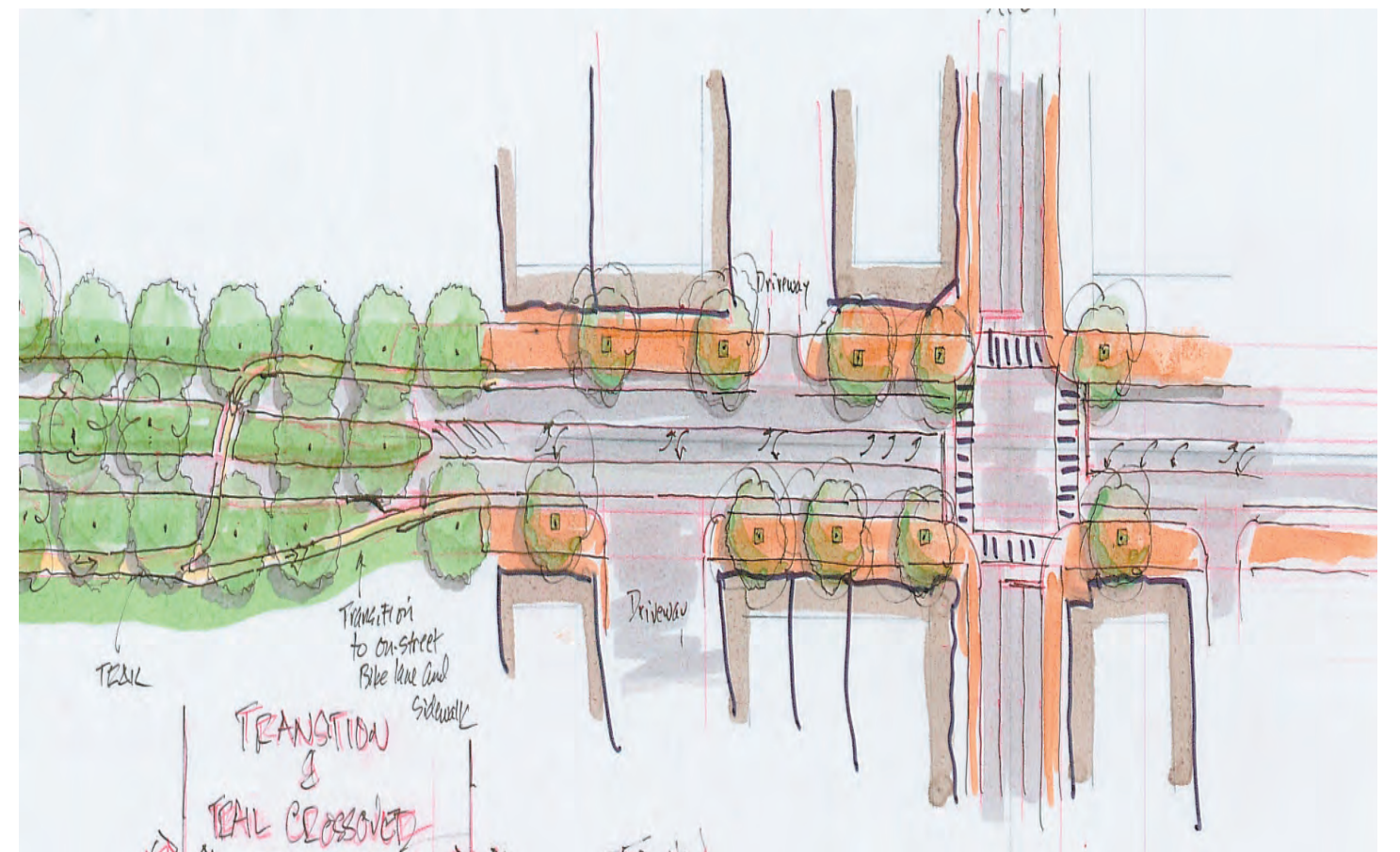




JOHNS ISLAND COMMUNITY PLAN

The City of Charleston, Department of Planning, Preservation
& Economic Innovation

Adopted by City of Charleston City Council
November 2007

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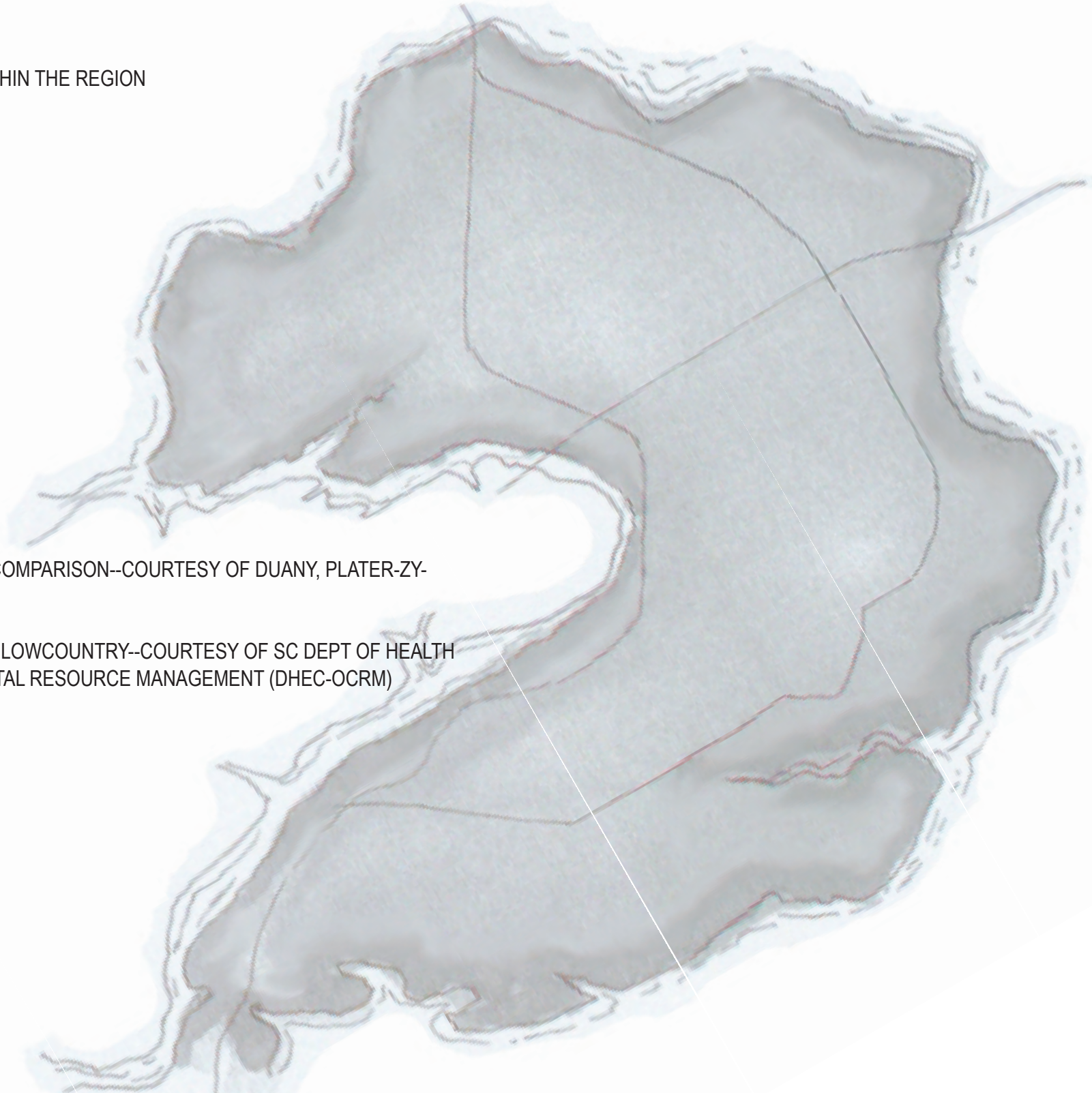
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JOHNS ISLAND COMMUNITY PLANNING WORKSHOP

The City of Charleston, Department of Planning, Preservation & Economic Innovation

Conducted: March 5th through 10th, 2007 Charleston, South Carolina

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Background Information, Study Area, Context within a Region

All areas within Charleston County, as well as across the State of South Carolina, are special. Johns Island residents, however, unite time and again to ensure that the characteristics that make their island unique remain so. Johns Islanders understand very well that the culture and heritage that embody their small rural sea island are the very attributes that are most threatened by unbridled development. Along with other communities across the State of South Carolina, Johns Island has experienced unprecedented growth and development during the last two decades. Concern is widespread that without adequate land use and development regulations, the scenic roadways, pristine natural surroundings, and agricultural heritage will be forever changed. The summary within the 1995 Johns Island Land Use Plan Update states:

“Johns Island is a scenic, rural sea island characterized by its numerous tree lined rural roadways, its generous network of saltwater wetlands and waterways, and its many historic structures and sites which dot the landscape. These natural and cultural resources are what make Johns Island a unique place to work, live, and visit. As Johns Island begins facing increasing development pressures, these natural and cultural resources are in danger of being lost forever. With the loss of each tree, each waterway vista, and each historic site, Johns Island loses a piece of its identity which distinguishes it from the neighboring, more developed sea islands. In an effort to allow development and the island’s resources to coexist, and at the same time retain the rural sea island character Johns Island is known for, the following guidelines have been developed....”

The key point is that it is up to us, as stewards of Johns Island’s unique character, to plan for the protection of what we treasure, to continuously measure the outcomes of our planning efforts, and to ensure that we are accomplishing our goals, while simultaneously allowing the island to grow. This principle has served as the basis for discussion of planning efforts on Johns Island for over twenty years. These efforts have been led by the City and County of Charleston with groups of Johns Island residents and property owners since the first annexation into the City in 1983. Today, a group of Johns Island residents, land owners, and other interested citizens have once again united to discuss the outcomes of previous planning efforts, identify

areas of concern, and develop resolutions to protect the overall character of this sea island.

The latest planning efforts on Johns Island continue to echo those of the past: the need to protect this rural sea island from adverse development. In fact, the plans state that Johns Island residents and representatives of the Island are concerned about:

- changing character of the Island’s scenic rural roadways;
- changing character of the Island’s agricultural heritage, its rural heritage, and the changing character of the Island’s waterways and salt marshes;
- Water quality impacts of new development in close proximity to saltwater wetlands and waterways;
- Destruction of archaeological resources;
- Incompatible alterations to historic buildings;
- Changes to the setting of historic buildings caused by new construction on adjacent properties – those changes that threaten the integrity of the Island’s resources.



ILLUSTRATION 1
The Peninsula in relationship to the Sutdy Area

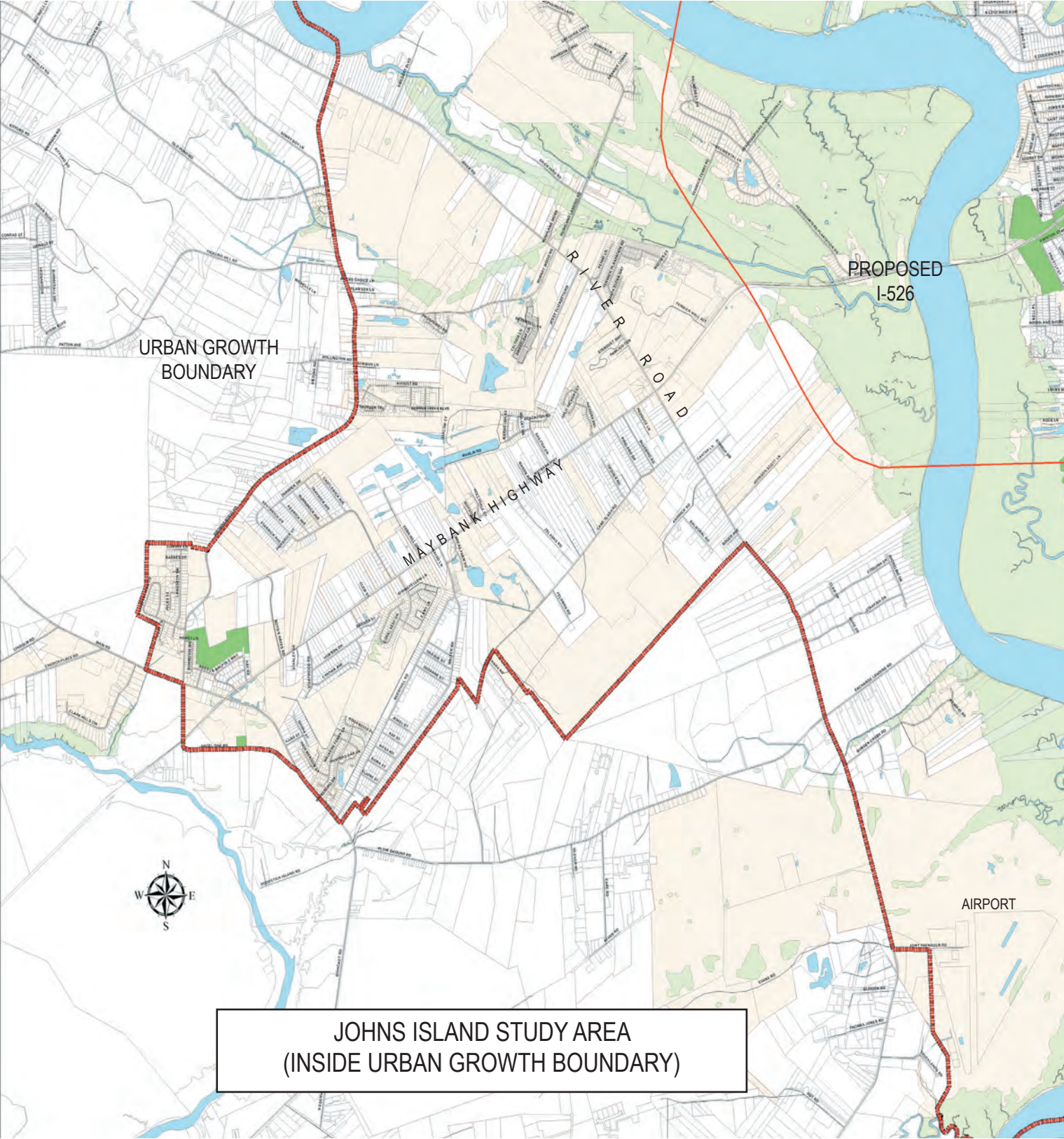


ILLUSTRATION 2



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**Background Information, The Study Area,
Context within the Region**

Planning for Johns Island: 1988 through 2006

Land use policy is the responsibility of local government, and the planning for Johns Island has been unique over the years. In the case of Johns Island, the responsibility falls under the jurisdiction of both Charleston City and County governments. Both jurisdictions have a solid understanding of the need for intergovernmental coordination. This is reflected in the intensive planning efforts for Johns Island to date. For nearly two decades, however, the decisions made regarding land use, zoning, and development on Johns Island have been led and determined by a consensus of citizens. During this time, two extensive land use plans were developed by residents and adopted by both governing agencies. The original Johns Island Plan was developed in 1988; its update was adopted in 1995. Planning efforts for Johns Island include the following:

1988 Johns Island Plan, an intergovernmental effort of the City of Charleston and Charleston County, led by a citizen’s advisory group, intended to facilitate consistent decision making regarding future land uses, development densities, and land development regulations on Johns Island;
1989 James and Johns Island Historic Survey, which was completed shortly before Hurricane Hugo and documented the Island’s historical and archaeological resources;
Charleston 2000, adopted in 1991, which included future land use recommendations for Johns Island;
1995 Johns Island Land Use Plan Update, also a coordination of both the City of Charleston and Charleston County and again led by a citizen steering committee. This plan was initiated because of increased development pressures on the Island;
1999 County of Charleston Comprehensive Plan, which established the Urban Growth Boundary designed to prevent urban and suburban development from expanding into rural areas, such as those that comprise rural Johns Island;
1999 Sea Island Comprehensive Health Master Plan; and,
2000 Charleston Century V City Plan, which coordinates the efforts of Charleston County by establishing the Urban Growth Boundary as policy.

In 1999, Charleston County adopted its first Comprehensive Plan. After years of public involvement and an extensive planning process, Charleston County established what has been dubbed an Urban Growth Boundary along the edge

of suburban areas throughout the County. The City of Charleston has supported the Urban Growth Boundary since its designation. The Urban Growth Boundary serves to: 1) protect rural qualities and agricultural uses for properties within rural areas, and 2) direct suburban growth to areas that are already urbanizing. The Urban Growth Boundary has been and continues to be an essential tool for managing growth on Johns Island. Illustration 1.

The City of Charleston wants to protect both the quality of rural and suburban areas on Johns Island. The “study area” for this plan is primarily defined as those lands that are located within the Urban Growth Boundary on Johns Island, South Carolina. The study area is composed of approximately 3,873 parcels of land, of which 2,413 parcels are within the City of Charleston, while the remainder of parcels are located within unincorporated Charleston County. The study area comprises 10,469 acres of land, while Johns Island in its entirety encompasses 48,670 acres—thus, the study area reflects 21.5 of the entire Island (which includes water and marsh area within the water’s edge of the marsh and the UGB).

It would be short-sighted to examine the study area without maintaining a regional planning context in mind. The study area is a sub-urban area of the City of Charleston. The development of this area has been and continues to be a direct response to the need for housing. Johns Island attracts many residents who seek a more remote, rural environment in close proximity to the urban core of Downtown Charleston, as well as to the surrounding sub-urban areas of West Ashley and James Island, for commerce, education, employment, recreation, etc. Growth on Johns Island within the study area has adhered to the land use plans that were developed by citizen-based committees of Johns Island with assistance from the City and Charleston County. However, based on what we know today in terms of sustainable settlement patterns, a continuation of the existing trend may prove detrimental to the overall character of this sea island; therefore, the City has been working extensively to develop a plan that recognizes the need to change and enhance efforts and policies that yield planned growth without compromising the unique character of Johns Island. It is recognized and emphasized that a limit to development on Johns Island exists in the form of an Urban Growth Boundary (Illustration 2, Page 1).

