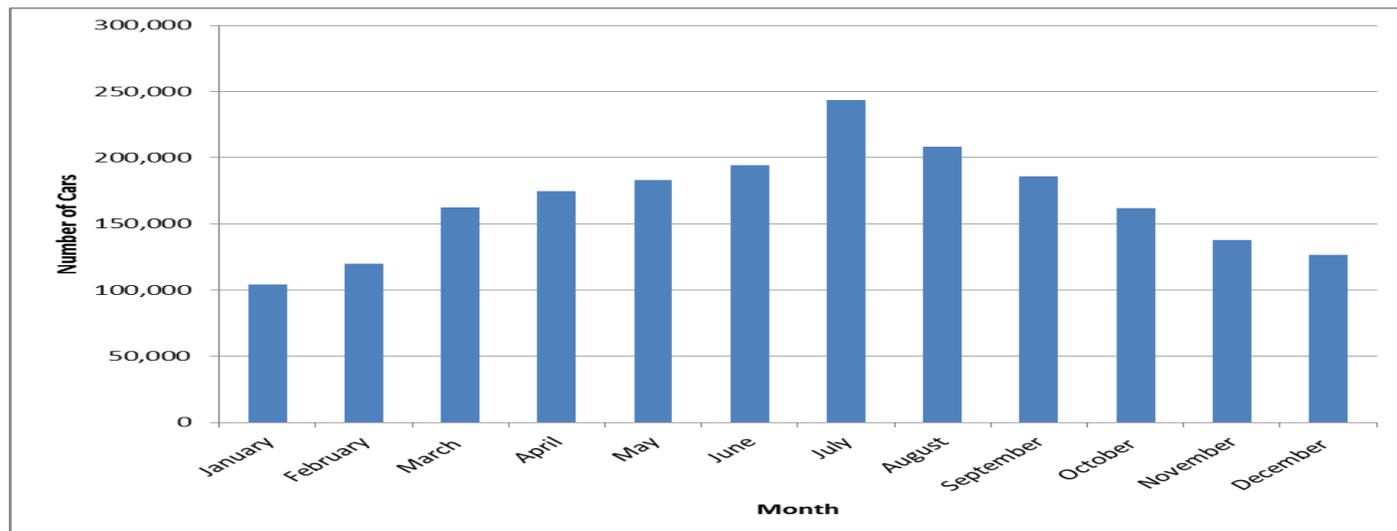
by KICA to contractors and other services providers, every day there are many thousands of people coming to work on Kiawah that aren't captured in the graph below.

Figure X.1 Kiawah Island Gate Traffic, 2010-2014

Traffic Counts	2010	2011	% Change	2012	2013	% Change	2014
Main Gate	1,902,244	1,830,003	-3.80%	1,830,629	2,013,574	0.10	2,002,045
Vanderhorst Gate	977,827	980,545	0.28%	1,057,960	1,104,158	0.04	1,122,996
Vanderhorst Gate % of Main Gate	49.0%	53.6%		57.8%	54.8%		56.1%

Source: Kiawah Island Community Association

Figure X.2 2014 Seasonal Traffic Count through the Main Gate

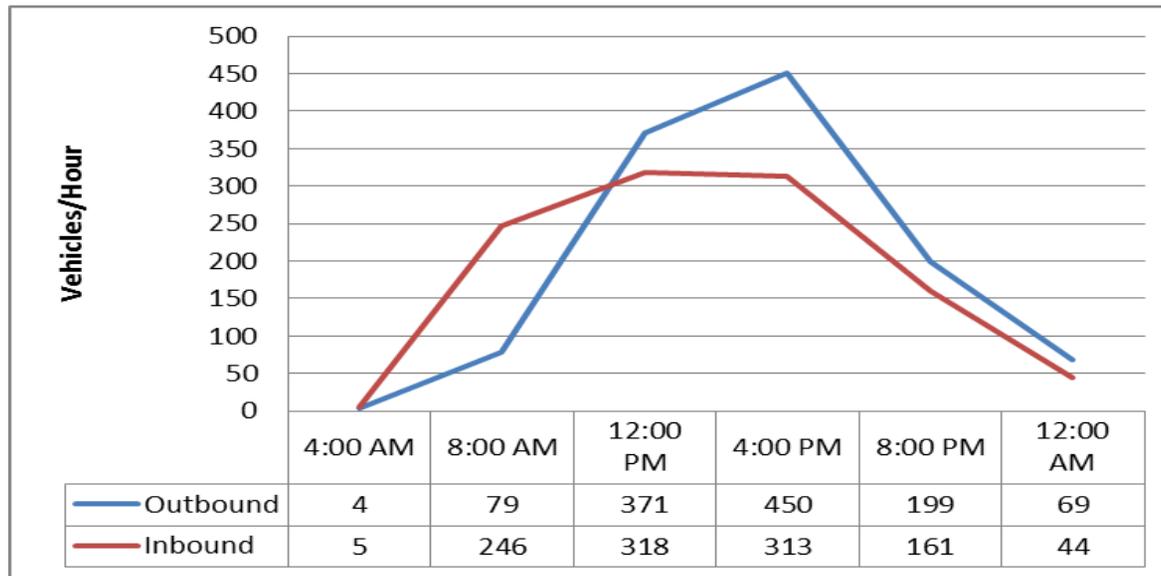




Source: Kiawah Island Community Association

On an hourly basis, inbound traffic peaks at 8:00 a.m. when contractors and service personnel enter the Island. Outbound traffic peaks at 3:00 - 4:00 p.m. when they leave. Because of the relative density of traffic, these are the critical safety hours on the Parkway.