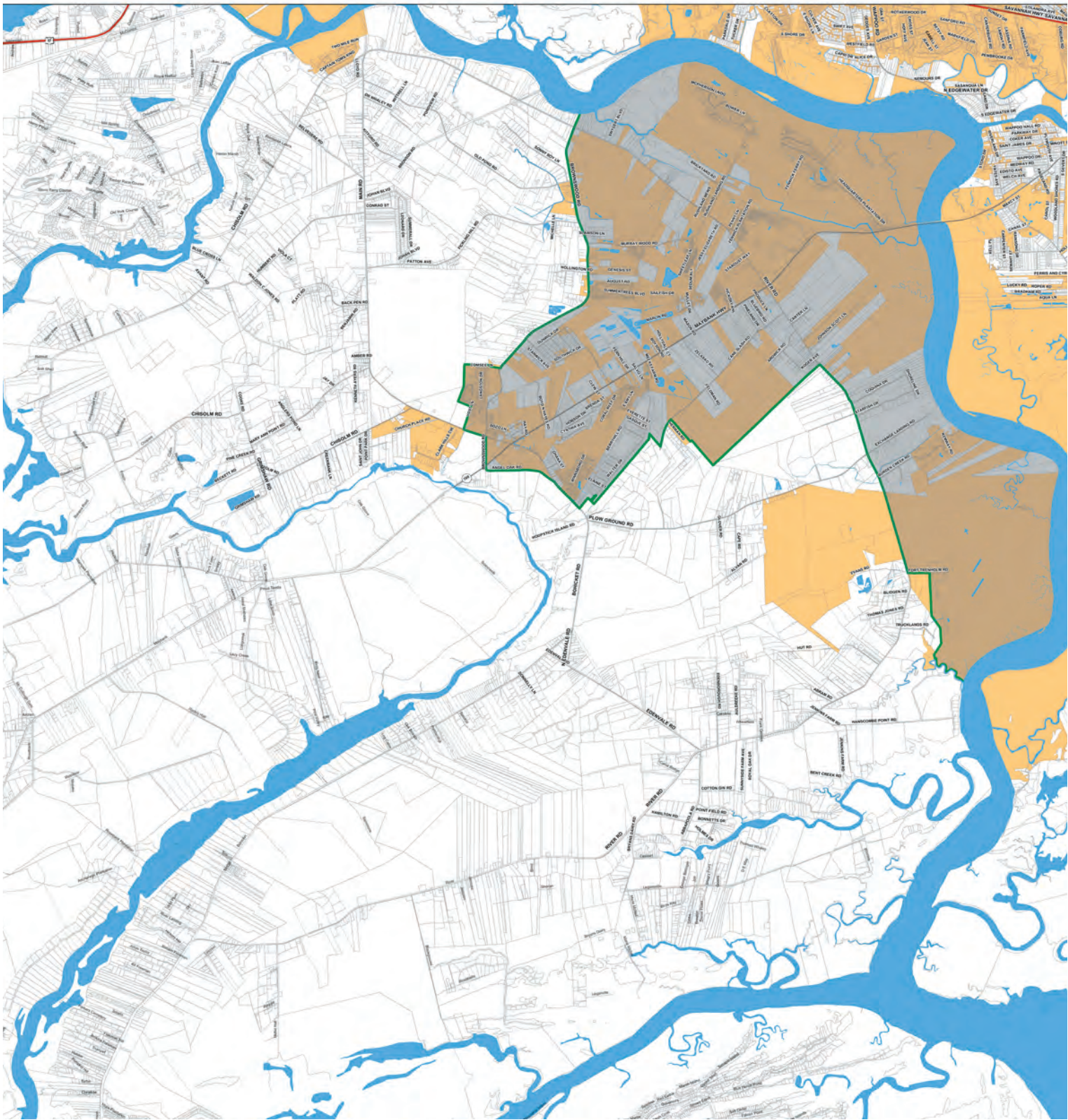


ILLUSTRATION 3
The Study Area in the Context of Johns Island



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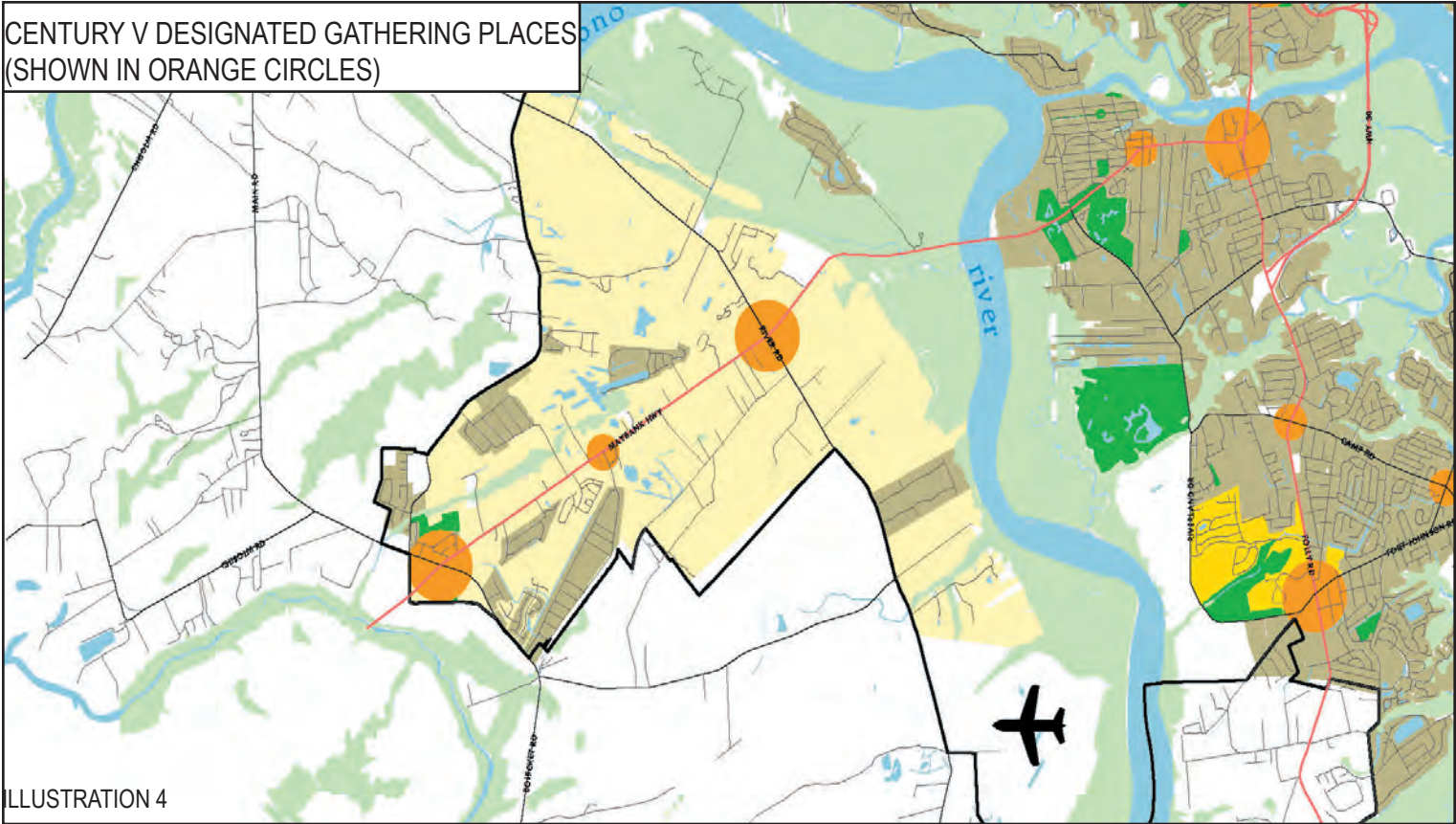
**Background Information, The Study Area,
Context within the Region**

Regional planning is a challenging task—one that will not occur without the cooperation of the respective jurisdictions of the defined region. In planning for the study area from a regional perspective, it is imperative that we acknowledge that growth will occur. No-growth movements and “burn-the-bridge” mentalities continue to deny the problem/matter at hand, rather than addressing it. In planning for Johns Island, this growth should be directed to the appropriate “receiving” areas and divert it from the inappropriate “sending” areas. The Johns

should not be detrimental to existing cities but rather should be complementary. The Johns Island Community Plan is the first of a set of sub area plans of the City that contribute to the paradigm shift in suburbanization of the City.

The Berkeley, Charleston, Dorchester Council of Governments predicted that the Johns Island population is projected to nearly double in size between 1990 and 2015 from 8,775 to 15,230 – a 75% increase, according to information cited in the 1995 Johns Island Land Use Plan Update. These projections were

CENTURY V DESIGNATED GATHERING PLACES (SHOWN IN ORANGE CIRCLES)



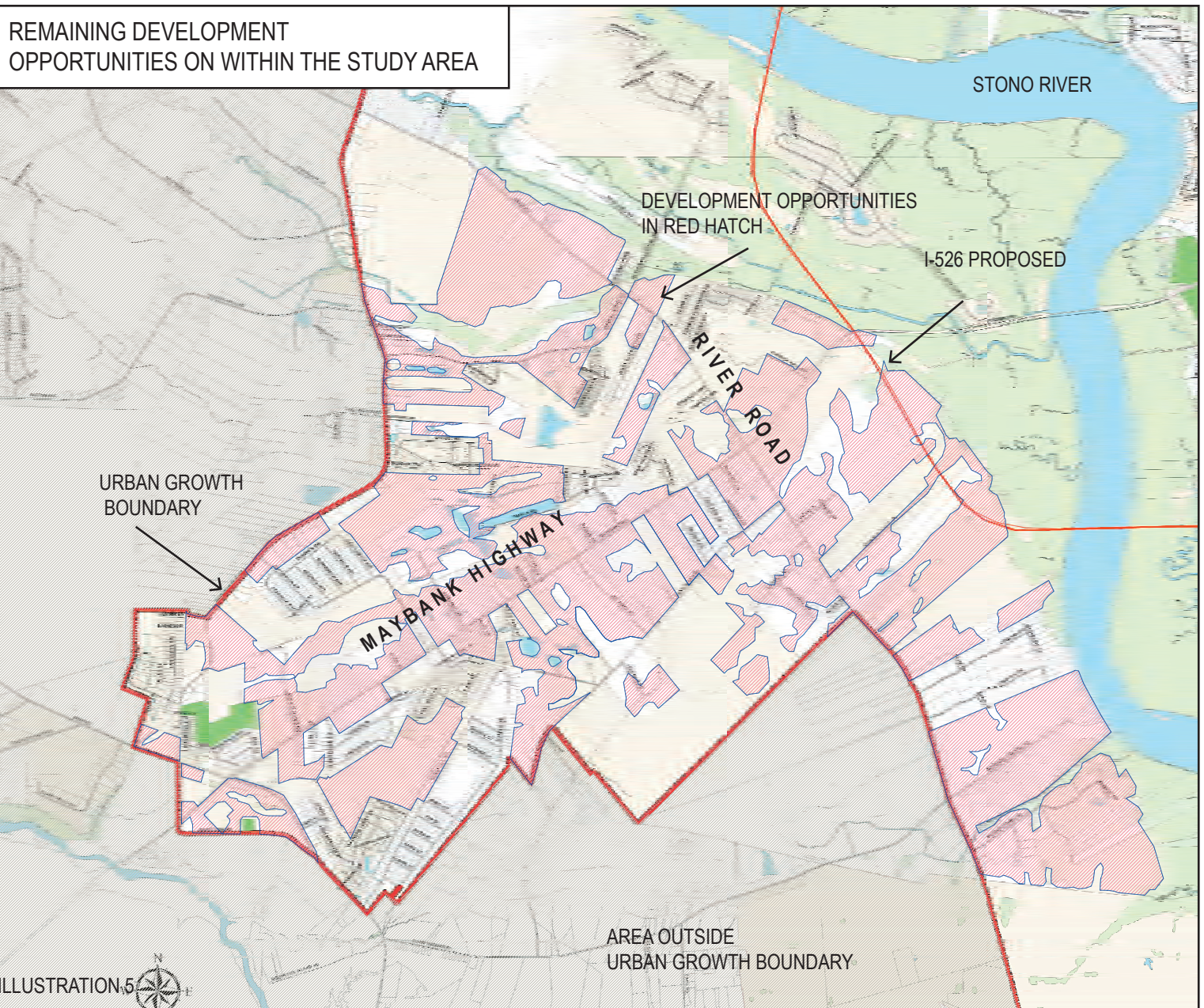
Island Community Plan is an attempt to address growth via implementation strategies rather than rehashing existing conditions.

Suburbs should complement and reflect the lexicon of settlement principles that created Downtown Charleston, including but not limited to human-scale form, inimitable public realm experiences, appreciated architectural detail, past preservation efforts, and a “green” urban experience via privatized gardens and public park spaces. Suburban growth

based on potential completion of the Mark Clark Expressway, potential residential buildout, and the availability of sewer on the Island. Today, ten years prior to this projected time, planned development on Johns Island could yield a total of 4,496 units, meaning that there could be an additional 10,026 people – a total of approximately 20,000 residents, which surpasses the 2005 projection by 58% and the 2015 population projection by 31%.

The City and County of Charleston have been working

REMAINING DEVELOPMENT OPPORTUNITIES ON WITHIN THE STUDY AREA



extensively to address this growth to ensure that it does not adversely impact the rural character of this sea island. Recent planning efforts are making the most of this growth by turning it into an opportunity to improve the quality of life on the island through transportation enhancements, affordable housing opportunities, preservation of open space and rural land, and mixed use developments that offer a variety of residential, commercial, employment, institutional, recreational, and open space opportunities.

It is essential to develop this sub-urban area efficiently. It is also essential, however, that suburban growth be managed so that the quality of life within developed areas of Johns Island improves as new neighborhoods are built and the region grows. Suburban growth must result in a quality urban environment so that the pressure to develop rural areas will be minimized. First and foremost, Johns Island is essential to the future of the region because it provides a unique agricultural resource within its rural district. Effective planning within the suburban area will ensure the prolonged place of this rural district. The City has



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responded to the citizen-led Johns Island Growth Management Committee as well as to participants of the design charrette by developing recommendations for policy changes that are unique to the study area and that are designed to integrate the higher density residential area with the outlying rural area. New development within the UGB will provide a rural feel unique to Johns Island while responding to housing and commercial needs on the Island. The Johns Island Community Plan establishes an appropriate framework for suburban growth within the study area of Johns Island.

Acknowledgements

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Johns Island Growth Management Committee
Anne Frances Bleecker, Chair, Sam Brownlee, Elliot Cohen, Chris Cannon, Phil Dustan, Andrew Geer, Jimmy Kerr, Mitch Laplante, John Peters, Emily Robinson, Megan Terebus, Joel Evans (Charleston County Staff), Andrea Pietras (Charleston County Staff), Christopher Morgan (City Staff), Allison Bello (City Consultant)

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Traffic Engineer: Walter Kulash
Planning Consultants: Keane Musty

Where would you prefer to live?



An arrangement of single-use pods with no beginning, center, or end; each use is strenuously isolated by code from the others by highways, walls, fences, parking lots, canals, etc.

Housing is mass-produced and strictly segregated by income level.

Everything beyond the front door requires a car trip; everyone over 16 must have a car.

Commuting to work is strictly by car, on roads simultaneously jammed with trips to school, exercise class, 7-11, breakfast...

Even neighborhood streets are engineered exclusively for cars; the rare pedestrian is frightened, embarrassed, sunburned, and bored.

Public buildings and churches are scattered along the strip among the McDonalds, Tire Kingdoms, and Payless Shoes.



A distinct center of integrated retail, office, and high density residential uses forms the nucleus; a wide mix of housing types, public spaces, and corner stores form the fabric; greenbelts create distinct edges.

Most daily needs and quite a few jobs can be found within a five minute walk of the front door; multiple cars become optional.

Mass transit stops are within a five minute walk for commuters; non-commuting car trips are also reduced as children walk or bike to school.

All streets are designed for people as well as cars; sidewalks are shaded and pass stores and homes, not parking lots; neighborhood streets are designed for low speeds.

Streets and squares create important locations for civic buildings that become symbols of community identity.

Civic buildings, churches, daycares, community centers, belong in special places; the top of a hill, the terminated vista of a street.

ILLUSTRATION 6

Courtesy: Dover, Kohl, & Partners



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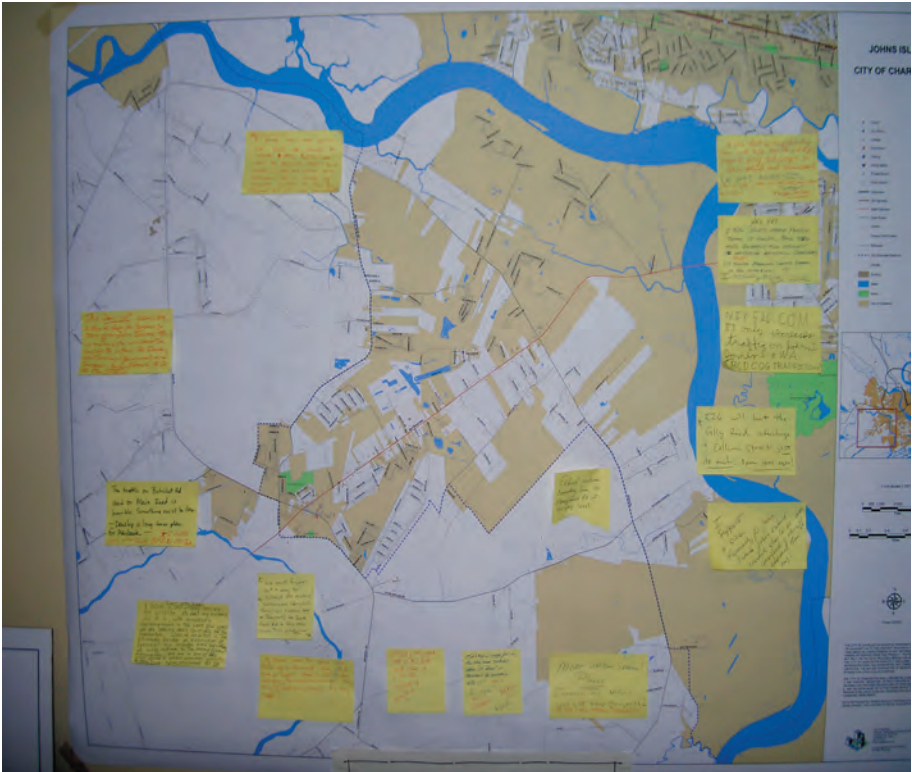
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Background Information, The Study Area, Context within the Region

Formulating the Plan

The Johns Island Community Plan was conducted in the public for the public. So often, jurisdictions plan for communities within the four-corners of the municipality's Planning offices without providing the opportunity for the public to comment/make suggestions/ask questions/etc. This is an inappropriate and ineffective planning method. Planning should be transparent and “of the people, for the people.” The City recognizes “planning in public” as the desired method to address planning matters. During the week of March 5-10, 2007, over 350 Johns Island stakeholders (residents, property owners, business owners, government officials, utility representatives, etc) attended the charrette in order to plan for the future of the study area (largest attendance for a weeklong charrette conducted by the City of Charleston). This plan is the public’s plan. . . Johns Island’s Plan.



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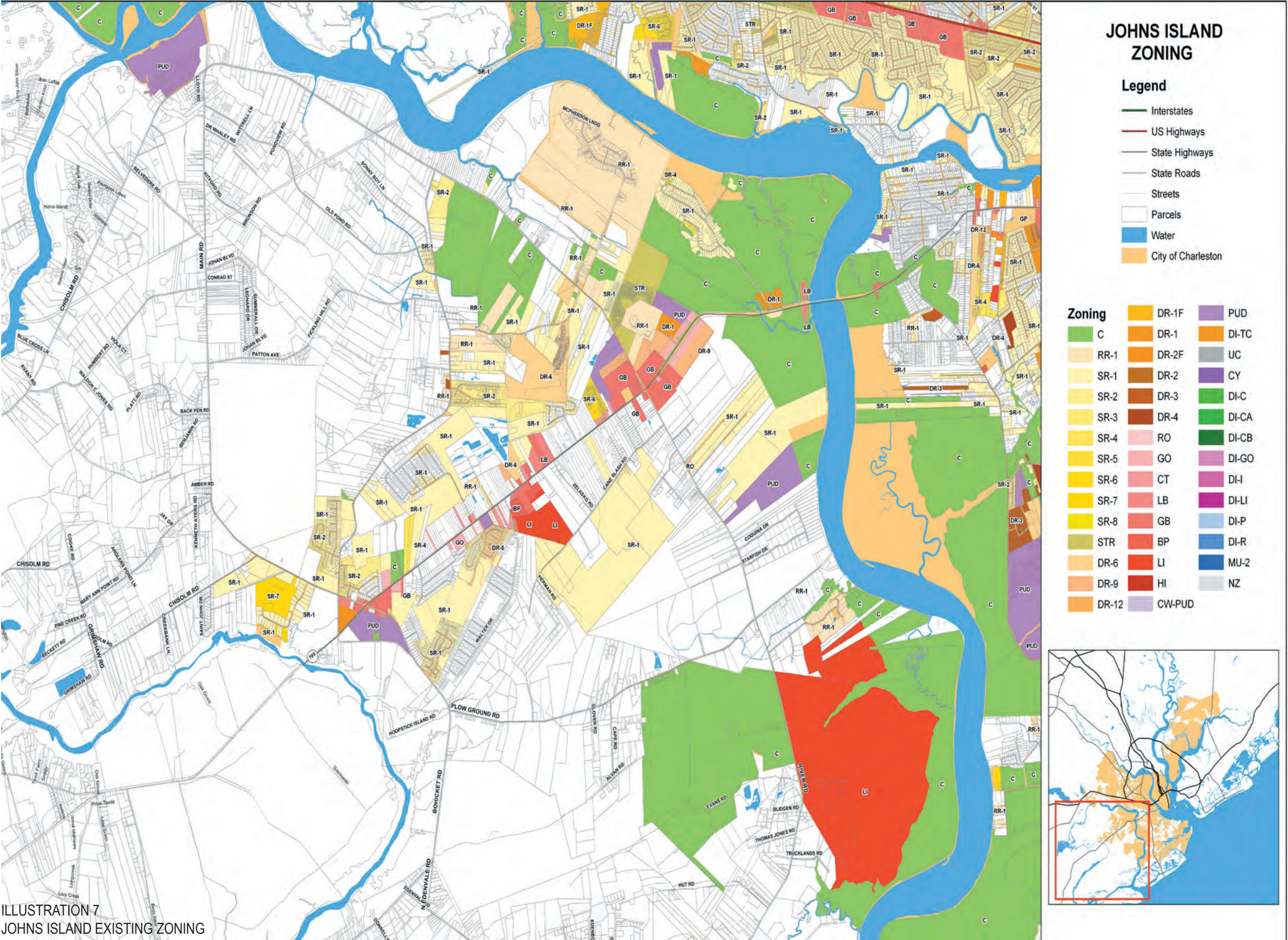
Settlement Patterns

Existing Conditions

At the time of this workshop, the study area on Johns Island consisted of properties that are either within the City, limits of the City of Charleston or under the jurisdiction of Charleston County. The planning, zoning and development regimes in place on Johns Island consist of conventional Euclidian, single-use zoning classifications and development ordinances consistent with 20th century practices. With regard to properties within the City, there are more than nineteen zoning classifications in use including SR-1, SR-2, SR-4, SR-6, SR-7, DR-1, DR-3, DR-6, DR-9, RR-1, CT, BP, LB, GB, C, GO, STR, LI, ND and PUD, along with several overlay zones.