Figure X.3 2014 January-May Avg. Hourly Traffic on Kiawah Island Parkway



Source: The Town of Kiawah Island Traffic Data, 2011-2014

Traffic Accidents

There are very few accidents on Kiawah Island roadways. As reported by Charleston County Sheriff’s Deputies and KICA security personnel monitoring our roadways, on average there are roughly two accidents per month. This number includes both multiple car collisions as well as single car accidents (excludes car-deer accidents).

Johns Island Roads

The condition of Johns Island roads is an important issue to Kiawah for two major reasons: first, these roads are travelled by Kiawah residents in their trips to Charleston and other off-island destinations. And, second, workers heading to and



from Kiawah -- contractors, sub-contractors, landscape and maintenance personnel, hospitality workers, etc. -- are on those roads daily. Safety while driving those roads is of utmost concern to all. A key objective has been to secure a route across Johns Island that can absorb the considerable traffic headed to and from Kiawah and Seabrook Islands. As of this

update, no agreement within the County has been reached on the location and funding of such a route. The South Carolina Department of Transportation recently resurfaced Bohicket Road and River Road.

Emergency Evacuation

Kiawah Island is a barrier island and, as such, is particularly susceptible to risks associated with severe weather. Natural disasters like hurricanes, floods, tornadoes and earthquakes are potential hazards that need to be addressed not only by organizations like the Town and the Community Association, but also by individual residents and property owners. Evacuation of the Island is called for when one of these natural disasters is judged imminent. If a mandatory evacuation order is issued, the prescribed evacuation route calls for leaving the Island via the Kiawah Island Parkway, and then on to Bohicket Road, Main Road and Highway 17. Highway 17 is then taken south to SC64 and then on to Walterboro. For more information regarding the Town's emergency evacuation plan, as well as its entire Emergency Preparedness Plan, please visit the Town's website at www.KiawahIsland.org

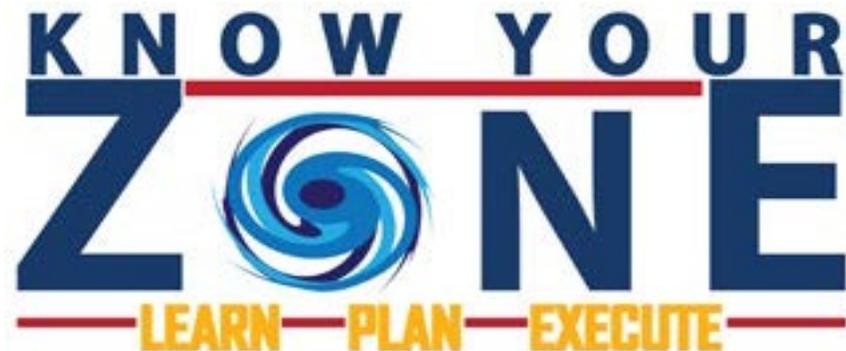
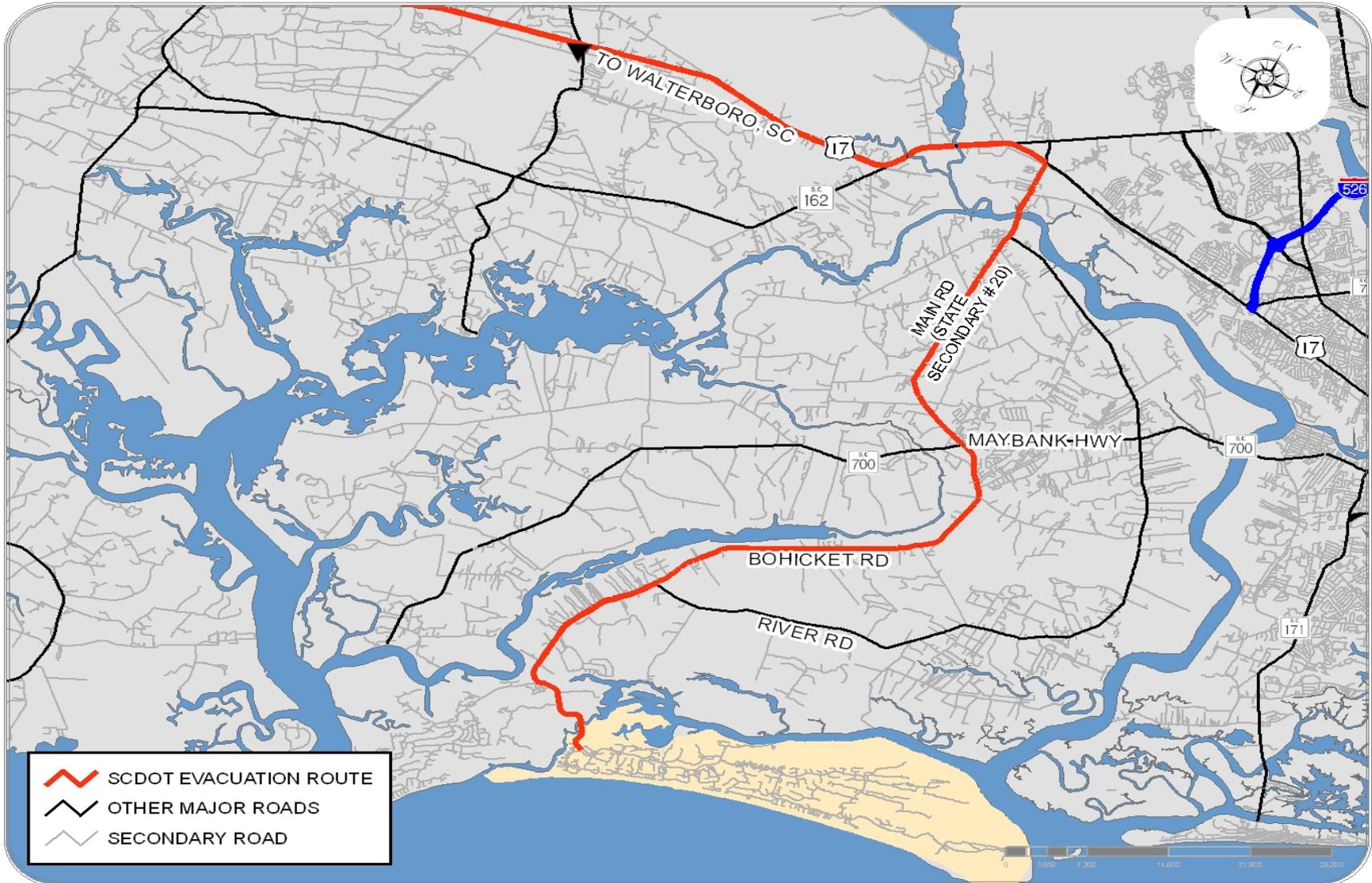