During the workshop, it became clear that the current zoning of Johns Island is not sensitive to the context of Johns Island despite the fact that the current zoning/development standards adhere to previously recommended/adopted land use strategies for Johns Island. Just as other areas of the City of Charleston, Johns Island retains a sense of place that is unique to Johns Island. The directed settlement patterns by virtue of zoning and development standard ordinances should be sensitive to the context and simplified in order to promote preferred form rather than serve as a list of prohibitions. The “list of prohibitions” approach results in the end users trying to optimize their position without regard to the broader context.

A considerable proportion of the land within the Urban Growth Boundary has been developed or is occupied with wetlands, and as such, cannot be developed. The properties have been developed and are consistent with the zoning ordinances in place. A map delineates these properties from undeveloped properties and from properties that in their present state represent potential development opportunities (Illustration 3). The “potential development opportunity properties” are generally those that have one or only a few structures in place on a relatively large parcel. In many cases, these properties lie along Maybank Highway and are characterized by their relatively narrow and deep shape. It is recognized that the shape of these properties can be an obstacle to designing larger and more coherent neighborhoods or neighborhood centers.



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Existing settlement patterns for the most part illustrate conventional suburban design, uniform distribution of density (repetitive lot types), lack of focus on architecture/public realm, “heavy on the land” infrastructure patterns that do not respect the ecology of Johns Island and zoning that focuses on use rather than form, and haphazard building placement.

The City of Charleston, in its Century V Plan, designates three areas along Maybank Highway for development as Gathering Places. These areas are intended for compact, mixed-use, walkable neighborhoods employing an interconnected and complete network of streets. Further, these areas should accommodate a mix of uses including civic uses (school, library, satellite government offices) that complement existing home-grown businesses rather than displace them during the evolution of Johns Island. Illustration 4 shows the Gathering Place locations from the Century V Plan.

Conventional 20th century commercial developments have been built at the intersections of Maybank and River Road and at Maybank and Main Road. These commercial properties typically feature retail shells placed behind large parking lots. Fairly large setback requirements in addition to buffer requirements along Maybank allow for strips of planted land to act as visual screens which partially hide the shopping centers from the sight of passing motorists. These development patterns do not afford the built environment the opportunity to address the street and therefore produce a substandard public realm. For example, the design of the Peninsula affords unique interface between the buildings, streets, and ultimately the users of the space thus creating a more pedestrian-friendly environment. This type of compact, user-friendly design should be considered for the study area. This type of traditional neighborhood development, unlike suburban sprawl, results in a healthier growth pattern for the study area and Johns Island as a whole.

Currently, there are approximately ten new neighborhoods

(subdivisions) planned and approved for construction within the Urban Growth Boundary.

Recommendations

Adopt a tailored version of the Ahwahnee Principles for Resource-Efficient Communities as the Johns Island Covenant of Settlement Patterns

In 1991, at the instigation of Local Government Commission staff-member Peter Katz, author of the New Urbanism, the commission brought together a group of architects who have been leaders in developing new notions of land use planning: Andres Duany and Elizabeth Plater-Zyberk, Stefanos Polyzoides and Elizabeth Moule, Peter Calthorpe, and Michael Corbett. These innovators were asked to come to agreement about what it is that the new planning ideas - from neotraditional planning to sustainable design - have in common and from there, to develop a set of community principles. Essentially, the public input during the Johns Island Community Planning Effort reflected and/or echoed the thoughts of these principles. Thus, the City of Charleston should adopt a tailored version of these principles for the study area. All decisions involving settlement patterns should adhere to these principles upon adoption, and developers should demonstrate to the public how these principles have been reflected in the proposed settlement pattern.



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Settlement Patterns

Ahwahnee Principles

Preamble:
Existing patterns of urban and suburban development seriously impair our quality of life. The symptoms are: more congestion and air pollution resulting from our increased dependence on automobiles, the loss of precious open space, the need for costly improvements to roads and public services, the inequitable distribution of economic resources, and the loss of a sense of community. By drawing upon the best from the past and the present, we can plan communities that will more successfully serve the needs of those who live and work within them. Such planning should adhere to certain fundamental principles.

Community Principles

- All planning should be in the form of complete and integrated communities containing housing, shops, work places, schools, parks and civic facilities essential to the daily life of the residents.
- Community size should be designed so that housing, jobs, daily needs and other activities are within easy walking distance of each other.
- As many activities as possible should be located within easy walking distance of transit stops.
- A community should contain a diversity of housing types to enable citizens from a wide range of economic levels and age groups to live within its boundaries.
- Businesses within the community should provide a range of job types for the community's residents.
- The location and character of the community should be consistent with a larger transit network.
- The community should have a center focus that combines commercial, civic, cultural and recreational uses.
- The community should contain an ample supply of specialized open space in the form of squares, greens and parks whose frequent use is encouraged through placement and design.
- Public spaces should be designed to encourage the attention and presence of people at all hours of the day and night.
- Each community or cluster of communities should have a well-defined edge, such as agricultural greenbelts or wildlife corridors, permanently protected from development. (Note: The Johns Island community acutely values the concept of principles of wild-life corridors and connected natural spaces).
- Streets, pedestrian paths and bike paths should contribute to a system of fully connected and interesting routes to all destinations. Their design should encourage pedestrian and bicycle use by being small and spatially defined by buildings, trees and lighting, and by discouraging high speed traffic.
- Wherever possible, the natural terrain, drainage and vegetation of the community should be preserved with superior examples contained within parks or greenbelts. (The Johns Island community promotes the concept of building to the existing ecology/topography rather than altering the existing ecology/topography.)
- The community design should help conserve resources and minimize waste.
- Communities should provide for the efficient use of water through the use of natural drainage, drought tolerant landscaping and recycling.
- The street orientation, the placement of buildings and the use of shading should contribute to the energy efficiency of the community.

Regional Principles

- The regional land-use planning structure should be integrated within a larger transportation network built around transit rather than freeways.
- Regions should be bounded by and provide a continuous system of greenbelt/wildlife corridors to be determined by natural conditions.
- Regional institutions and services (government, stadiums, museums, etc.) should be located in the urban core.
- Materials and methods of construction should be specific to the region, exhibiting a continuity of history and culture and compatibility with the climate to encourage the development of local character and community identity.

Implementation Principles

- The general plan should be updated to incorporate the above principles.
- Rather than allowing developer-initiated, piecemeal development, local governments should take charge of the planning process. General plans should designate where new growth, infill or redevelopment will be allowed to occur.
- Prior to any development, a specific plan should be prepared based on these planning principles.
- Plans should be developed through an open process and participants in the process should be provided visual models of all planning proposals.

Source: Authors: Peter Calthorpe, Michael Corbett, Andres Duany, Elizabeth Moule, Elizabeth Plater-Zyberk, and Stefanos Polyzoides Editor: Peter Katz, Judy Corbett, and Steve Weissman



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Settlement Patterns

Plan by Form, not by Use. It is recommended that a range of forms be included in the neighborhood cores and edges. Uses within the buildings should be allowed to evolve over time as population, demographics, the environment and the economy change over time. This also provides greater opportunity for smaller and simpler dwellings that are, by their nature, more affordable. This will require a new approach to administering “uses”—form-based coding. The prevailing single-use practice is not sustainable and further encourages sprawling settlement patterns.

Establish Form-Based Zoning for the Study Area. Regarding form-based zoning, Rangwala states, “This approach shifts the focus of local government oversight from the conventional hyper-control of uses to a more limited (and rational) emphasis on the form of the built environment: the streets, the public spaces formed by the disposition of buildings, and the form of the buildings themselves. There are important differences between conventional zoning practice and form-based practice. In effect, conventional zoning assigns regulations to individual parcels as placeholders, but these, however, are seldom tied to a specific vision of how a community wants to look. Conversely, the regulations in form-based codes are keyed to various street and building types.

“In this format, the focus shifts from the regulation of activities on private property by location to encouraging property owners to build in ways that further a community’s sense of itself, particularly in terms of the design of the public realm. To communicate such a framework, form-based codes typically utilize drawings, diagrams and photographs. The public officials and designers find it easier to understand these than the lists, charts and formulas that dominate standard zoning practice. In practice, the basis of form-based zoning is the same as that for more conventional types; a comprehensive master plan, spelling out how a city wants to develop, underlines both. The form based alternative, however, seeks to develop a more meaningful implementation of the three-dimensional vision implied in the master plan. In particular, a form-based code is generally built on a regulating plan, which in turn relates to more specific building envelope standards, street sections, architectural standards, and definitions.

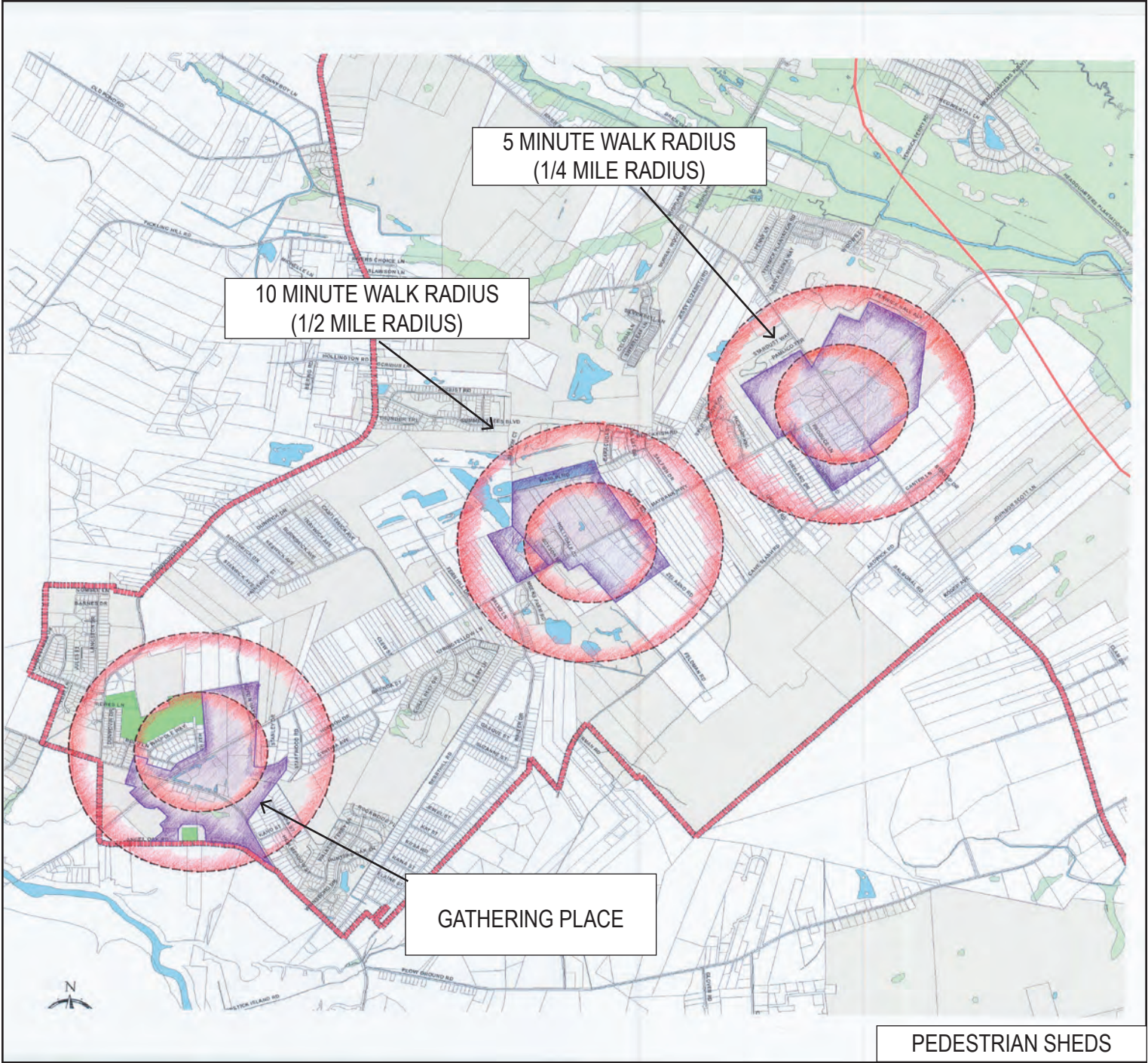


Illustration 8
Pedestrian Sheds: As a general rule, it is understood that most people will walk approximately 5 minutes to satisfy daily needs and 10 minutes to access public transportation. The illustration above shows that the major portion of each of the three designated C-5 zones falls within the 5 minute walk radius and they are all entirely within the 10 minute radius.

Of these components, the regulating plan is a drawing that specifies, in detail, what is only loosely defined in the City’s master plan. The function and location of streets and their relationship with buildings and open spaces are clearly defined on the regulating plan. Building heights, the siting of buildings on a lot, and uses are then further defined by means of building envelope standards. Typical street sections specify the cartway widths, curb radii, sidewalk and tree planting area dimensions, on-street parking configurations, and other amenities. Architectural standards regulate the important public elements of the facade.

Finally, certain terms not readily understood by the public, or meant to be used in a specific way, are clarified in a definition section. In addition to revamping assumptions about what a zoning code is intended to regulate, the production and administration of such an alternative regulatory structure requires an interdisciplinary sensitivity to urban design, architecture, landscape design, traffic engineering, and even market demand. Crafting the regulating plan and associated building envelope standards also requires knowledge and experience in drawing — typically using computer-aided design software. Finally, specifying building envelope and architectural standards require an understanding of architecture, landscape architecture, and building construction.”

It is proposed that a form-based zoning approach be introduced on Johns Island as an alternative to the conventional, Euclidian zoning that currently exists. This zoning scheme would be based on the form-base of each zone and not based on a pattern of single-use, separated zones. Each zone would define all the variables associated with neighborhood structure, block and site structure, building massing and form and building types as well as identify and prescribe the attributes and variables that determine how a neighborhood is structured and built, and therefore, how it functions.

Form-based zoning is similar to the ecological concept of describing habitat by viewing it in a transect format (a vertical slice across the habitat) and recognizing that human, animal, and vegetative habitats work best where there are

intense and diverse cores that transition to less intense areas and ultimately to undisturbed natural surrounds. In terms of planning for human habitat, these cores are compact and built to a human scale. They are also diverse, which is to say that there are a variety of building types, civic spaces and activities (uses), occurring within the core. As a result, these places are eminently walkable as dwellings are commingled and adjacent to places of employment, retail businesses, civic institutions and places of recreation.

Form-based zoning promotes the idea of “complete” neighborhoods. Complete neighborhoods offer all of the necessities of life along with various civic amenities and services. Daily shopping needs are nearby. Schools are within biking and walking distance. Park space is accessible within biking and walking distance. Transit stops are within a ten-minute walk of the majority of dwellings. And in some cases, places of employment are within a few minutes commute from home.

The form-based code should inventory and respect the ecology of Johns Island (see Awahnee Principles) and the natural resources inventory should be utilized to proactively plan proposed settlements around low-lying areas to avoid flooding. Also, “rural/country” development standards for those properties located outside of the UGB should be developed and adopted.

Building on the Century V Plan, it is recommended that a Form-based Zone be established which draws on the Gathering Place Ordinance as the areas of the most compact and diverse neighborhoods. The previously identified Gathering Place locations would be circumscribed and “zoned” accordingly. The neighbor-

hoods surrounding this zone would be designated for development at a lower overall density and subsequent surrounding areas would likewise be zoned at decreasingly lower densities until a rural preserve region is reached at the edges. This type of zoning approach would produce a gradient or transition of density as described in the Johns Island Growth Management Committee’s recommendations. Those properties located within the City but outside of the UGB should be rezoned to respect the gradient of density/transect. It is important to note that prior to the adoption of a form-based code, the study area will need to be further analyzed to calibrate a form-based code that is of its place.

This approach to defining the requirements for construction of human habitat is closely aligned with the overall recommendations of the Johns Island Growth Management Committee and previous planning efforts. It focuses development along the Maybank Highway in neighborhood cores. It produces neighborhoods that are mixed-use and compact, and therefore, effectively walkable. It is conservative in its use of land as it promotes compact patterns of development rather than hyper-low density suburban patterns that are land consumptive. And, it offers the opportunity to build a wide variety of housing types that can accommodate a diverse group of family types and income levels.

Illustration 10 shows a proposed deployment of form-based zones as described.

During the course of formulating the Johns Island Community Plan, Staff prepared an “at first glance/thought” regulating plan for Johns Island. The purple areas are designated T-5 and

(NC): Neighborhood Center

The Neighborhood Center is a place where a great range of building types are expected and encouraged. The Neighborhood Center is spatially compact and is more likely to have attached buildings compared to Neighborhood General and Neighborhood Conservation Zones. Multi-story buildings in the Neighborhood Center are well-suited to accommodate a mix of uses, such as apartments or offices above shops. Live/work combinations and buildings designed for changing uses over time are appropriate for the Neighborhood Center. The Neighborhood Center is within walking distance of the surrounding, primarily residential areas.

GENERAL REQUIREMENTS:

These are overall dimensional requirements for the Neighborhood Center transect zone. These requirements shall apply where building type-specific requirements are silent.

Front Build-to Zone	0 ft to 15 ft (from front property line)
Lot Width	25 ft minimum 80 ft maximum
Rear Setback	25 ft (from rear property line)
Side Setback	0 ft (from side property line)
Street Frontage* (see Note 5)	see permitted bldg. types for specific frontage requirements
Height	1 stories minimum 3 stories maximum
Parking	On-street, in rear **
Accessory Buildings	Permitted
	0 ft side setback
	5 ft rear setback w/rear lane
	0 ft rear setback w/out rear lane

*Where a building does not occupy 100% of the street frontage, a garden wall, living fence, or hedge shall be installed along the street frontage (see Section VI).

**Rear lanes, where present, shall be the primary source of access to off-street parking.

PRECEDENTS:



Courtesy: Dover, Kohl, & Partners
Urban Standards



PERMITTED USES:

- a. Uses permitted in the Mixed Use (MU) District and Village Commercial District (VCD), as well as attached dwelling types.
- b. Other uses which are of the same general character as the above permitted uses, as determined by the Town Architect.
- c. For special uses, applicants would have to seek approval through the Special Exceptions process, as outlined in Article VII of the Town of Bluffton Zoning Ordinance.

NOTES:

- 1. Appurtenances may extend beyond the height limit.
- 2. All permitted uses are allowed on all floors.
- 3. Building fronts for commercial and mixed-use structures shall have at least one of the following: arcade, colonnade, marquee, porch, or awning.
- 4. Residential structures shall have a front porch or stoop.
- 5. When a lot consecutively abuts more than one street, it shall maintain at least 50% street frontage along its secondary street, in addition to the requirements for its primary street frontage.



Illustration 9
Transect-Based Planning--Courtesy DPZ & Co.

Illustration 10
Form-Based Code Example--Bluffton, South Carolina

DRAFT 10.02.06 Old Town District Code

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would be built using a modified version of the current Gathering Place Ordinance. The dark red areas are designated as T-4 zones and would be designed according to a modified version of the current Neighborhood District Ordinance. The pink areas are designated T-3 (which would be less dense), while green represents zone T-2 (less dense still), and the remaining surrounds would be classified T-1 (as a “rural type” zoning).

Special use districts (typically for industrial/commercial use) are also established to provide appropriate places for activities that by their nature should be removed from neighborhoods and neighborhood cores. It is recommended that guidelines for the design and construction of the T-3 and T-2 zones be prepared so that if development occurs within these areas it is consistent with existing patterns in these areas and so that it does not take on a conventional sub-urban pattern. Again, it is important to note that prior to the adoption of a form-based code, the study area will need to be further analyzed to calibrate a form-based code that is of its place.

Focus on and Invest in the Public Realm. In conjunction with the proposed form-based zoning, it is recommended that particular attention be given to the definition of streets and public spaces as places of shared use. The Gathering Place Ordinance requires that buildings be placed close to the street creating a sense of enclosure and allowing the buildings to form public spaces. Like-wise, the configuration of streets is important in contributing to both aesthetic qualities and functional attributes. In addition, the inclusion of well-proportioned and properly detailed greens, squares, plazas and parks completes the assembly of the public realm. The proposed form-based code will address these factors to assure that the neighborhoods may properly serve their residents and guests.

An appropriate example of Post WWII design that did not focus on enhancement of the public realm is the “strip mall.” Ironically, these strip malls in a regional context are well-situated for new “neighborhood centers” that can serve surrounding neighborhoods in a more complete manner. The recommended form-based code should include techniques for “unstripping strip malls” in a phased fashion that respects leases that are in place, phased parking scenarios, and incorporation of big box retail if so desired by the City, etc.

Design Complete Streets. Neighborhood streets should be designed with the following considerations in mind. Streets should evoke safety for pedestrians and cyclists via a street geometry that induces motorists to drive slowly. This is accomplished by keeping neighborhood streets narrow as well as focusing attention to curb radii and on-street parking. On-street parallel parking in neighborhood streets act to reduce perceived travel lane width and generally influence motorists to drive slower.

Streets should be “light on the land” (environmentally sensitive). Hence, the amount of impervious pavement should be minimized, or if possible, eliminated. Existing dirt roads contribute to the soft edges and the light and whimsical nature of Johns Island. Also, swale drainage coupled with low curbs or no curbs would allow for the natural drainage inherent in the porous soils found on the island.

Requiring street trees in compact neighborhoods will result in a desirable visual aesthetic as the trees mature and contribute environmentally. Trees intercept precipitation, hold water, convert carbon-dioxide to oxygen, hold soil in place, provide habitat and food for many life forms, create soil, define spaces, cool the ground, reduce heat island effects, yield wood and shield pedestrians from moving vehicles.

Street design should incorporate pedestrian access so that pedestrians have a place to walk; therefore, street design must incorporate sidewalks, crosswalks and environmentally sensitive lighting. In a similar way, streets and roads in low-density areas should be designed to minimize environmental impacts and reflect the “rural” character of the Island.

The current street standards of the City of Charleston do not yield the flexibility needed for “light on the land” approaches to roadway infrastructure. The City should adopt street standards that reflect the aforementioned principles. The design and materials utilized in all dimensions of settlement (building construction, streets, sidewalks, etc.) of a more natural element could become a national model and will maintain the rural feel of Johns Island.



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Prepare a Set of Architectural Principles.

In general, the architectural vernacular of native Johns Island is light and whimsical. So that a sense of place is preserved and enhanced, it is recommended that a set of principles for architecture be prepared to inform owners, designers and builders as to preferred architectural choices. These principles would be based upon a study of Johns Island and Sea Island vernacular. It would discuss aspects of proportion, massing and form and address roof pitches, overhangs and eaves, fenestration and exterior elements such as porches and bays. It would address materials, finishes and color schemes and door and window shapes and types. It would address recommended practices in application of exterior detailing. It should not prohibit, however, evolution of newer solutions to construction problems as the economies and technologies of construction change and as design innovation advances, such as solar design. These principles or “promotions of appropriate form” should be incorporated into the form-based code for Johns Island.



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Implement Height Control by Story. Height controls based on dimensional limits tend to produce uniform roofscapes. As illustrated, floor limits can produce a skyline with variety as well as a captivating built environment. Given the architectural vernacular of Johns Island/Lowcountry Sea Islands, building height should not exceed three and a half stories and should respect the prevailing height of the elder live oak canopy.

Discourage Uniform Distribution of Density. One of the predominant characteristics of sprawl is uniform patterns in terms of building massing and types and uniformity in terms of lot and site plan. It is recommended that in the T-2 and T-3 zones the zoning codes allow and encourage variety in building disposition and lot plans. This means, that in some places, buildings can be clustered closely or that they would not be set on a uniform setback. The existing low-density areas of the island reflect a provisional planning approach where a variety of buildings have been placed as needed or desired by their owners.

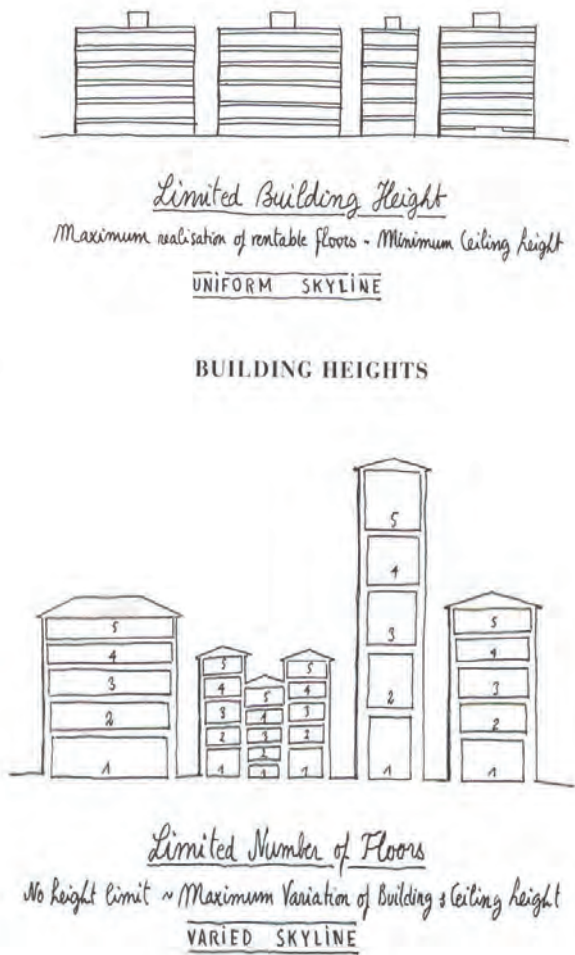


Illustration 11-These illustrations are taken from Leon Krier's book, Architecture, Choice or Fate, Papadakis, 1998



Inappropriate settlement pattern for Johns Island



COURTESY KEANE-MUSTY

Illustration 12: Samples of Neighborhoods that conform to existing Neighborhood District & Gathering Place Ordinances



COURTESY KEANE-MUSTY



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Thinking Regionally, Acting Locally.

In all decisions involving future settlements for Johns Island, the context of the Region must be respected as outlined in the aforementioned Ahwahnee Principles. Also, cooperation between Charleston County and the City of Charleston on all matters related to Johns Island future is a given.

Adopt an edge for the City of Charleston. Metropolitan regions are finite places with geographic boundaries derived from topography, watersheds, coastlines, farmlands, regional parks, and river basins. The metropolis is made of multiple centers that are cities, towns and villages, each with its own identifiable center and edges. The center of the City of Charleston is identifiable as the peninsular downtown. The edge of the City of Charleston, however, should be given more thought. The concept of the Urban Growth Boundary is one that attempts to define this edge from a regulatory fashion. This edge is well-defined if it is based upon geographic boundaries as described above versus that of an arbitrary line on a map. It is important to establish the necessary and fragile relationship to the City’s agrarian hinterland and natural landscapes via this edge. The relationship should be one of an environmental, economic, and cultural eminence. With this said, the City should study the concept of the edge and the associated regulatory policies and procedures. The goal should be to protect the area surrounding the UGB as rural/agricultural while providing for and enhancing housing, economic development, civic, social, recreational opportunities within a well-defined area that has already experienced extensive development and growth.

Maintain rural areas/invest in the Greenbelt in defining an edge. Moreover, in order to create the “forever” edge, the City (with Charleston County) should preserve the rural areas outside of the City as well as invest in the Greenbelt/ecological barrier. The protection of rural preserve and reserve areas can be achieved via other techniques known as the transfer of development rights (TDR) or the purchase of development rights (PDR). The transfer of development rights serve as an opportunity to

concentrate development in certain areas, protect other critical areas from development, and compensate property owners where development is not encouraged. Rather than extinguishing development rights in areas slated for protection, a TDR program transfers those rights to other property allowing this “receiving property,” typically located within the city Limits, to develop at greater densities than would otherwise be allowed. TDRs, however, may not be allowable in the State of South Carolina and thus would require enabling legislation. Also, an institutional “allowance holder” is often needed to account for the trades and/or bank available rights. Purchase of Development Rights (PDR) programs identify private property important for water quality, wildlife habitat, and other purposes, and provide funds to buy specified development rights from the owners. Therefore, the easement (may be a conservation easement as well) may, for example, prohibit subdivision and limit construction on the parcel to one house, while allowing the owner to continue to use the property for forestry, farming, hunting, and other rural activities.

Encourage Charleston County to adopt the recommended form-based code for the study area and apply it to those properties within the study area that are of Charleston County jurisdiction. The aforementioned adoption of the code will ensure consistency and comprehensive planning for the subject area. The converse, mutually exclusive planning, should be discouraged as it contributes to suburban sprawl-like settlement patterns. Further, the City should support the continuation of regular meetings between County and City urban designers and planning staff to ensure that new developments and improvements on Johns Island are consistent regardless of jurisdiction.

At an even higher level, the City should coordinate efforts with local, state, and federal agencies and organizations to identify the Island’s cultural and natural resources, incorporate them in the comprehensive planning process, and define a strategy for protecting and enhancing them.

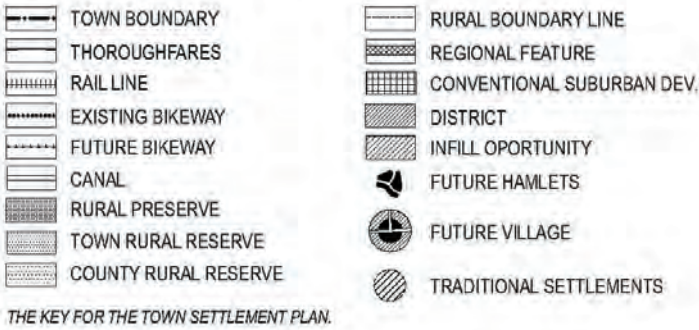
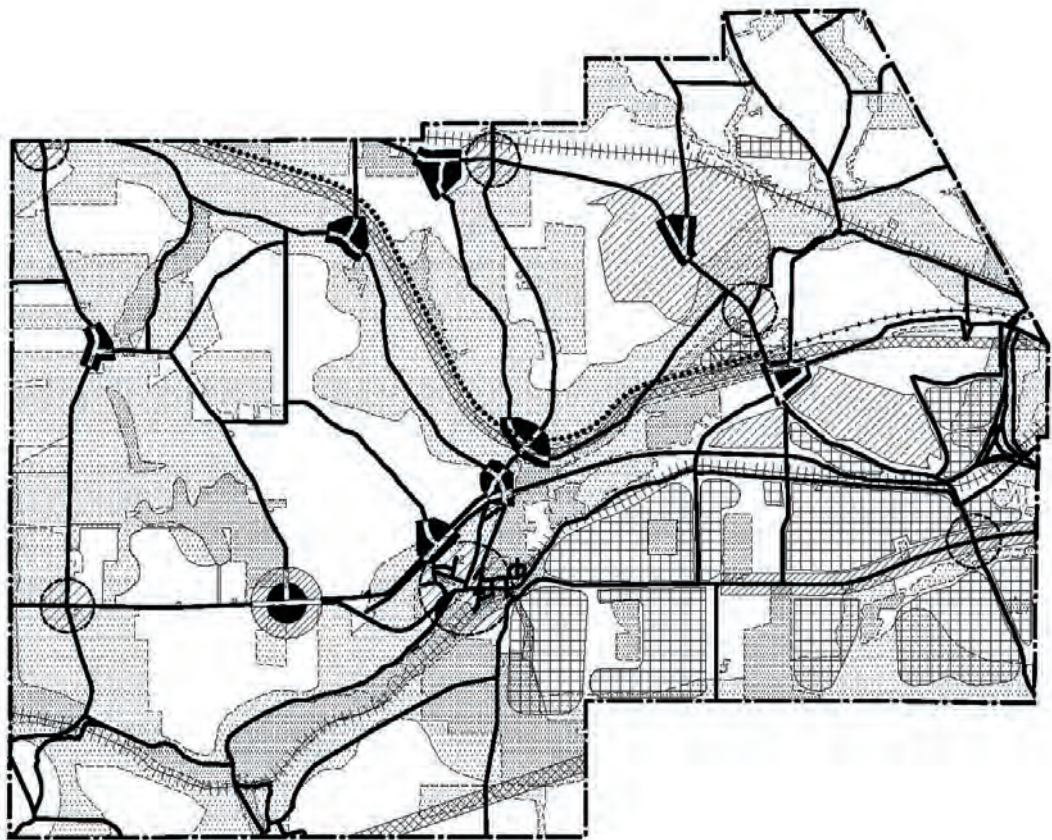


Illustration 13-Sector Plan
Courtesy: Duany, Plater-Zyberk & Company



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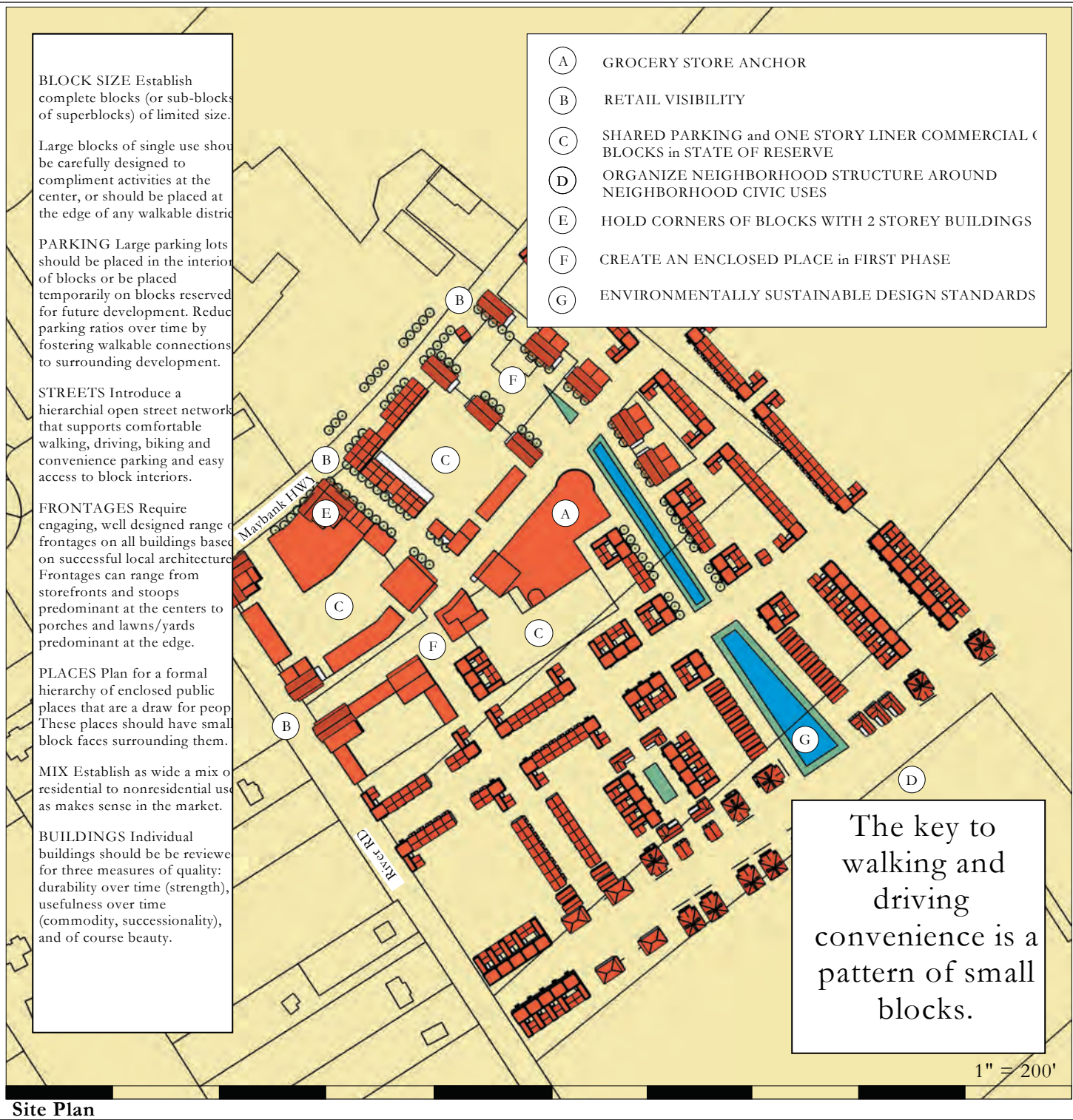
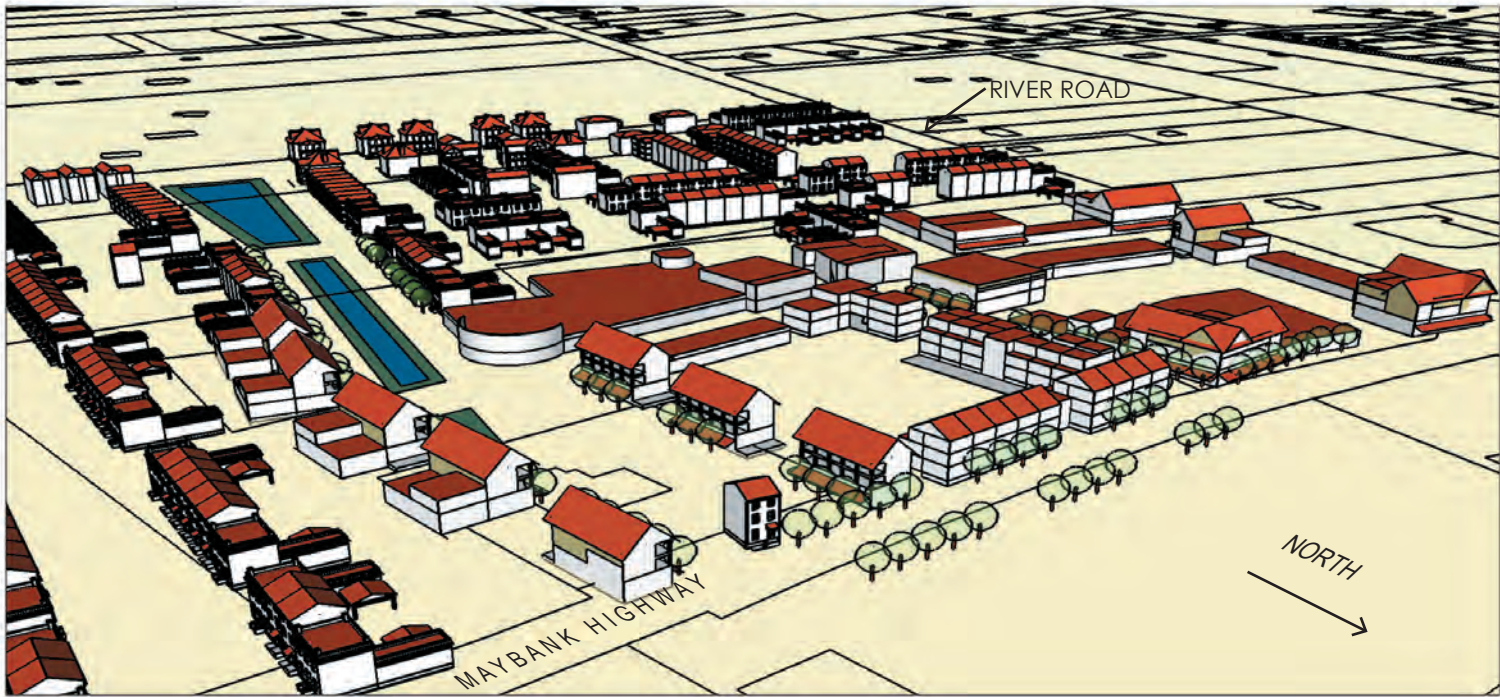
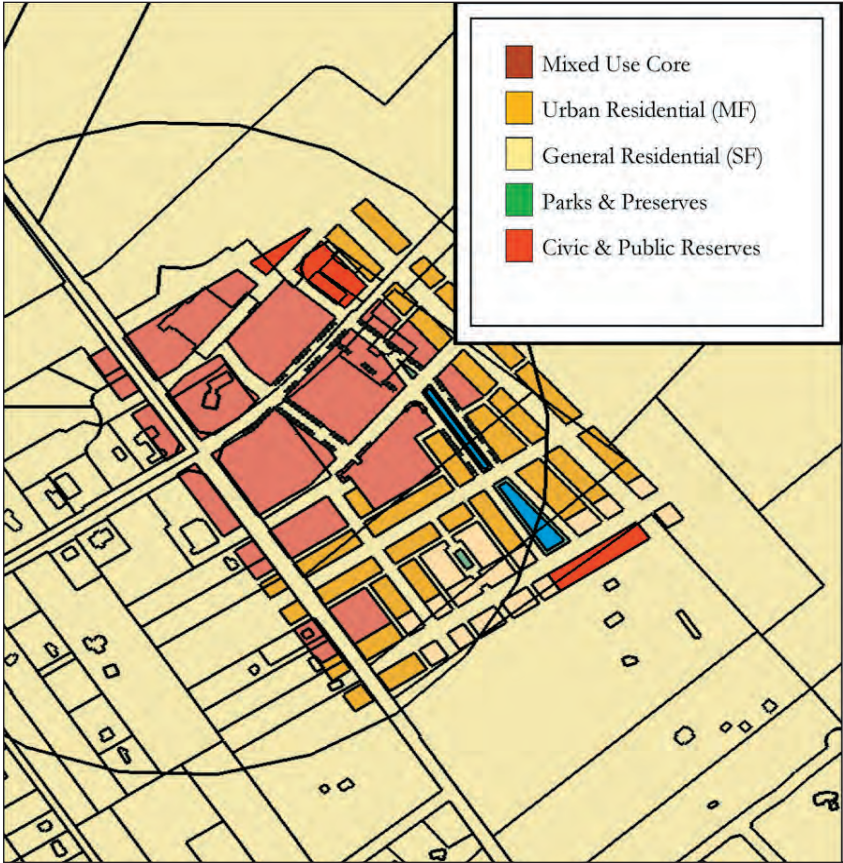
Settlement Patterns