Figure X.5 Emergency Evacuation Route from Kiawah Island





Evacuees from Kiawah Island will use SC 700 and Secondary Road 20 (Bohicket Road) to US 17. They will then take US 17 south to SC 64. SC 64 will take them to Walterboro and eventually to Augusta, GA.

Source: SCDPS Emergency Traffic Network
<http://www.sctrffic.org/centralmap.html>

Public Transportation

Currently, there is no public transportation available on the Island or from the Island to other destinations. The Resort and KICA provides service on and off the Island for its employees and complimentary Island transportation to its guests and off-Island transportation to residents and guests for a fee.

Air Transportation

It is possible to fly into and out of Charleston at two local sites: the Charleston International Airport located about 20 miles north of the Island, and the Charleston Executive Airport, which is undergoing renovations and expansion, and is located 15 miles northeast of the Island. At present, nine major air carriers operate out of the Charleston International Airport -- Delta, American, USAir, JetBlue, Silver Airways, United, Porter Airlines, Southwest, and Alaska Airlines which was the latest edition to the airport in 2015. Airport volume is 306* daily flights. Charleston Executive Airport supports mostly private air flights. With two runways in excess of 6,000 ft. in length, the airport can handle planes up to the size of small to mid-sized jets. Volume is 151* flights a day.

*for 12-month period ending May 31, 2015

Limousine Service

A number of limousine firms, mostly operating out of Charleston, service demand on Kiawah. Airport shuttle-vans as well as stretched and standard-sized luxury cars are the vehicles of choice. KICA, as well as the Kiawah Island Club, offer a



transportation service for its members. This Shuttle Service was first introduced in April of 2014. This service offers a premier and convenient luxury transportation to a myriad of destinations inside and outside the County of Charleston. Since its launch, the shuttle has been booked for over 550 trips and has accrued approximately \$50,000 in revenue for KICA. The most popular destination, accounting for over 74 percent of the bookings to date, has been to the Charleston International Airport; however, the shuttle has been all over Charleston County and the surrounding area.

Needs Assessments:

- Cooperating and coordinating with all private and public organizations in finding a solution improving access to and from the Greater Charleston Metro Area.
- Cooperating with KICA and the developers to ensure safe roads on the Island; and
- Maintaining the structural integrity and beauty of the roundabout and upgraded Kiawah Island Parkway which serves as the gateway to Kiawah; and
- Consider impacts of rising sea levels and flooding during the design and improvement of roads and associated infrastructure.

Goals

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change:

1. **Promote compatibility among roadway improvements, land use patterns, community character and natural environment.**
2. **Ensure that the Town’s roadway system is properly maintained to meet the safe and efficient mobility of residents, businesses, and visitors.**
3. **Support regional roadway initiatives to improve traffic flow between Kiawah Island, Seabrook Island, Johns Island, and the Greater Charleston Metro area.**



APPENDIX A: Goals, Implementation Strategy, Responsibility, and Time Frame

Population Element

Goals

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change:

1. Provide residents, non-resident property owners, and visitors with a safe and secure environment and high-quality community facilities.

	Implementation Strategy	Responsibility	Time Frame
a.	Coordinate with law enforcement and private security providers to ensure a safe and secure environment is provided.	Public Safety Committee	Ongoing
b.	Monitor and sustain the continued adequacy of emergency preparedness plans designed to ensure the safety and protection of the Town’s population during an emergency event and regularly communicate such plans to resident, non-resident property owner, and visitor populations. (See also Community Facilities Element-Goal #2)	Town Administrator Public Safety Committee	Annually

2. Develop more accurate data on property owner and visitor populations in order to assess and project the need for community services and facilities.

	Implementation Strategy	Responsibility	Time Frame
a.	Work with KICA, KIGR, KDP, and other groups to collect accurate population data, including those pertaining to residents, non-resident property owners, and visitors.	Town Administrator	Ongoing
b.	Using these data, assess the current need and project future needs for community services and facilities to accommodate residents, non-resident property owners, and visitors.	Planning Director	Annually



3. Develop strategies that consider the needs of an older and aging segment of the population.

	Implementation Strategy	Responsibility	Time Frame
a.	Form a task force to study and consider the needs of an older and aging segment of the population, including their needs related to emergency preparedness.	Town Council	2016

Economic Development Element

Goals

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change.

1. Provide a balance between preservation of natural resources and economic development.

	Implementation Strategy	Responsibility	Time Frame
a.	Ensure that future Development Agreements recognize the “Town’s Vision” while also providing for appropriate economic development and orderly growth (See Natural Resources Element Goal #1a).	Town Council Planning Commission	When Development Agreements are replaced or amended
b.	Ensure land use and zoning ordinances implement the Town’s Comprehensive Plan (See Natural Resources Element Goal #1b).	Town Council	Ongoing



Natural Resources Element

Goals:

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change:

1. Complete the Island’s development in a way that maintains the Island’s environmental integrity and natural beauty and is consistent with the Vision of the Town.