CONCEPTUAL SETTLEMENT PLAN FOR THE SOUTHEAST QUADRANT AT MAYBANK AND RIVER ROAD

During the Johns Island Community Plan, this location was planned under a “what if?” scenario. What if the City adopted a form-based code for Johns Island? What would the resulting form reflect under such a code in the neighborhood cores? This location represents a significant opportunity to apply compact, walkable and diverse design principles (form-based code) on Johns Island.

These illustrations show the kind of patterns and arrangements of buildings, streets and public spaces that produce a sense of place, conserve land and shift development away from conventional 20th century models.

Public, private, civic and environmental spaces are all present in a seamless pattern of small blocks conveying an investment in the public realm of the study area.



Illustrations 14-16: Examples of Gathering Place Form



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Affordable Housing

Affordable housing is an increasingly important issue both in the entire Charleston region and on Johns Island in particular. The City of Charleston defines “affordable housing” as housing that is affordable to households making up to 120 percent of the area median income (AMI) for owner-occupied units and 80 percent of AMI for rental units, adjusted for number of persons in the household. The U.S. Department of Housing and Urban Development (HUD) publishes the area median income for the Charleston/North Charleston Metropolitan Statistical Area annually. “Affordable” is generally defined as housing that does not require a household to spend more than 30 percent of its monthly income on housing costs.

Increasing land costs, the desirability of the Charleston market, and the national and international interest in owning homes and real estate in Charleston all play a role in increasing the cost of housing. The low wages earned in most jobs in the Charleston area and the stagnancy of the area median income over the last several years lend to difficulty in many achieving the goal of homeownership or the necessity of providing larger subsidies to close the affordability gap. Given the complexity of the issue and the lack of definitive

information on complete housing affordability within the project area, thorough research is needed to fully document the level of housing affordability. The inclusion of affordable housing will ensure that Johns Island continues to be a diverse community representing various sectors of the citizenry in this area of the city.

Recommendations

The City of Charleston should adopt incentivized inclusionary zoning as part of the establishment of the form-based code Century V Plan amendment.

Incentivized Inclusionary Zoning is a legal tool which encourages the private sector to include a percentage of affordable units as part of a market rate development. The fundamental purpose of incentivized inclusionary zoning is to allow the development of affordable housing to become an integral part of new development taking place in a community. A typical incentivized inclusionary zoning ordinance will set forth a minimum percentage of units to be provided in specific development affordable households at a particular income level, generally defined as a percentage of the median household income. The goal is to establish a relatively permanent stock of affordable housing units provided by the private market. In many ordinances, the municipality provides some form of incentive to the developer in return for the provision of affordable housing. These incentives can take the form of

waivers of zoning requirements, including density, area, height, open space, use or other provisions; local tax abatements; waiver of permit fees or land dedication; fewer required developer-provided amenities and acquisitions of property; “fast-track” permitting; and/or the subsidization or provision of infrastructure for the developer by the jurisdiction.” (“Inclusionary Zoning: A Viable Solution to the Affordable Housing Crisis?”, Dr. Robert W. Burchell and Catherine C. Galley, the Center for Housing Policy)

The targeted percentage should reflect the current income distribution within the planning area, but the recommendation is for no less than 30% of new housing on Johns Island to be affordable/workforce. Exact levels of densities permitted for including affordable and/or workforce housing should be addressed/justified via a thorough housing strategy for Johns Island. This housing strategy should respect the location quotient aspect of affordable housing—i.e., analyzing from where employers are attracting employees from in a geographical sense. The opportunity to reduce commuting traffic, energy use, and unwanted congestion is a desire of the Johns Island residents as a whole.

The City should adopt a tiered set of incentives for affordable housing. Specifically, implementing ordinances for this plan should provide the strongest incentives for developers building homes, condominiums, and apartments for households earning annually 30% to 80% of the AMI, along with lesser incentives for households earning 80-120% of AMI. This tiered system would give more flexibility and perhaps permit more housing units depending on the income range to be targeted.

Establish a committee (Johns Island Affordable Housing Committee) that comprises City’s Department of Housing, Charleston Housing Authority, County housing authority, and non-profits charged with providing affordable housing (such as Sea Island Habitat for Humanity,

Lowcountry Housing Trust, Humanities Foundation) that will collaborate on locations within and outside the UGB for affordable housing, as well as share resources to further building construction, affordability, and home ownership. This group can be formed to do a more in-depth study of the need for affordable housing as well as implement the recommendations of this plan.

The Johns Island Form-Based Code should specify different levels and types of incentives that will be available depending on the proportion of affordable homes the developer commits to build or the extent of assistance the developer will offer to non-profit builders to construct these homes. Developers should be allowed to fulfill their affordable housing commitments in the planning area by partnering with non-profit builders. The City should continue to provide assistance to non-profit developers to build affordable housing. For instance, assistance could be in the form of absorbing infrastructure costs, offering financial assistance and/or land, providing City-administered federal and state housing programs subsidies, and other means. Some incentives to be considered are:

- (a) Expedited permitting;
- (b) Reduction or waiver of permit and other fees;
- (c) Reduction and deferral, reimbursement, or waiver of impact fees;
- (d) Incentivized density for the inclusion of affordable housing. Number of units would be determined by (i) the number of proposed units allowed under current zoning and (ii) the targeted homebuyers for the affordable units. Such units shall carry deed restrictions limiting the resale of the property to income-eligible buyers at a reasonable price within a given period of time.

During the calibration of the proposed form-based code, the City should examine the exemption of affordable units in the density count of proposed settlements within the study area on Johns Island. **These incentives may be refined based on the recommendations to be made by the Affordable Housing Incentive Taskforce.



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Affordable Housing

The Johns Island Form-Based Code should permit accessory dwellings in all zones. Accessory units can provide more-affordable housing for many more people than can be housed through stand-alone housing projects.

The City should consider expanding its current owner-occupied housing rehabilitation program to Johns Island. The program would assist low- to moderate-income homeowners to address maintenance and construction issues and allow them to remain in their houses and on Johns Island.

Rental Housing. As with homeownership, the provision of affordable rental housing for residents at various income levels is crucial to the life of a community. Currently, the City’s Housing Authority owns and manages twenty-four rental properties on Johns Island. The City also works with both nonprofit and for profit housing developers to build rental housing in other areas of the City. The City should seek to enhance opportunities for rental through continued partnerships with developers to ensure that this segment of need is addressed. Further, the City should seek opportunities for acquisition of property to complement the affordable housing efforts being implemented by the private and nonprofit sectors.



Economic Opportunities

Johns Island, with its rural character and rustic charm, presents opportunities for economic development, which can provide for the creation of shops, businesses and commercial uses that allow the residents to work close to where they live as the evolution of the area within the UGB occurs. The UGB also maintains and protects the more agricultural, locally-based opportunities offered in the outlying areas. With its quaint, rural feel, this agriculturally-based economy can be supplemented by economic development opportunities that complement the allure of this great place. Johns Island has a strong sense of self and a tremendous sense of pride and protection for its unique ag-ronomical and undisturbed character. Economic development visions for Johns Island must embody this temperament and help foster the creation of shops and other commercial activities that support these activities.

As reported by the Pearce Group in a Post and Courier special in the fall of 2007, large-scale farming may not be able to regenerate due to the exorbitant land costs across the greater metropolis area. However, smaller, niche farming is growing in popularity and has a home-base awaiting on Johns Island. Furthermore, the study and subsequent report by the Pearce Group states that “remaining African-Americans on heirs property lands could be given specialized technical assistance to readapt their families’ historic farm skills to current practices and market demands, employing improved technology and far less grueling stoop labor than in the past.”

Furthermore, the Pearce Group reinforces the recommendations of the Johns Island Community Plan to support local growers, local seafood produce, and local businesses by establishing a Charleston-region food distribution system. The Pearce Group supports this recommendation by saying “Couldn’t the region lead America, not lag, in today’s strong movement toward fresher, more local and more nutritious foods? Great foods from one’s own sea and soils is a perfect fit to the themes poised to give the Charleston area its distinctive 21st-century brand: preservation, restoration, new technologies and inventive use of incredible historic resources. A sustainable Lowcountry future, we’d argue, depends on it.”

Johns Island’s strengths for economic development include: (1)

talent/skill based strengths; (2) geographical strengths; and, (3) logistical strengths.

Talent/skill based strengths include:

--The agricultural assets of the Island provide locally grown produce, local seafood, farm grown flowers and local artisan’s crafts. Engaging the non-profit, Lowcountry Local First, to help promote buying locally could further support these assets.

--Explore opportunities to further smaller, niche agricultural that will maintain the rural character of Johns Island while promoting economic development.

--The superb potential to expand upon the already existing talent base of craftspeople for fine luxury, custom home items such as cabinetry, countertops, landscaping, tile and stone work, pools and fountains, millwork, ironwork, etc. The owners of the many custom homes of Kiawah and Seabrook and the Johns Island area in general are potential consumers.

--The ability for Charleston area interior designers to easily build upon the businesses described above and develop showrooms, design studios and businesses for oriental rugs, gas lanterns, plantation shutters, woven natural shades, plumbing fixtures, decorative lighting fixtures, cabinetry accessories, custom built closets, etc.

Geographical strengths include:

--The natural beauty of the rustic environment, including beautiful landscapes, abundant live oaks and tree canopied roadways, all cradled between peaceful waterways.

--A strong sense of agricultural history, with many agriculturally-based businesses already in place. This could be expanded by greater marketing of locally grown products to Charleston area restaurants and markets and building upon the dynamic and explosive organic food industry. Natural farming products are highly sought-after. Farms where people can pick their own produce, educational field trips for children and hosting workshops on a variety of topics (such as growing organic fruits and vegetables, canning techniques, gardening tips, etc.) at local farms could be very enticing. Coordination with the SC National Heritage Corridor’s efforts to enhance Ag-Tourism should be explored on Johns Island.

--Support local growers, local seafood produce, and local businesses by establishing a Charleston-region food distribution system.

--The great location for corporate retreats. A high end resort such as Blackberry Farm in Tennessee would serve a unique niche.

--The ability to have equestrian based businesses (due to the nature of the secluded, rustic atmosphere of Johns Island).

--The environment for outdoor recreational activities that creates the inherent need for more businesses that embrace ecotourism and outdoor recreation such as a kayak rental business, boat sales and rentals, fishing, boat tours, bird watching, camping, hiking, etc.

--The Johns Island Executive Airport, which would support concierge-like businesses such as a small, gourmet market featuring fresh local produce, or a car-rental facility/gas station that will be provided for on the airport site.

Other strengths include:

--The Johns Island Executive Airport, with runways long enough for many varieties of jet aircraft (including modified 50 seat jets). This provides opportunities for easy travel in and out of this verdant retreat.

--The availability of water and sewer in much of the designated growth area.

--The potential future connection to the greater Charleston region via the Mark Clark Expressway Extension (I-526).

--The great potential for residential development along Maybank Highway.

--The visitors to Kiawah and Seabrook, as well as the wealth of many of the area residents.

--The three planned mixed-use centers along Maybank Highway.

--Apply relevant principles from the SC Agriculture Commissioner’s marketing plan for in-state grown products – labeled ‘certified SC’ – to plans being generated by Johns Island business/farming coalition.

A befitting economic development plan for Johns Island must be mindful of the challenges of the area, including (1) the limited capacity of the existing road system; (2) the relatively high cost of land (because of the island’s beauty, waterfront access and rural charm); (3) the current lack of a broad base of industrial development; and (4) the need to improve the quality of local schools.

The residents of Johns Island have desires and wishes for the progression of the area, and these concerns are of the utmost importance. Their sentimental attachment to the character and unique nature of Johns Island is evident and duly noted. Furthermore, the residents have expressed a need for an increase in basic services such as a local market to sell locally grown produce, local seafood, farm-grown flowers and artisan’s crafts, grocery stores, pharmacies, office supply stores, hardware stores, other retail shops, restaurants (particularly those with a local flavor), childcare and preschool options and other services such as banking, legal, accounting, and employment services businesses. There is also a need for increased medical services, such as an emergency outpatient clinic that would likely fulfill a great need in the area. Other basic medical services such as pediatric care, family practice care and ob/gyn care are needed as well.

The Johns Island area should be the subject of a market study to carefully consider the area’s potential for economic development opportunities. The land use element of any such study should designate special “Work Zones” for two areas of Johns Island that have historically been work centers. The first area, located near the middle of Maybank Highway, abuts several light industrial businesses and an office/light industrial/flex space business park. The second area, located adjacent to the Johns Island Executive Airport, currently houses a few light industrial businesses and offers the potential for more job generating uses. The intent of these “Work Zones” is to conserve the land earmarked for economic development and to discourage residential housing in these areas.



JOHNS ISLAND COMMUNITY PLANNING WORKSHOP

The City of Charleston, Department of Planning, Preservation & Economic Innovation

Conducted: March 5th through 10th, 2007 Charleston, South Carolina

Economic Opportunities

Parks and Recreation
Existing Conditions

The study area includes two key public park spaces, the City’s Johns Island Park (located along Brownswood Road, near the intersection of Maybank and Main Roads) and the Angel Oak Park (also near the aforementioned intersection in the south-west quadrant). The Johns Island Park meets current population needs for park space for recreational fields and other active recreational activities - it is classified as a “Neighborhood Park” in the City’s parks hierarchy. The Angel Oak Park is a passive “Civic” park, and hosts visitors to the world famous oak as well as special events.

As the population within the Urban Growth Boundary increases, green spaces and future park and recreational needs will become critical issues on Johns Island. Given Johns Island’s unique Sea Island character, it is also important that these spaces reflect the character of Johns Island. For example, access to water is a key element of traditional Johns Island lifestyles. Thus, acquisition of public waterfront access should be a top priority for green space and parks planning. Waterfront access opportunities can be as simple as locations for crabbing docks and views of waterfront vistas or be more active places such as launching areas for canoes and kayak “blue ways” systems.

This plan recommends examining all new developments for opportunities to provide functional green space. Each new development that adheres to the recommended form-based code for Johns Island should have its design centered on such green spaces. Furthermore, this code should promote/educate developers/applicants on the various types of green spaces that are appropriate within each transect zone. These spaces may be small locations for just enjoying trees and sunshine or larger locations for basketball games or organized youth activities. But the key to the success of future developments on Johns Island involves proper inclusion of and planning around such green spaces. Lots may be made smaller to accommodate these spaces, but with proper design, the look and neighborhood character of the development will be valued more than the open spaces traditional large-lot-only developments have presented.

The City of Charleston Parks Plan anticipates the need for an additional neighborhood park of between 7 and 30 acres on Johns Island. Given that much of the new development within the UGB is occurring near the Maybank and River intersection, it is recommended that such a park space be located within a mile of this intersection.

Johns Island is filled with unique land features that would create unparalleled opportunities for parks and green spaces. Just as the new Whitney Lake development has centered its design on the beauty of Whitney Lake, future developments should also plan around these unique features and natural amenities. Manmade and natural lakes, creeks, wetlands, and, of course, waterfront properties should all be evaluated in this regard.

A number of tracts of land exist near the edge of the Urban Growth Boundary (UGB), or perhaps just outside of it, that could serve as future green space or for recreational needs. One such need the City of Charleston will have in its future is for an additional public golf course. It is possible that this course could be located in one of these “urban fringe” areas of Johns Island, helping to reinforce the Urban Growth Boundary and “surround the City with green” as the City’s Century V City Plan directs. These fringe areas may also serve as preserved green spaces that could still contain active agricultural/forestry operations that continue to exist while the development rights have been acquired or transferred.

Recommendations

Acquire public access to water and waterfront areas. The City, via a thorough study, should identify the most appropriate and feasible locations for open space acquisition. The City should purchase key open space opportunities in the future that provide public access to amenities that typically take privatized form. In order to fund these acquisitions on a “forever” basis, the City should coordinate with all future developers to implement a real estate transfer fee on planned residential units at a percentage fee of .25% of the sales price. Instead of having the real estate transfer fee being discretionary with the South Carolina State Delegation, the City should recommend that the fee be via a contract with each future developer/development on Johns Island. The proposed contract should incorporate the following purposes:

- To acquire fee and less than fee interest in land while

it is still available to be held in perpetuity as wildlife preserves are believed to be needed by the public in the future for active and passive recreation uses and scenic easements to include the following type of land: ocean, harbor, and pond frontage in the form of beaches, dunes, and adjoining backlands; barrier beaches; fresh and saltwater marshes and adjoining uplands; land for bicycle paths; land protecting existing and future public water supply, well fields, highway buffering, and aquifer recharge areas; and land for wildlife preserves; land for future public recreational facilities.

- To acquire already developed land or development rights in order to convert its use to a public use, to restore the property to open space, or to re-define that property in accordance with the City’s current Comprehensive Plan and dispose of it as soon as possible.

The City should continue discussions with Charleston County Parks and Recreation Commission to identify potential sites for water access that would allow opportunities for crabbing, shrimping, resting, and/or launching a kayak/canoe or boat into the surrounding water bodies, as well as to address other park needs on Johns Island.

Public parks and green spaces should be required in all new developments. Development standards tailored specifically to Johns Island should be developed to determine exact sizes and amenities needed for such spaces via the calibration of the recommended form-based code.

The City of Charleston should seek to acquire land within a one-mile radius of the Maybank/River Road intersection for use as an additional neighborhood park. This parkland could be assembled through cooperative arrangements with planned/proposed developments in this area and/or in conjunction with a new Charleston County School District school facility in this area. (Illustration 10).