	Implementation Strategy	Responsibility	Time Frame
a.	Utilize site design and construction standards, methods, and practices to minimize natural area disturbance resulting from building design, location and construction. Standards in the ARB Building and Landscaping Guidelines, “Designing with Nature” should be used as a guide.	Town Council, Planning Commission	Ongoing
b.	Provide for or create open spaces, including undisturbed spaces, natural habitat areas, and access thereto throughout the Town (open space is intended to protect the natural and visual character of the community, provide for appropriate active and passive recreational uses and preserve corridors for wildlife travel between larger open space areas).	Town Council, Planning Commission	Ongoing

2. Develop and maintain an environmentally sustainable system of parks and open spaces which provide access to the beach and river; preserves, protects and enhances natural resources; and meets the diverse recreational needs of the Town’s population.

	Implementation Strategy	Responsibility	Time Frame
a.	Maintain existing programs to monitor and protect natural resources, wildlife species and habitat and expand these programs to include all groups of species on the island.	Town Wildlife Department, Environmental Committee	Ongoing
b.	Support and encourage research on wildlife and natural resources by outside entities, such as colleges and universities, to expand our knowledge and understanding of the natural systems on the island.	Town Wildlife Department, Environmental Committee	Ongoing



c.	Conduct aerial orthophotography of the island every 3 years to monitor changes to the beach and dunes, salt marsh, interior habitat areas, and ongoing development.	Town Wildlife Department, Environmental Committee	Every 3 years
d.	Improve access to the beach, Kiawah River and other open space areas by allowing for parking near key access points.	Environmental Committee	Ongoing

3. Maintain the existing quality of the natural resources on Kiawah Island, as well as the waters and marine environment surrounding the Island.

	Implementation Strategy	Responsibility	Time Frame
a.	Minimize disturbances to or impact on the Island’s natural resources and unique natural setting.	Environmental Committee	Ongoing
b.	Discourage land uses that are threatening to wildlife and wildlife habitats.	Environmental Committee	Ongoing
c.	Protect natural habitats and corridors essential for the health and integrity of native plant and wildlife populations. Control invasive species.	Town Wildlife Department, Environmental Committee	Ongoing
d.	Recognize that native vegetation should be protected and used to protect and stabilize lagoons and stream banks.	Environmental Committee	Ongoing

4. Maintain and expand public education and outreach programs.

	Implementation Strategy	Responsibility	Time Frame
a.	Maintain and expand existing wildlife website	Town Wildlife Department, Environmental Committee	Ongoing
b.	Continue to produce wildlife nature guide and other pertinent publications and distribute to residents and visitors.	Town Wildlife Department, Environmental Committee	Ongoing



c.	Maintain wildlife interpretive signs and update as necessary.	Town Wildlife Department, Environmental Committee	Ongoing
d.	Continue and expand public outreach programs, including presentations and school group field trips.	Town Wildlife Department, Environmental Committee	Ongoing

5. Formalize a marsh management plan that explores various methods of protection for the Island’s marsh and manages the interface between highlands and critical area that is vital to a healthy salt marsh.

	Implementation Strategy	Responsibility	Time Frame
a.	Conduct aerial orthophotography of the island every 3 years to monitor and record changes to the beach, dunes, and salt marsh.	Town Wildlife Department, Environmental Committee, Planning Director	Every 3 years
b.	Monitor local and regional marsh front and or shoreline development regulations changes.	Town Wildlife Department, Environmental Committee, Planning Director	Ongoing
c.	Research shoreline erosion mitigation strategies (living shorelines, restoration).	Town Wildlife Department, Environmental Committee	Ongoing



6. Coordinate with public and private organizations on the impacts to or preservation of marsh front properties.

	Implementation Strategy	Responsibility	Time Frame
a.	Coordinate with local state and federal agencies including the Conservancy, KIARB, KICA, DHEC OCRM to assess the health of the salt marsh and explore long-term protection of the salt marsh.	Town Wildlife Department, Environmental Committee Planning Director	Ongoing
b.	Review land use regulations and building codes impacting development along marsh front properties.	Community Development Services	Every 5 years

Cultural Resource Element

Goals

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change.

1. Encourage the development of programs and services that improve the delivery of cultural activities to all of Kiawah Island and its visitors.

	Implementation Strategy	Responsibility	Time Frame
a.	Support the Town Arts and Cultural Events Council which is chartered to foster community appreciation and involvement in the visual and performing arts through a range of programming, services, support and cultural education.	Town Council	Ongoing
b.	Coordinate with other public and private organizations, including KICA, KIGR, KDP, among others, to encourage the further development and delivery of recreational and cultural activities such as arts, clubs, and common activities, for the Town’s resident, non-resident property owner, and visitor populations.	Town Council	Ongoing
c.	Promote available events and programs for the benefit of the Town’s resident, non-resident property owner, and visitor populations, and outreach events for neighboring communities.	Arts and Cultural Events Committee	Ongoing



2. Encourage the identification and preservation of archaeological and historic resources located on Kiawah Island.

	Implementation Strategy	Responsibility	Time Frame
a.	Monitor preservation of identified archaeological and historic resources.	Town Council	Ongoing
b.	Evaluate requests for zoning permits to identify any previously unidentified archaeological or historic resources within the Town.	Planning Director	Ongoing

Community Facilities Element

Goals

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change.