The potential for larger green spaces/parks at the Urban Growth Boundary or just beyond should be analyzed. Study these areas for potential long range larger scale recreational needs, such as a new public golf course, or simply preserved green space in line with the goals of the Century V City Plan. This concept should also be studied and developed in conjunction with the SCDOT Roadside Management Standards to retain, restore, and enhance the visual quality of Johns



JOHNS ISLAND COMMUNITY PLANNING WORKSHOP

The City of Charleston, Department of Planning, Preservation & Economic Innovation

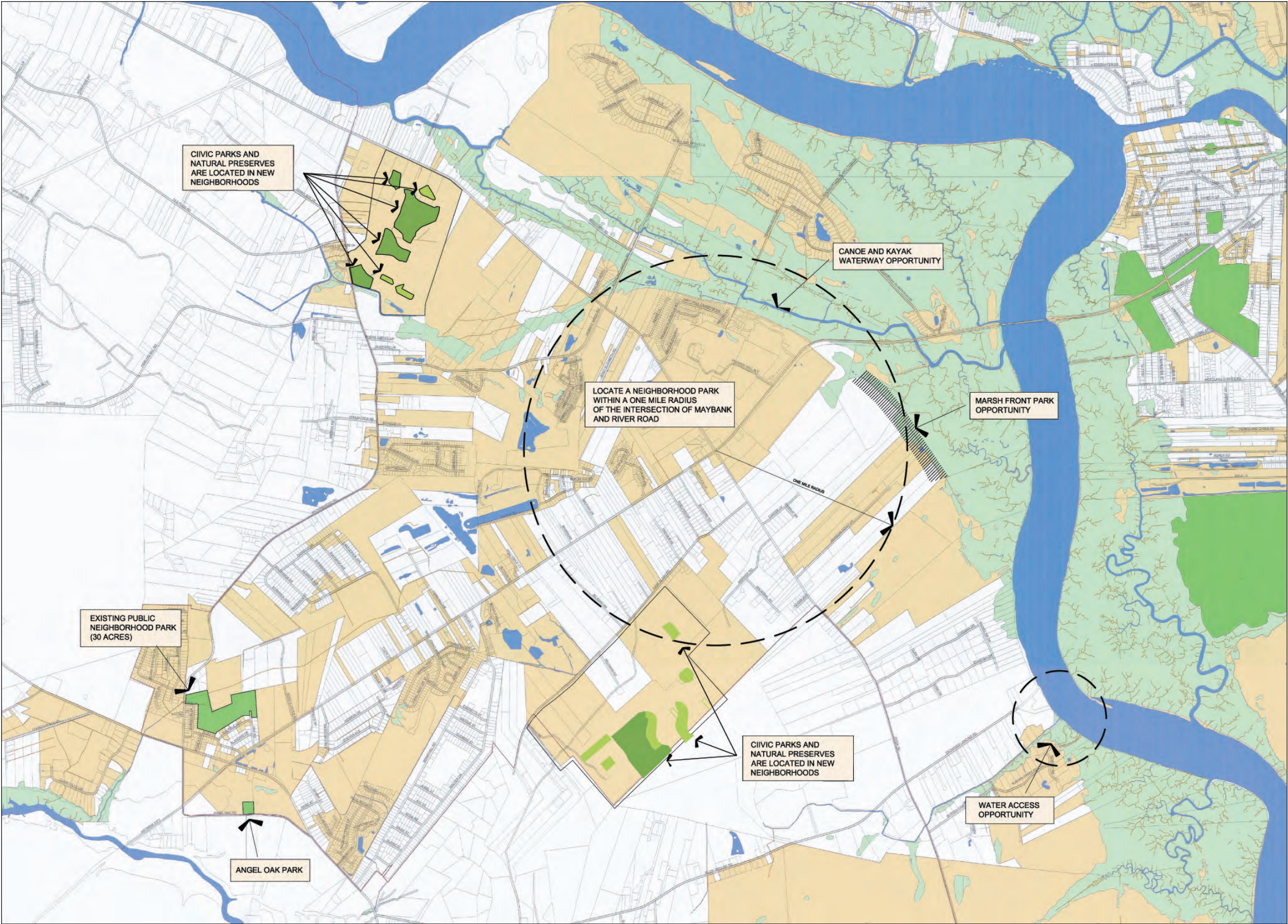
Conducted: March 5th through 10th, 2007 Charleston, South Carolina

Open Space & Recreation

Islands scenic roadways.

Explore opportunities for providing additional ballfields on Johns Island to serve growing population. This effort can be coordinated with Charleston County School District.

Investigate possibility of coordinating water access/blue-ways trail plans with the SC National Heritage Corridor program to further and share resources.



JOHNS ISLAND COMMUNITY PLANNING WORKSHOP

The City of Charleston, Department of Planning, Preservation & Economic Innovation

Conducted: March 5th through 10th, 2007 Charleston, South Carolina

Open Space & Recreation

TRANSPORTATION

Findings/Current Conditions

The current trend sees an increasing number of motor vehicles using the primary and secondary roads on Johns Island. This effect is due to construction of new neighborhoods and other uses on the island and on Kiawah and Seabrook islands. The limited amount of interconnectivity forces this added traffic load onto the existing arterial roads, which increase traffic congestion and create longer travel times within and across the Island. It is expected that this trend will continue for an extended period of time. The increased load on thoroughfares is causing traffic congestion along the roads and at intersections, particularly at the intersections of Maybank Highway and River Roads and Maybank, Main and Bohicket Roads.

Conventional responses to this type of traffic congestion involve road widening and intersection enlargements. Because of the extraordinary canopy created by stands of trees along extensive portions of these main roads, the prospect of road widening is not acceptable (see photos below). The results of a survey of the existing road canopy condition show the extent and nature of this highly desirable condition and are included here in this report (Illustration 18).

It is recognized and emphasized that a limit to development on Johns Island exists in the form of an Urban Growth Boundary (Illustration 3, Page 2). Enforcement of this boundary will ultimately limit the amount of development and population on the island, and therefore will limit traffic generated by residents and visitors to the island.

Considering the implications of global climate change and shifts in the use and availability of conventional fuels and energy sources, it is imperative to emphasize alternative forms of transportation on Johns Island. Walking, cycling and the use of mopeds, along with public transit modes, will become more prevalent in the near future. In light of these anticipated changes, it is sensible to plan now for connectedness of both conventional streets and roads while providing pedestrian and bicycle pathways. Currently, a deficiency exists in terms of multi-modal options on Johns Island.

I-526 (Mark Clark Expressway) Extension to and Across Northeast Corner of Johns Island

The potential extension of I-526 to Johns Island was easily the most divisive issue discussed during the Community Planning Workshop in March of 2007. The City of Charleston's Master Road Plan already includes this roadway segment so it was not the role of this workshop or planning effort to determine the final status of this project. There are other past and future transportation related studies that have looked or will continue to look at the extension of I-526.

The project team, however, was in full agreement that new development is inevitable to Johns Island in the future whether or not I-526 is extended. In fact, all the major projects within the UGB are currently being developed and approved, with no consideration of the timetable for the I-526 completion.



Not appropriate on Johns Island
Standard 5-Lane arterial with a center turn lane



Appropriate on Johns Island
Typical tree lined and canopied Johns Island Road

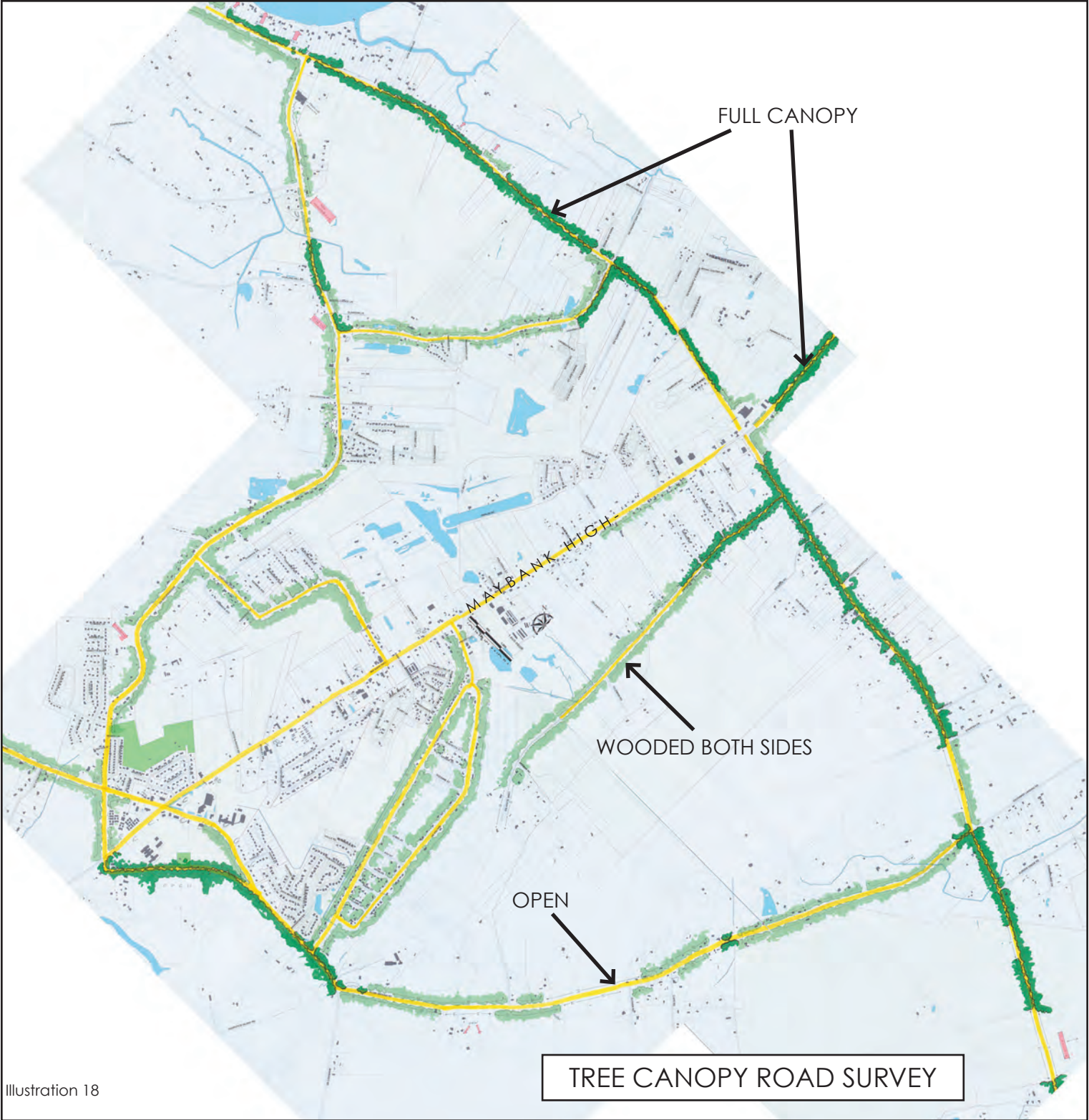


Illustration 18



JOHNS ISLAND COMMUNITY PLANNING WORKSHOP

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Transportation

MAYBANK HIGHWAY FOUR AREAS OF CONSIDERATION

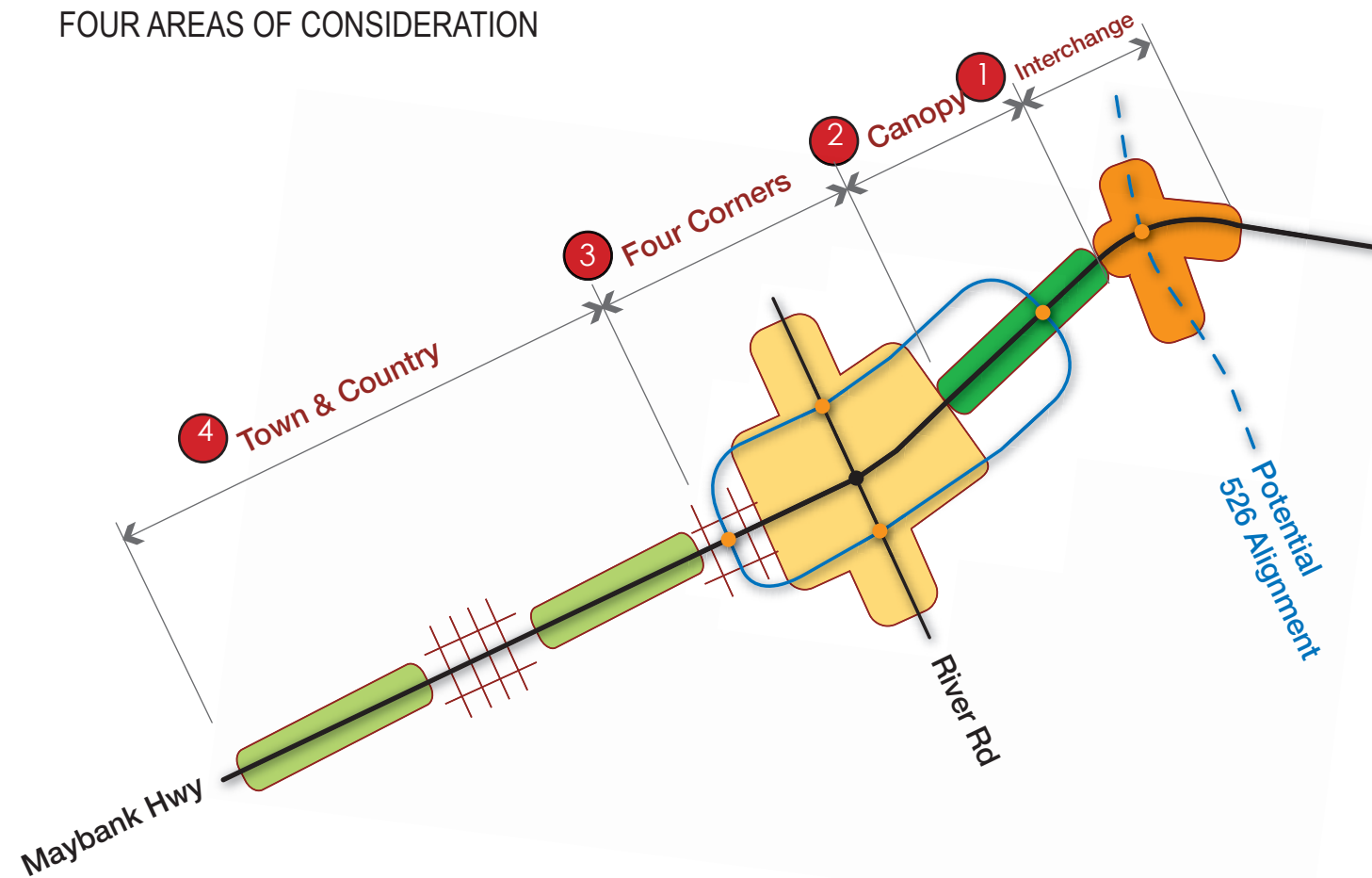


Illustration 19

The purpose of this planning exercise is to craft the best future possible for Johns Island, whether or not I-526 is completed.

Recommendations

With the cooperation of a nationally recognized traffic-engineering consultant, several specific network alternatives were studied and are being recommended along with several recommendations relating to road design configurations that respond favorably to the existing character of the island.

The Maybank Highway Corridor, stretching from the eastern entry point at the terminus of the Johns Island connector to the intersection of Main, with Bohicket and Maybank at the western end, should be given special design attention. As the main transportation corridor through the island, it carries

a large traffic volume and acts as the gateway for motorists coming from the east. In response to these factors, along with considerations related to function, aesthetics and environmental concerns, there are four primary aspects of the corridor to be addressed. The graphic on this page identifies these aspects in a diagrammatic way and includes the I-526 Interchange, the gateway “canopy” condition along Maybank Highway, the type and form of the “Four Corners” intersection of Maybank and River Road, and the configuration of the remainder of Maybank Highway in a “Town & Country” geometry.

- 1 **I-526 Interchange.** At the eastern end where Maybank and I-526 will connect, the selection of an appropriate highway interchange design is needed. This interchange design should minimize adverse environmental impacts and also be visually



Illustration 20: Island Entry Proposal–East

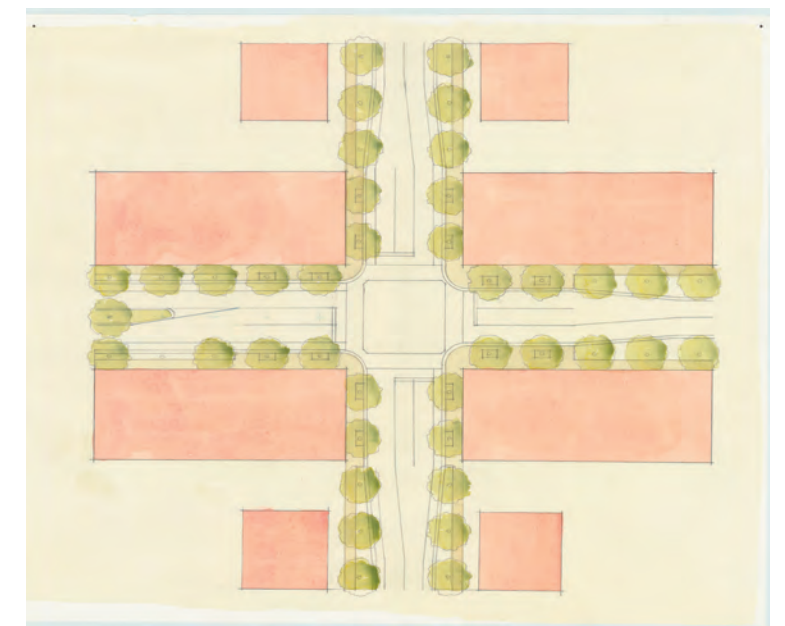


Illustration 21: Four Corners Approach

pleasing.

- 2 **Preserve the Tree Canopy on Maybank By Building A Parallel Roadway at Least 100 feet South of the Existing Maybank Highway, Then Constructing Two Additional Entry Roads from Fenwick Allee Westward.**

The mature tree canopy along Maybank Highway should be preserved. One very important and specific proposal that can do this involves the construction of two new routes, one north and one south that begin at the intersection of Maybank Highway and Fenwick Hall Allee at a signalized intersection and proceed to points of intersection with River Road. This proposal is shown here. It is recognized that the placement of these roads must be done with consideration and evaluation of all the existing environmental conditions, historical assets and existing development in this area. It is believed that any widening of Maybank Highway along this gateway or entry portion of the road can be avoided with the introduction of these alternative routes to and from River Road. This proposal is also part of a larger initiative to develop a complete network of roads and streets throughout the study area and it is described in greater detail later in this report.

- 3 **Build the Maybank/River Road Intersection in a Traditional Four Corners Approach.**

With the successful introduction of two additional entry roads at Fenwick Hall Allee it will be possible to configure the intersection of Maybank and River Roads as a conventional “town-like” signalized intersection. This intersection is located at what is proposed to be the center of a Gathering Place neighborhood. As such, it will be enclosed by buildings placed at or close to the Right-of-Way on all four corners. The intersection will be designed to be pedestrian friendly, it will feature dedicated left turn lanes, and will be tree lined.

- 4 **Configure Maybank Highway as a Sequence of Town and Country Sections.**

In conjunction with several planning and design initiatives described in a later portion of this report, it is proposed that the approximately three mile length of Maybank Highway between River Road and Main Road be reconfigured into “Town & Country” sections. Briefly, it is proposed that several compact, town-like or gathering place nodes be developed along Maybank Highway. Where these nodes exist, it is proposed that Maybank Highway assume a geometry appropriate for passage through the town section. At the

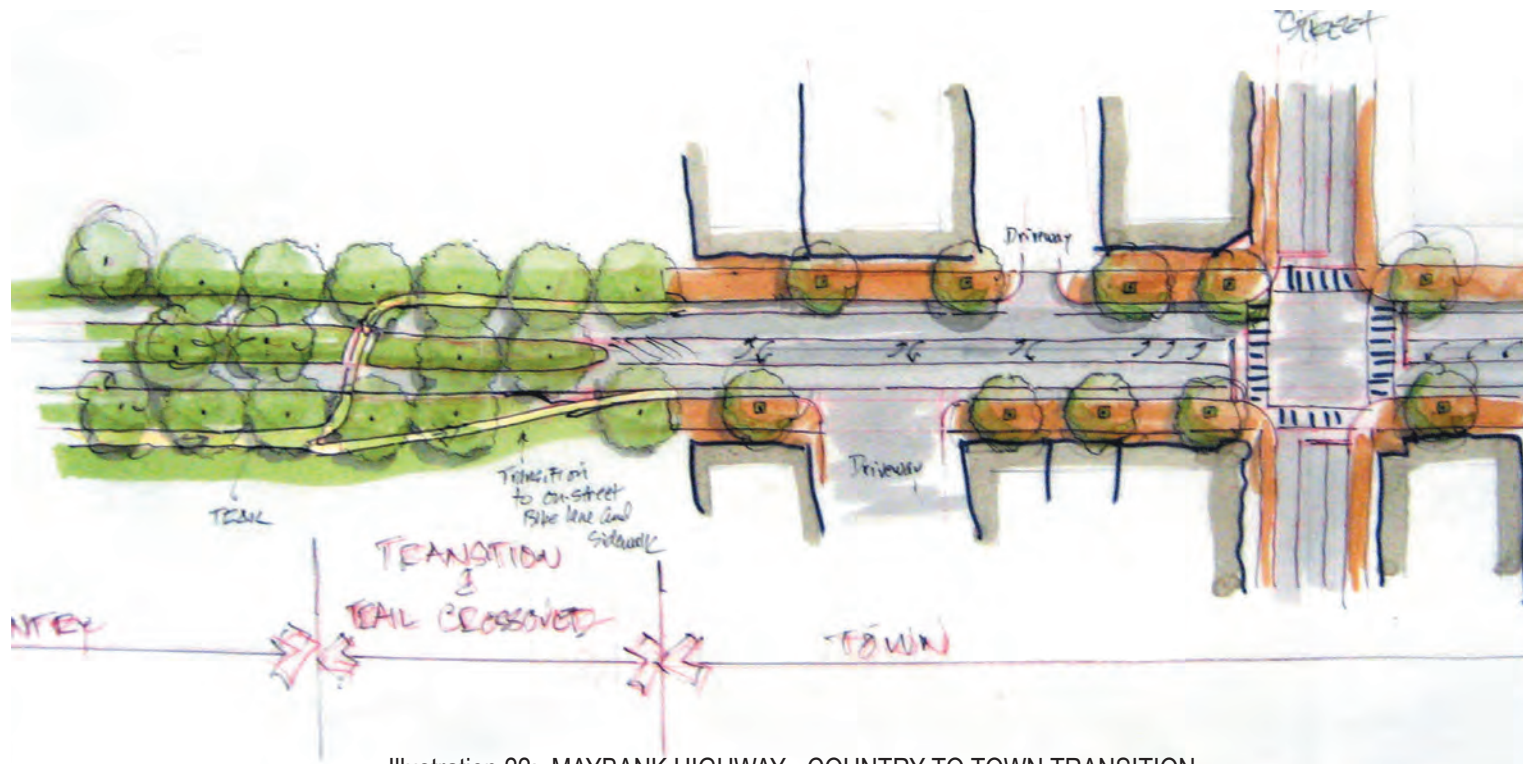


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edges of these gathering places, the road would take on a configuration appropriate for a country road designed to reflect Johns Island character. This includes tree preservation and planting of new trees within medians and alongside the road, the use of typical Johns Island drainage swales, and the introduction of an alternative transportation mode pathway (bicycle, pedestrian, other).

The graphics on this page illustrate recommended road cross-sections and plans for both the town and country portions of Maybank Highway. There is also a diagram that shows how the road transitions from a divided country configuration to a more urban geometry as the road passes through a gathering place.

Road and Street Network Enhancement

As an alternative to conventional road widening, it is recommended that adding parallel roads, where possible and making additional cross-connections between the primary roads increase the capacity of the road system. In some cases, additional cross-connections are already planned by way of design requirements for new neighborhoods. In other cases,

it will be necessary to study and evaluate additional cross-connection and parallel alternatives.

Current traffic models demonstrate that distribution of traffic through a network increases capacity and improves intersection performance without the need for road widening. This alternative is highly desirable as it, therefore, allows the preservation of the existing road canopies. In addition, where roads are currently flanked by established tree stands the canopy effect will be extended, thereby enhancing this highly valuable environmental and aesthetic condition for future generations.

A proposal showing future cross-connectivity is shown in the preceding illustrations. Existing streets are shown to the left. The streets serving new neighborhoods (at various levels of completion) are shown as blue solid lines in the center illustration. Possible future connections are shown as green lines in the illustration on the right. This system represents an interconnected network of roads and streets that will provide

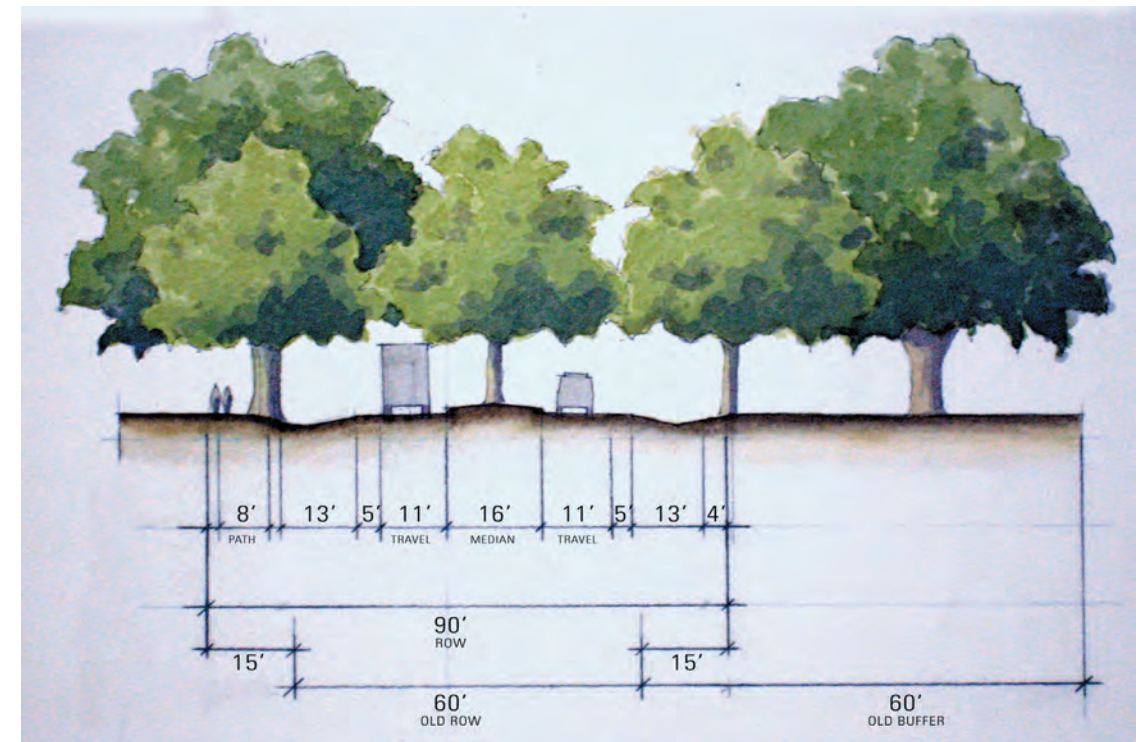


Illustration 23: MAYBANK HIGHWAY - COUNTRY SECTION

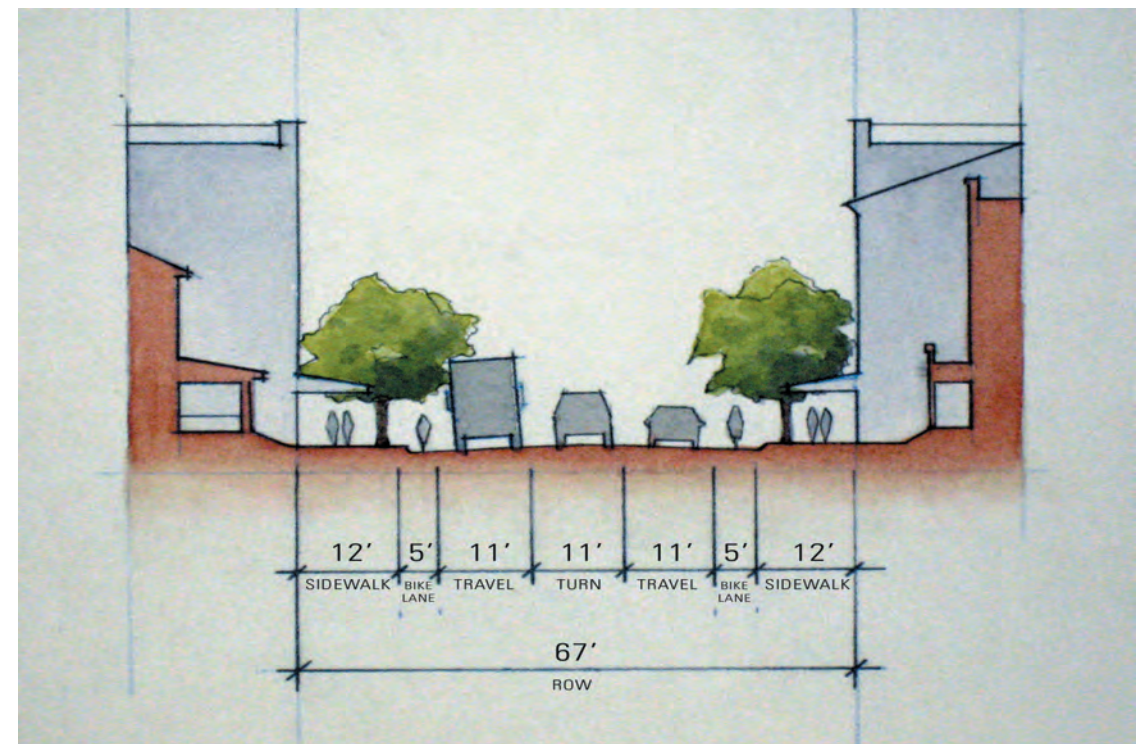


Illustration 24: MAYBANK HIGHWAY - TOWN SECTION

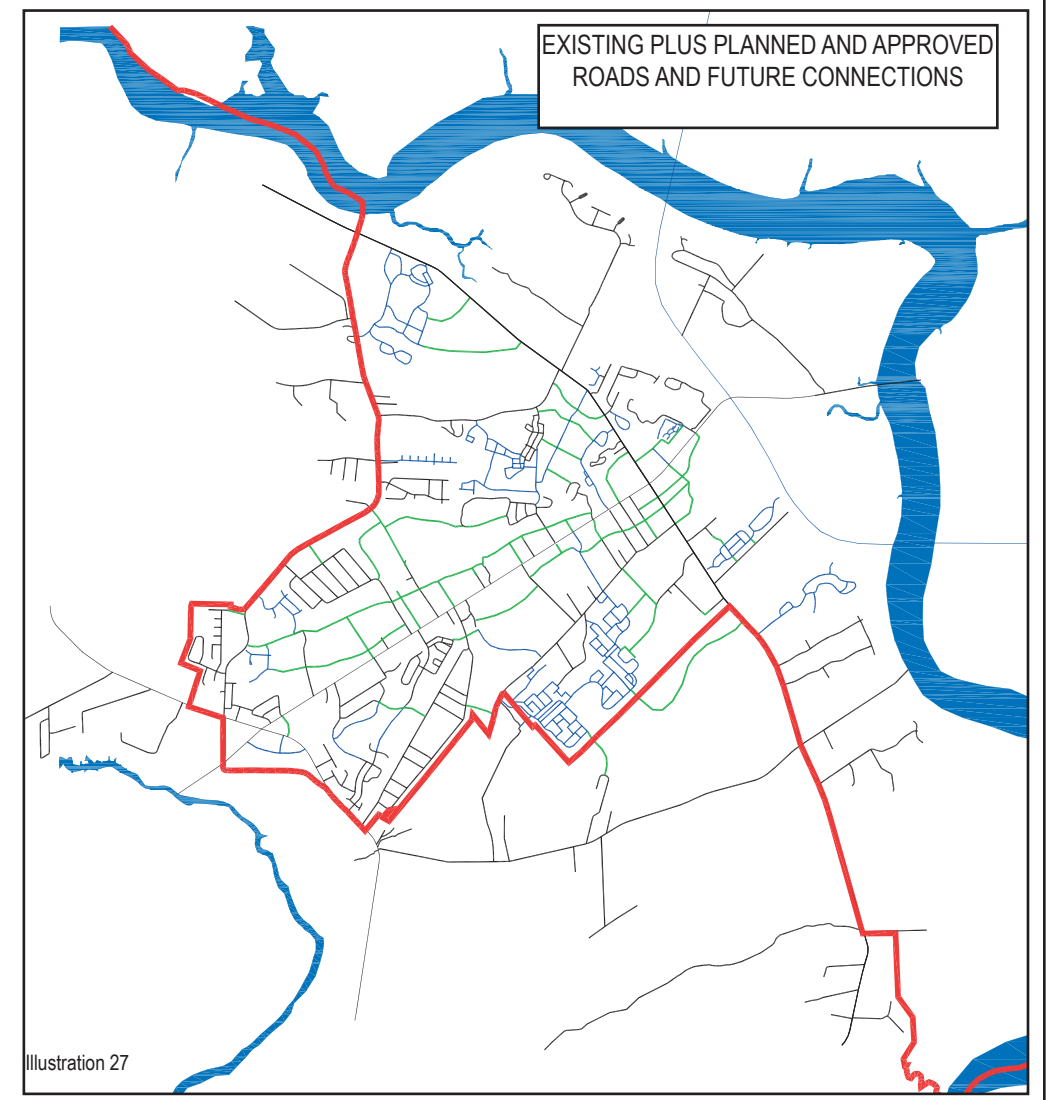
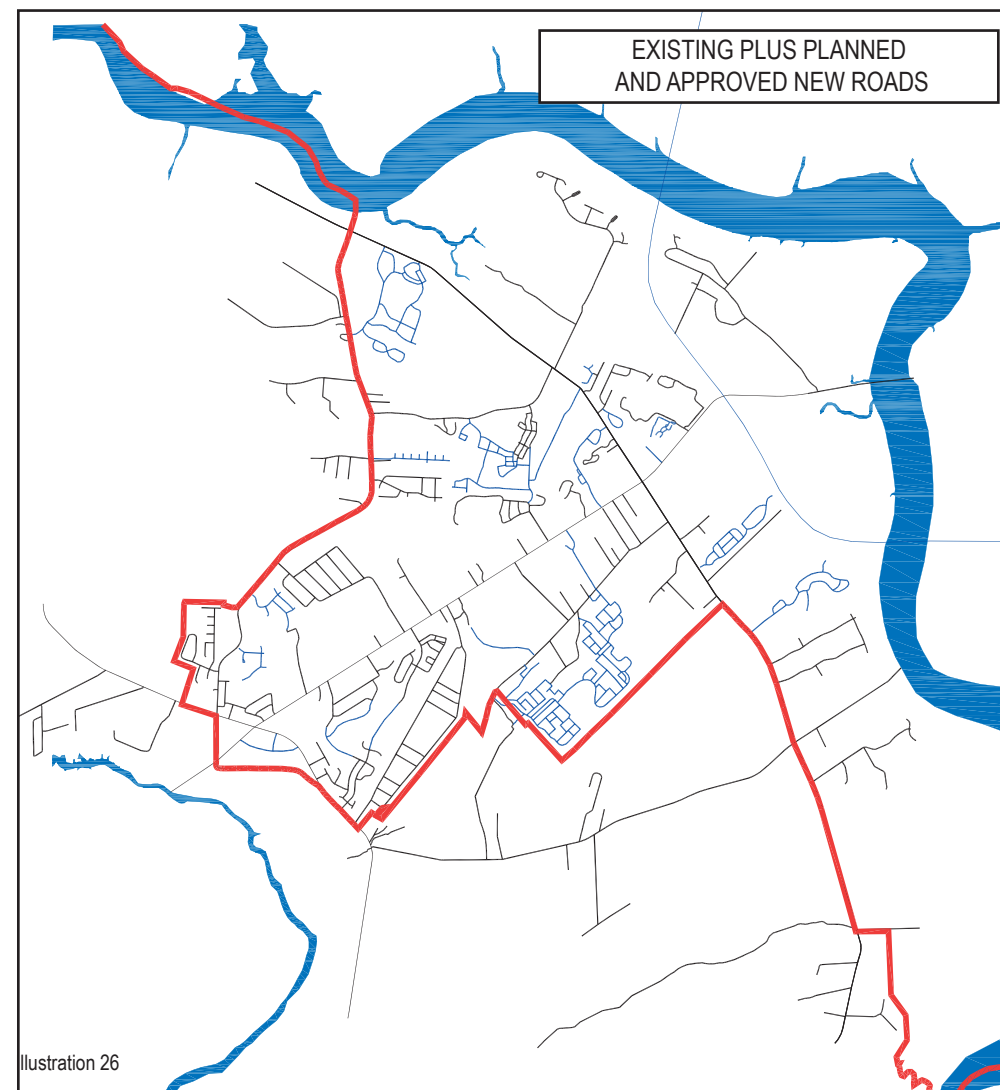
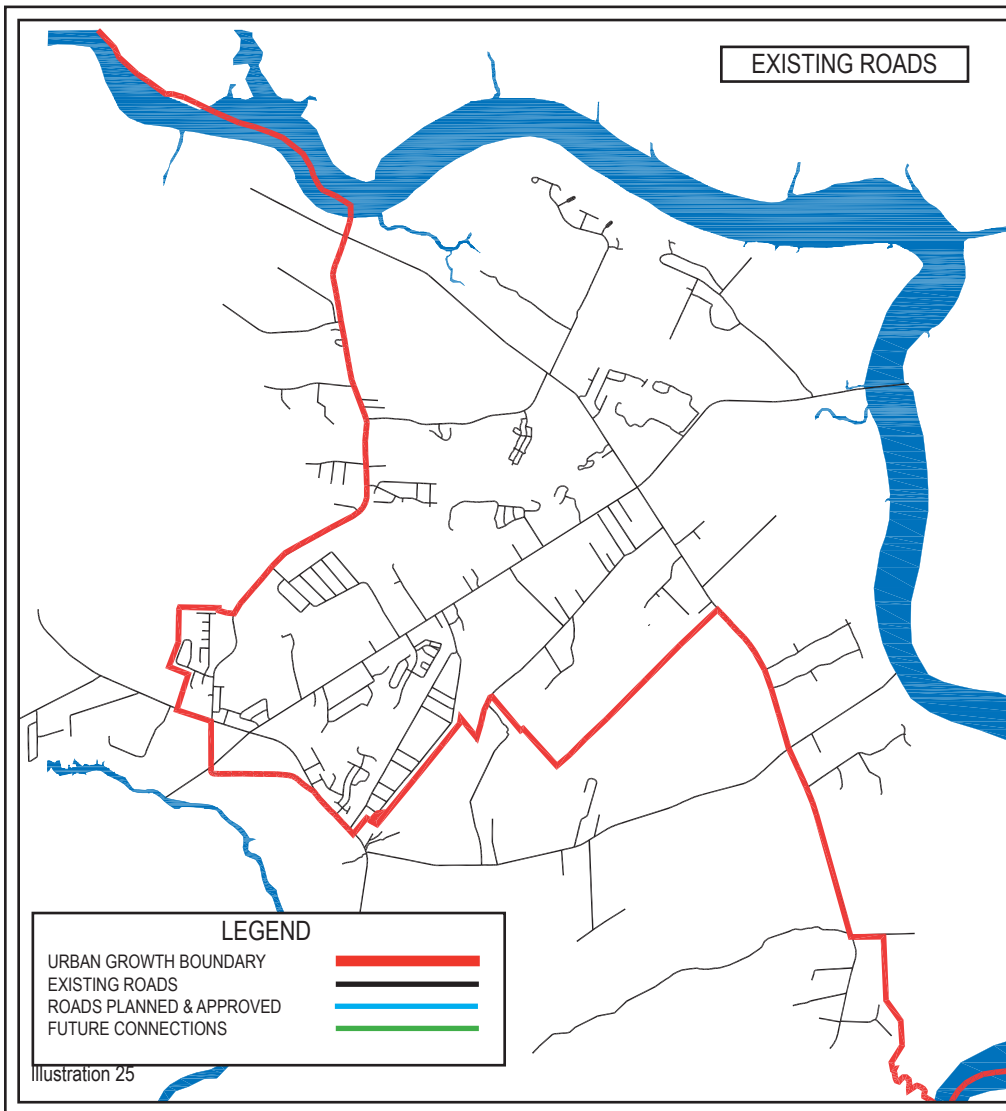


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multiple alternatives for people moving internally and across the island.