1. Coordinate with all public and private organizations for the provision of essential community services.

	Implementation Strategy	Responsibility	Time Frame
a.	Evaluate the provision of public safety services to ensure the safety and security of the Town’s resident, non-resident property owner, and visitor populations, including security, fire protection, and emergency medical care, among others; provide Town Council with an annual report of status.	Town Administrator Public Safety Committee	Annually
b.	Evaluate the provision of utility services to meet the quality, volume and emergency needs of existing and proposed development. Such services include electricity, water, wastewater management, solid waste management, cable, telephone and other services; provide Town Council with an annual report of status.	Town Administrator Public Safety Committee	Annually
c.	Evaluate the merits of developing the Town’s borrowing capacity as a source of funding to address critical community services that may be needed on an emergency basis.	Ways and Means Committee	Biannually



2. Monitor and sustain the continued adequacy of emergency preparedness plans and communicate regularly such plans to resident, non-resident property owner, and visitor populations.

	Implementation Strategy	Responsibility	Time Frame
a.	Coordinate reviews of the Town’s Emergency Preparedness Plan, and related processes and infrastructure, with all relevant local, state, and national authorities. Update the Plan accordingly.	Town Administrator Public Safety Committee	Annually
b.	Communicate regularly the essential elements of the Town’s Emergency Preparedness Plan to residents, non-resident property owners, and visitors.	Town Administrator Public Safety Committee	Annually
c.	Develop plans for a variety of potential post-emergency event scenarios and estimate clean-up, recovery and replacement costs for Town assets.	Town Administrator Emergency Preparedness Committee	Annually

3. Work to ensure an environmentally sustainable system of parks and open spaces are developed and maintained. This system should provide access to the beach and river; preserve, protect and enhance natural resources; and meet residents’ diverse recreational needs.

	Implementation Strategy	Responsibility	Time Frame
a.	For strategies see Natural Resources Element Goal #3	Town Council	Annually

4. Maintain professional development and training for Town Council, Boards, Committees and Staff.

	Implementation Strategy	Responsibility	Time Frame
a.	Ensure that required training courses are completed annually.	Town Council, Town Administrator	Annually

Housing Element

Goals

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change



1. Encourage development of a diversity of housing stock, types and styles that meet different needs of the population.

	Implementation Strategy	Responsibility	Time Frame
a.	Provide mechanisms to permit flexibility and innovation in residential project design to promote land use efficiency and environmental protection.	Town Council Planning Commission Planning Director	Ongoing

2. Increase the transparency and understanding for everyone involved in all phases of the development process.

	Implementation Strategy	Responsibility	Time Frame
a.	Provide forums necessary to facilitate increased information flow at all levels of involvement in the development process.	Planning Commission Town Administrator	Ongoing

3. Consider the affordability of housing.

	Implementation Strategy	Responsibility	Time Frame
a.	Develop information and consider (i) the affordability of housing in and/or near the Town, (ii) any nonessential housing regulatory requirements that add to the cost of developing affordable housing but are not necessary to protect the public health, safety, or welfare, and (iii) any market-based incentives that may be made available to encourage development of affordable housing.	Town Council	Ongoing

4. Promote use of alternative energy sources and energy conservation measures that benefit the Town.

	Implementation Strategy	Responsibility	Time Frame
a.	Monitor state and federal legislation that promotes energy efficiency and renewable or alternative energy sources. Also, facilitate educational outreach, training, and technical assistance to promote energy efficiency and the use of alternative energy sources.	Town Council	Ongoing



Land Use Element

Goals

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change in land use:

1. Maintain and enhance the residential character of the Town.

	Implementation Strategy	Responsibility	Time Frame
a.	Develop standards that assure that new development and redevelopment is high quality and compatible with the existing community's residential character and natural habitat.	Planning Commission	Ongoing
b.	Encourage the Developer (KDP and its successors) and the Resort (KIGR and its successors) to enter into development agreements with the Town which clearly set forth the rights and responsibilities of both parties and are consistent with the Vision Statement of the Island and this Plan.	Town Council	Ongoing

2. Provide for high quality, orderly, and controlled development and redevelopment.

	Implementation Strategy	Responsibility	Time Frame
a.	Ensure development criteria and standards are determined to be consistent with the Vision Statement of the Island and this Plan.	Planning Commission	Ongoing
b.	Develop standards that are flexible enough to allow property owners and developers to respond to changing conditions and ensure compliance with such standards.	Planning Commission	Ongoing
c.	Maintain compatibility of commercial, residential, and resort areas with adjacent and nearby properties such that redevelopment will not create demands for recreational facilities, roads or utilities in advance of their availability.	Planning Commission	Ongoing



3. Encourage expansion of the Kiawah Island Conservation Areas.

	Implementation Strategy	Responsibility	Time Frame
a.	Zone environmentally sensitive areas such as marshes and any future accreted land in the Conservation District.	Planning Commission	Ongoing

4. Thoroughly evaluate any annexation proposals.

	Implementation Strategy	Responsibility	Time Frame
a.	Ensure that annexation proposals protect environmentally sensitive areas, are consistent with the Town’s Vision, the spirit of this Comprehensive Plan, and enhance the character of Kiawah Island.	Town Council	Ongoing

5. Continue to improve monitoring and evaluating spatial relationships of physical properties and land use (such as zoning, lot size, natural resources, transportation, and community services) with updated, accurate GIS data.

	Implementation Strategy	Responsibility	Time Frame
a.	Broaden use of the Town’s GIS System and upgrade as appropriate.	Town Council	Ongoing
b.	Analyze the Town’s zoning ordinances, building codes and related development strategies to recognize flood mitigation and rising sea level impacts.	Community Development Services, Environmental Committee	Ongoing

Transportation Element

Goals

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change:

- Promote compatibility among roadway improvements, land use patterns, community character and natural environment.**



	Implementation Strategy	Responsibility	Time Frame
a.	Provide roadways designed to provide for safe and efficient traffic flow, minimizing impact on the environment, while enabling travelers to experience the natural beauty of the Island.	Town Council	Ongoing
b.	Base the size and capacity of roads, parking areas, driveways and other impervious surfaces on the land uses they will serve.	Town Council Planning Commission	Ongoing
c.	Ensure safe traffic flow on and protection of the Town’s only evacuation route – the Kiawah Island Parkway.	Town Council	Ongoing
d.	Encourage adequate off-street parking for all residential, commercial and recreational development activities in the Town.	Town Council Planning Commission	Ongoing

2. Ensure that the Island’s roadway system is properly maintained to meet the safe and efficient mobility of residents, businesses, and visitors.

	Implementation Strategy	Responsibility	Time Frame
a.	Develop and implement a strategic maintenance and replacement plan to ensure long-term maintenance of Town-owned transportation infrastructure (see Priority Investment Goals #3c. and #4b.). Coordinate with KICA and 3 rd parties regarding maintenance and replacement plans for their infrastructure within Town boundaries.	Town Council	Annually
b.	Collect and review roadway traffic count data and other information to assist in ensuring that the Highway Capacity Manual’s Level of Service (LOS) “C” or better is maintained on collector and arterial streets and to serve development.	Public Safety Committee	Annually
c.	Encourage safe, non-motorized (e.g. walking, biking, etc.) mobility on the Island. Ensure the efficacy and consistency of signage and pavement markings to improve safety of auto-non-auto interfaces (e.g., crosswalks, yield signs, etc.).	Public Safety Committee Town Administrator	Ongoing



3. Support regional roadway initiatives to improve traffic flow between Kiawah Island, Seabrook Island, Johns Island, and the Greater Charleston Metro Area.

	Implementation Strategy	Responsibility	Time Frame
a.	Encourage the Charleston Area Transportation Study (CHATS) and Charleston County to improve roadways from the Betsy Kerrison Parkway to Maybank Highway, Savannah Highway and Charleston.	Town Council	Ongoing
b.	Encourage approval and funding for the "Sea Islands Greenway."	Town Council	Ongoing
c.	Assure adequate and effective emergency evacuation routes from Kiawah Island are in place.	Town Council	Annually
d.	Support the completion of I-526.	Town Council	Ongoing

Priority Investment Element

Goals

To help the Town further realize its Vision, the following goals should be considered when evaluating proposals for change:

1. Conduct an assessment to identify the Town’s exposure to all types of hazards, using the Charleston Regional Hazard Mitigation Plan as a baseline, and consider appropriate mitigation steps and associated resources or funding needed.

	Implementation Strategy	Responsibility	Time Frame
a.	Lead a collaborative effort to develop a detailed and organized hazard mitigation plan to reduce disaster losses.	Town Administrator	2016
b.	Plan for, budget, and justify improvements identified through the hazard assessment to mitigate the effects of potential hazards.	Town Administrator	2016
c.	Position the Town to seek a bond rating should bond issuance become necessary to facilitate disaster recovery.	Town Administrator	2016



2. Establish a process for regularly conducting community appraisals of existing resources and assets and identify gaps, barriers, and future needs.

	Implementation Strategy	Responsibility	Time Frame
a.	Use surveys, Town Hall meetings, and other methods to seek input from residents, as well as public and private entities to identify desired community services, facilities, and programs.	Town Administrator Town Council	Ongoing
b.	Form partnerships to coordinate and implement additional identified priorities.	Town Administrator	Ongoing
c.	Identify feasibility, community impact and potential costs associated with implementing new initiatives.	Town Administrator	Ongoing

3. Establish a Capital Improvement Plan

	Implementation Strategy	Responsibility	Time Frame
a.	Budget for an emergency preparedness component of the Capital Improvement Fund, and other actions to mitigate hazard risks.	Town Administrator Ways and Means	2015
b.	Seek additional funding sources for priority investments to leverage existing Town funds.	Town Administrator Town Council	2015
c.	Develop maintenance requirements, replacement plans and budget requirements for infrastructure and other assets, tied to estimated useful lives and anticipated maintenance schedules (see Transportation Goal #2-a).	Town Administrator Town Council	Ongoing

4. Focus the Town’s investment on the priorities identified as critical to the sustainability of the Island.

	Implementation Strategy	Responsibility	Time Frame
a.	Work with utility companies to ensure adequate replacement plans for utility service to the Island.	Town Administrator	2016
b.	Identify, locate and log all storm drains on Town-owned streets or easements—develop maintenance and/or replacement schedules (see Transportation Goal #2-a).	Town Administrator	By 2015



c.	Continue to monitor beach erosion or accretion rates, dune formation or other shoreline changes. Use the Beach Management Plan as a planning tool for establishing beach-related priorities.	Wildlife Biologist Environmental Committee	Ongoing
d.	Consider additional uses of the Town-owned GIS system. Provide additional training, information and hardware as required.	Town Administrator	Ongoing
e.	Conduct feasibility studies regarding development of (i) an island-wide Wi-Fi network and (ii) cellular service. Consider external resources to support such studies.	Town Administrator	By 2015

APPENDIX B: Definitions

Employed: Persons 16 years and over in the civilian non-institutional population who, during the reference week, did any work at all as paid employees; worked in their own business, profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family. Each employed person is counted only once, even if he or she holds more than one job. Excluded are persons whose only activity consisted of work around their own house or volunteer work for religious, charitable, and other organizations.

Unemployed: Persons aged 16 years and older who had no employment during the reference week, were available for work, except for temporary illness, and had made specific efforts to find employment sometime during the 4-week period ending with the reference week. Persons who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed.

Labor Force: The labor force includes all persons classified as employed or unemployed in accordance with the definitions contained in this glossary.

Family Group: A family group is any two or more people residing together, and related by birth, marriage, or adoption. A household may be composed of one such group, more than one, or none at all. The count of family groups includes family households, related subfamilies, and unrelated subfamilies.



Family household: A family household is a household maintained by a householder who is in a family and includes any unrelated people who may be residing there. The number of family households is equal to the number of families. The count of family household members differs from the county of family members, however, in that the family household members include all people living in the household, whereas family members include only the householder and his/her relatives.

Town of Kiawah Island (TOKI): The Town of Kiawah Island, was incorporated by the State of South Carolina on September 13, 1988 and operates as a Mayor-Council form of government. The Town Council is composed of a Mayor and four Council Members. The Mayor is the chief executive officer of the Town. The Town Administrator provides support and advice to the Mayor and Council and runs the day to day operations of the Town. The Town provides services to its property owners and visitors including, but not limited to: public safety; street and drainage maintenance; solid waste disposal; planning and zoning administration; municipal court administration; beach maintenance and safety; communications and wildlife management. The annual budget serves as the guide for the Town of Kiawah Island's financial planning and control. The Town's operations are funded by business license revenue, franchise fees, aid to subdivisions, accommodation taxes, solid waste fees and other miscellaneous revenue. Unlike most municipalities in South Carolina, the Town of Kiawah Island does not levy property taxes to its residents.

Kiawah Island Community Association (KICA): Incorporated in 1976, The Kiawah Island Community Association (KICA) is a non-profit organization whose mission is to preserve and enhance the quality of life and property values of its members. All property owners on Kiawah Island become members of KICA upon purchase of their property. The association owns, maintains, insures and improves common properties such as roads behind the main security gate, drainage systems, rights-of-way, the Sandcastle Community Center and pool, boardwalks, bridges, lakes and leisure trails. KICA also provides premise security on the island, enforces its covenants and rules and regulations, and seek to foster a sense of community through social, recreational and outreach programs. Through its programs and services, KICA plays a leadership role in ensuring that Kiawah Island is a beautiful, safe, well maintained and friendly community.

Kiawah Island Golf Resort (KIGR): For the first two decades of its existence, the developer and resort were all part of the same company. In 1989, the island's owner separated the real estate/developer operations from the resort amenities and sold the resort amenities to California-based Landmark Land Company, Inc. After the Ryder Cup, Landmark went bankrupt as a result of the Savings and Loan collapse and their holdings were turned over to the government's Resolution Trust Corporation. In 1993, the resort's current owners (under the name of Virginia Investment Trusts) bought the resort facilities at auction (with the Ocean Course being sold in 1995). The resort consists of the former Kiawah Island Inn property, the



Straw Market in West Beach, Cougar Point Golf Course, the West Beach Tennis Center, the Roy Barth Tennis Center in East Beach (including the Tennis Center pool), the East Beach Conference center, Town Center Market, the Sanctuary Hotel, the Night Heron Park, nature center and pool complex, Turtle Point Golf Course, Osprey Point Golf Course, The Ocean Course and Oak Point Golf Course on John Island.

Kiawah Partners (KP): KP is the Kiawah Island master developer and creates attractive real estate purchase opportunities on the island. It is sensitive to the ecology and natural beauty of the island as it builds new roadways and designs new neighborhoods. KP's functions are: Owning un-subdivided land and operating the Kiawah Island Club (Beach Club, Cassique and River Course), Kiawah Island Real Estate, Freshfields Village (a mixed use commercial village) and the water and sewer provider Kiawah Island Utilities (KIU); Providing recreational facilities to member of the Kiawah Island Club and publishing Legends and Island insight to promote island living; Recovery of KP properties after natural disasters and insurance of KP properties; Providing planning and development services for new neighborhoods, approval of modifications to homes and building of new homes on undeveloped lots via the Architectural Review Board.

Kiawah Island Conservancy (KIC): The Kiawah Island Natural Habitat Conservancy, Inc. (Kiawah Conservancy) is a 501(c)(3) non-profit organization established by the Island residents and incorporated in 1997. Its mission is to provide for the identification, preservation and appropriate management of the critical, natural habitat needed to maintain a healthy, balanced and diverse population of native flora and fauna on Kiawah Island. The Kiawah Conservancy publishes a bi-annual magazine - Naturally Kiawah, offers an annual presentation series - Conservation Matters, maintains two websites – www.kiawahconservancy.org and www.sweetgrassaward.org, sponsors the Habitat Improvement Program and co-sponsors a variety of research studies. The Kiawah Conservancy is also a holder of land and conservation easements, and as such it acts as a land trust. Since its inception, the Kiawah Conservancy has preserved 21 properties, totaling 324 acres of pristine barrier island habitat.

Architectural Review Board (ARB): The Kiawah Island ARB is committed to protecting and enhancing property owner's precious assets. To do this, they help Kiawah Island property owners achieve an environmentally sensitive design for your new home through careful consideration of the configuration of your home site, the Lowcountry climate, existing vegetation, and topography of the building site. Thus, one of their primary objectives is to assist property owners with planning efforts. Ultimately, the goal of the Kiawah Island Architectural Review Board is to achieve an uncommon and visually pleasing blend of natural beauty and manmade improvements by providing standards and guidelines for community areas as well as residence, in accordance with the development's comprehensive Master Plan.



The Community Emergency Response Team (CERT): The Community Emergency Response Team Program educated people about disaster preparedness for hazards that may impact they area and trains them in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. Using the training learned in the classroom and during exercises, CERT members can assist others in their neighborhood or workplace following an event when professional responders are not immediately available to help. Ultimately through training, citizens can manage utilities and put out small fires; treat the three killers by opening airways, controlling bleeding, and treating for shock; provide basic medical aid; search for and rescue victims safely; and organize themselves and spontaneous volunteers to be effective.

Community Rating System (CRS): The Community Rating System is a voluntary incentive program that recognizes and encourages community floodplain management activates that exceed the minimum National Flood Insurance Program requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: reduce flood losses; facilitate accurate insurance rating; and promote the awareness of flood insurance. The lower the number of the CRS class rating, the higher the flood insurance premium discounts to the citizens.

Geographic Information System (GIS): A method of storing geographic information on computers. Geographic information can be obtained from a variety of sources, including topographic maps, soil maps, aerial and satellite imagery, and many others. Using GIS software, the computer can create special maps for presentation, can analyze spatial data from different sources simultaneously, and can generate interpretive maps. Among the many benefits of GIS are easily updated digital databases that can be used to print maps easily and efficiently, that can be easily shared by many users, and that can be used to analyze spatial relationships among the physical, social and natural environments.

Parks and Recreation: Parks, playgrounds, swimming pools, recreation facilities, and open spaces available to the general public, either without a fee or under the management or control of a public agency.

Development Rights: Development rights entitle property owners to develop land in accordance with local land use regulations.



APPENDIX C: References

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APPENDIX D: Legal Authority for Comprehensive Planning

Legal Authority for the Comprehensive Plan

In 1994, the *South Carolina Local Government Comprehensive Planning Enabling Act* (S.C. Code Sections 6-29-310 through 6-29-1200) was passed to replace all previous planning and zoning statutes in South Carolina. Among other things, the *Enabling Act*, as amended, charges the Town of Kiawah Island Planning Commission with responsibility for comprehensive planning. The Planning Commission must establish and maintain a planning process which will result in the systematic preparation, continual evaluation and updating of a Comprehensive Plan (S.C. Code Section 6-29-510(A)). At a minimum, the planning process for each comprehensive plan element must include the following items: (i) inventory of existing conditions, (ii) a statement of needs and goals, and (iii) implementation strategies with time frames (S.C. Code Section 6-29-510(C)). Comprehensive plans must include, at a minimum, the following nine elements: (i) population, (ii) economic development, (iii) natural resources, (iv) cultural resources, (v) community facilities, (vi) housing, (vii) land use, (viii) transportation, and (ix) priority investment (S.C. Code Section 6-29-510(D)). The Act requires the Planning Commission review the comprehensive plan or elements of it no less than once every five years to determine whether changes in the amount, kind, or direction of development of the area or other reasons make it desirable to make additions or amendments to the plan and to update the comprehensive plan, including all elements of it, at least every ten years (S.C. Code Section 6-29-510(E)).

Plan Approval Process

The process for review and adoption of the Comprehensive Plan is established by the *South Carolina Local Government Comprehensive Planning Enabling Act* (S.C. Code Sections 6-29-520 and 6-29-530), as well as the Town Code. Accordingly, the following steps comprise the process for this review:

- 1. Preliminary Review:** Members of the Planning Commission work with the professional staff of the Town of Kiawah Island and the Charleston County Planning Department to review each element of the Town's Comprehensive Plan which was last updated in 2010. Among many things, this review consists of the gathering and analysis of statistical and archival data related to the plan's elements, coordination with important organizations within the Town (such as KDP, KICA, and KIGR), and an analysis of changes in regulatory requirements since 2010. A draft revision of the Town's Comprehensive Plan is prepared to solicit input from the public.



2. **Consideration of Public Comments:** The Planning Commission holds informational sessions to solicit comments on the Comprehensive Plan from interested members of the public. All such comments were considered by the Planning Commission and further revisions to the draft plan were made.
3. **Recommendation and Resolution:** The Planning Commission considers a resolution recommending the review of the Plan to the Town Council for adoption. The resolution explicitly refers to maps and other descriptive material intended by the Planning Commission to form the recommended review of the plan. The resolution was recorded in the official minutes of the Planning Commission. A copy of the recommended review of the Plan was transmitted to the Town Council.
4. **Town Council Hearing:** The Town Council holds public hearings prior to adopting the recommended review of the plan. In each case, at least 30 days' notice of the hearing time and place was provided in a general circulation newspaper in the Charleston area
6. **Adoption Ordinance:** The Town of Kiawah Island Council adopted the recommended review of the plan by ordinance.

Plan Implementation

Following adoption of the *Comprehensive Plan Re-evaluation* by the Town of Kiawah Island Council, the Town will move forward, as appropriate, with a series of implementation actions. These actions will include revisions to ordinances, programs, and routine Town operations, as appropriate, to achieve consistency with the goals of the Town of Kiawah Island Comprehensive Plan.

Legal Authority for the Reasonable Regulation of Land Development and Use

As a product of the state-mandated comprehensive planning process, the Town Council is authorized to adopt zoning ordinances and maps that are consistent with the Comprehensive Plan. These changes are made pursuant to the Planning Commission's recommendations based on its analysis and study of any specific or comprehensive planning matter. Numerous zoning techniques are contemplated by the state Planning Enabling Act, including cluster development, floating zones, performance zoning, and planned development districts. However, state statutes expressly authorize the Town to adopt other reasonable and lawful regulations that implement the policies and provisions of the Comprehensive Plan. Additionally, the Town, like all local governments in South Carolina, has broad home rule authorities conferred pursuant to a 1973 amendment to the South Carolina Constitution and new state legislation adopted in 1976.