As a practice the City of Charleston has been requiring that the streets in new neighborhoods connect to neighboring properties and existing streets. To further this initiative a new ordinance has been approved that requires these connections across both residential and commercial properties. It should be noted that connectivity must reflect true connectivity principles via the design of the roadways versus “cut-through traffic” design that is employed in conventional roadway standards. “The ruling principle is that as long as the road is designed with low-speed geometries, traffic generally treats the neighborhood the way that the neighborhood treats it. Friendly house fronts tell drivers to slow down, while blank walls and house backs tell them to speed up.” (Duany, Plater-Zyberk, Speck: Suburban Nation: The Rise of Sprawl and Decline of the American Dream) The City of Charleston roadway standards should be fully examined to reflect the desired low-speed geometries as many of the current standards do not reflect this principle.

Public Transit Options (Bus first, Light Rail Vehicle future). As a result of the construction of compact walk-able gathering places, it will be possible to support public transit along Maybank Highway. Compact neighborhoods allow transit users to have easy walking access to transit stops. The use of transit removes vehicles from roads, and therefore, improves traffic conditions while providing convenience to riders.

Ensure an island-wide transportation plan is established to guide new developments and designs. (Ensure that the City Department of Traffic and Transportation and South Carolina Department of Transportation’s plans are defined before approving new developments.) The City should adopt a master roadway/thoroughfare plan as part of the form-based code adoption be developed that identifies potential interconnected streets and bike/pedestrian paths between developments, prior to plan approval. The form-based code shall also include the provision of mass transit features in all proposed settlements, especially within the T-

4, T-5 zones. Finally, the City should explore the possibility of enacting concurrency management standards that would require infrastructure (roads, schools, water and sewer) to be in place before or concurrent to the development.

Build a Network of Bike and Pedestrian Paths throughout the Entire Study Area.

A complete, safe and comfortable bicycle and pedestrian network should be designed for the area within the Urban Growth Boundary. This system would include streets and roads, as appropriate, where the street geometry and configuration limit motor vehicle speed. It would also include separated and dedicated walks, paths and trails as suitable for non-motor vehicle travel such as through parks or mid-block in compact neighborhood areas. The recommended form-based code shall promote and require appropriately scaled bicycle and pedestrian facilities as part of the master roadway/thoroughfare plan.



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The City of Charleston, Department of Planning, Preservation & Economic Innovation

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Transportation

Ecological and Cultural Environs

Findings/Current Conditions

Johns Island is referred to as a coastal island. As such there are several important environmental factors that must be recognized when planning for various forms of human settlement and activity on the island. Failure to consider and respond to these factors can lead to degradation of the natural environment. Furthermore, failure to consider conditions such as terrain elevation and water flow channels can result in neighborhoods or structures being placed at risk to damage or destruction from severe storm events.

Johns Island has gone through several cycles of land use. After colonization, agriculture was the primary and major land use on the island. A considerable portion of the island was stripped of native vegetation and the landscape was modified for agricultural production. Following the decline of the major rice and cotton farming activities, a large portion of the island reverted to a natural succession process or was planted with pine for harvesting. Some commercial agriculture remained but to a smaller extent. In the later half of the 20th century, the areas within the study area became attractive for human settlement and now provide locations for multiple uses, including neighborhoods.

There are a considerable number of healthy and mature trees on the Island that must be identified and protected. The trees that form the canopies along the main roads and some of the secondary roads are significant. Our survey of the existing tree conditions along these roads is shown in Illustration 13.

Another important environmental factor on Johns Island involves wetlands. Wetlands are under the protection of federal regulations. On a large scale, the U.S. Fish and Wildlife Commission provide aerial survey data that identify the wetlands. A map of these identified wetland areas is included here as Illustration 14. At a site-specific scale, the wetlands are delineated by way of an on-site survey conducted by authorized professionals. Any and all proposals for construction or modification of land are accompanied with this site surveyed wetlands data with strict regulations control and protect these natural resources from damage.

As a note for understanding, aerial surveys are not as accurate as on-site survey data; the precision of the wetlands delineation shown on the U.S. Fish and Wildlife map is subject to the limits of the surveying method. It is only after on-site surveys are completed that the wetland areas can be accurately described.

A third important environmental factor involves terrain elevation. An elevation study (Illustration 15) indicates which areas within the study area that are low ground and high ground. The map indicates that most of the existing neighborhoods and roads are situated on land above fifteen feet in elevation. The land that lies on the northeast side of River Road (and therefore adjacent to the marsh and river) is predominantly at an elevation below fifteen feet.

Recommendations

Respond to and Respect the Environment. Environmental factors will be of primary importance when making planning decisions and development recommendations for Johns Island. Land at lower elevations will be recommended for agricultural uses, long-leaf pine forest, natural preserve or hyper-low density housing (one dwelling per 10 acres minimum). In particular, the low lying “fingers” which reach across the island will be considered unsuitable for neighborhood development. Most of this area lies outside of the Urban Growth Boundary, and it, therefore, reinforces the need to keep future development within the designated boundary limits.

The City should adopt a tailored River Protection Overlay District Ordinance along the Stono River in order to protect and preserve the environment along the river’s length. The purposes of the River Protection District are to: preserve the scenic qualities of the Stono River and the public’s ability to enjoy visual and recreational access to the river; ensure that residential and commercial development is well-designed and with the goal of preserving aesthetic, visual and scenic qualities of the district; promote the creation of natural buffer area or greenbelt along the length of the river, punctuated by public access areas and open spaces; protect life, public safety and property from flooding hazards; preserve natural flood storage areas; preserve environmentally sensitive areas, such as fisheries and wildlife habitat, along the river; and prevent water

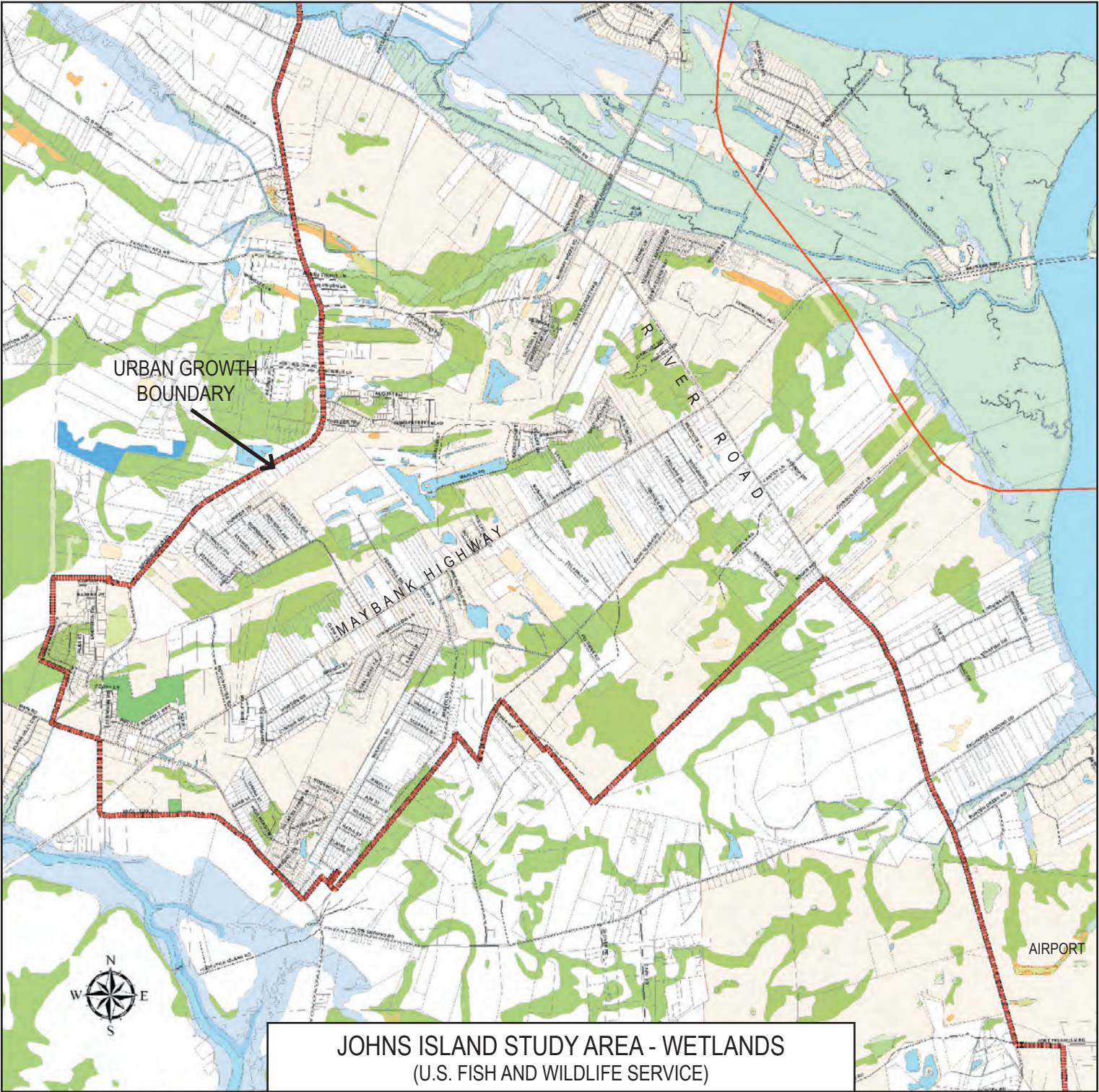


Illustration 28



JOHNS ISLAND COMMUNITY PLANNING WORKSHOP

The City of Charleston, Department of Planning, Preservation & Economic Innovation

Conducted: March 5th through 10th, 2007 Charleston, South Carolina

Ecological & Cultural Environs

pollution caused by erosion, sedimentation, nutrient or pesticide run-off, and poorly sited waste disposal facilities. The land that is situated north and east of River Road is predominantly at a low elevation. As such, it will be classified as appropriate for dwelling density of no more than one dwelling per two acres of land. In addition, to limit the negative effects of pavement it is recommended that new roads be unpaved. This type of road is more environmentally suitable and it also is more in keeping with the character of the island. Further, during the calibration of the proposed form-based code for the study area, those lots fronting waterways/marshes should maintain appropriate form in terms of lot layout in order to assist in the buffering process.

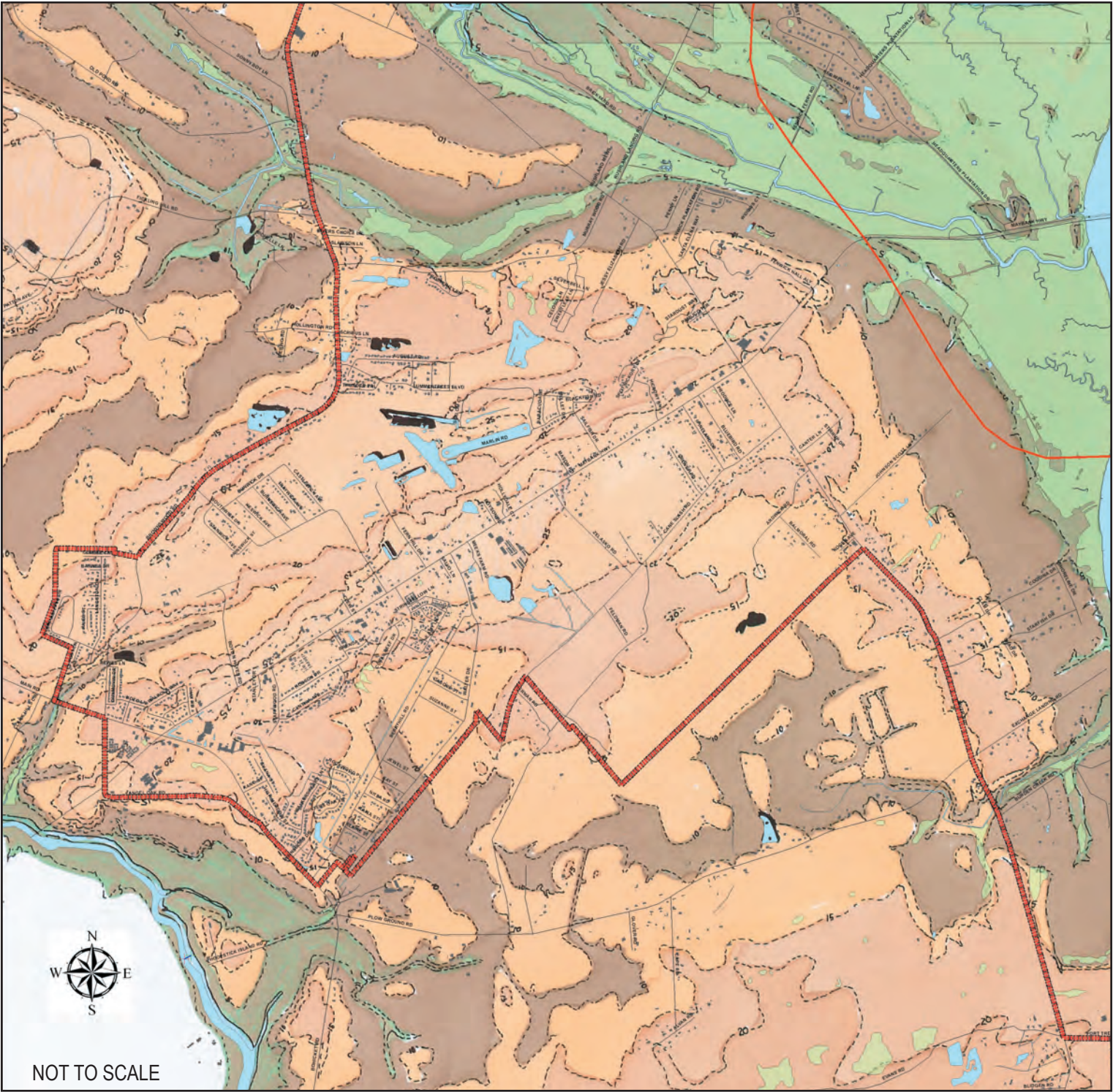
Invest in and Protect Tree Canopies. The existing and future tree canopy of Johns Island provides dappled sunlight and shade, which complements the preservation of place principle. During the workshop, an enormous amount of input solicited was centered on the protection of the tree canopies. While the protection of existing canopies is very important, it is equally important that the City/residents of Johns Island invest in tree preservation to provide for tree canopies that exist and span time for generations to come. In order for the preservation and extension of the tree canopies and wooded areas adjacent to the primary and secondary roads, it is recommended that various control schemes be evaluated for implementation. These schemes include an evaluation of buffers, the deployment of sentinel lots (deep lots adjacent to the roads that are placed into some form of environmental reserve but still permit a limited or select type of development), and/or the assignment of deep



setbacks. At last, the City should develop a replanting plan to replace deficient sections of tree canopies as well as dedicate resources to the pruning, fertilization, and maintenance of the existing historic allees of trees.

Adopt Best Management Practices (BMPs) for Stormwater Management. In order to minimize the adverse effects of storm water runoff, it is recommended that progressive and innovative on-site water management techniques are employed at all scales of development. The porous soils prevalent on the island allow for the use of natural drainage systems, rain gardens, bio-swales and other techniques. The City should adopt heightened best management practices (bmps) for stormwater management as the associated estuarine system of Johns Island is undoubtedly affected by stormwater runoff caused by human settlement. The goal should ultimately be to “decrease impervious!! Increase pervious!!” at all scales of development. At last, the City should adopt a freshwater wetland landscape buffer standard to ensure that freshwater wetlands are not impacted by upstream development and to contribute to the wildlife corridor network.

Promote/Require Native Vegetation. As a rule, the planting of native vegetation is strongly encouraged. Live oaks and water oaks thrive in this area. Longleaf pines planted on higher ground will begin the restoration process of what was the predominant forest profile on the island. The use of non-native ornamental trees and shrubs is to be discouraged. The use of invasive plants is to be avoided altogether. The SCDHEC-OCRM has produced a beneficial document entitled,



JOHNS ISLAND - ELEVATION STUDY

Illustration 29



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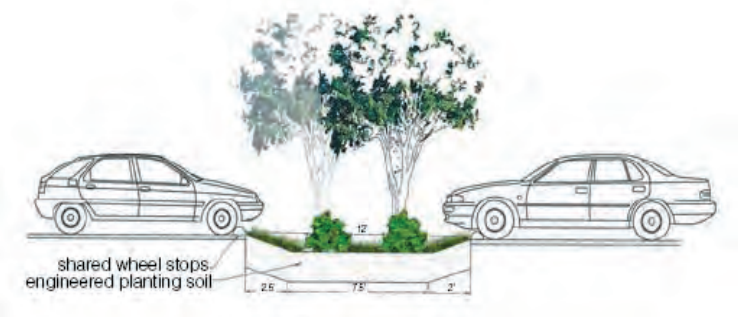
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Ecological & Cultural Environs

Backyard Buffers for the South Carolina Lowcountry, (Appendix B), which serves as a helpful guide for residents in their efforts to retain or restore native plantings, which further protects the waterways, minimizes stormwater pollution, reduces erosion and heating of waterways, creates a sense of place and privacy, reduces flooding and flood damage, saves money and time, and preserves natural habitat.

Illustration 30: "Grēen" Parking Lot Applications



Introduce and Promote LEED Certification Principles. In conjunction with a set of architectural guidelines for use on the island, an effort should be made to introduce and encourage LEED principles. The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency,



JOHNS ISLAND - FORESTED WETLANDS



materials selection, and indoor environmental quality. The City should not require that all new structures on Johns Island be LEED Certified but should provide a user's guide to describe how these principles can be efficiently and cost-effectively incorporated into construction/building.

The City should Adopt Light Imprint for New Urbanism Techniques (Appendix C). This planning and design approach introduces tools that deal with stormwater run-off through natural drainage, conventional engineering devices, and innovative infiltration practices. These tools are applied at the level of the block, neighborhood and sector levels. A combination of these tools is selected and applied as appropriate for the form-based zone. This approach offers a range of solutions and techniques, which in combination provide an effective and sensitive overall stormwater management program.

Preserve the "Place" known as Johns Island. So often in conversations related to the preservation school of thought, the preservation of vertical form is the chief topic of discussion. During the Johns Island Plan Community Workshop, the preservation of place (an additional focus on horizontal form) concept interjected itself into the overall preservation discussion. Past studies of Johns Island have recommended updating the inventory of historic sites and structures. In addition, the inventory should identify other cultural resources such as African American history, the cultural landscape and unique settlements that contribute to overall unique character of Johns Island. Further, the City should revisit the recommendations of City and County Councils to protect the historic landmarks on Johns Island by adopting unified comprehensive historic landmark ordinances



that require:

- the temporary cessation of construction when archaeological sites are encountered;
- ensuring compatible design for renovations of historic structures and new construction; and
- the retention of natural vegetative buffers.

In terms of preservation of the "rural-esque" character of Johns Island, especially those parcels located within the City Limits but outside of the UGB, the City should conduct a thorough review of appropriate rural development standards for these properties as well as give consideration to the application of the appropriate transect zone (see form-based code section of this plan) in order to appropriately guide development.

Coordinate with Charleston County and the Gullah Geechie Corridor Program to provide opportunities to protect the Gullah Geechie cultural heritage and traditions on Johns Island.

Adopt & Implement the Preservation Plan recommendations for the study area. In 1974, the City of Charleston developed a groundbreaking Historic Preservation Plan to protect



its historic and architectural heritage. Thirtythree years later, with the majority of the existing Plan's recommendations implemented, there are new preservation issues for the City to analyze. Working in a partnership with Historic Charleston Foundation, the City has contracted with the firm of Page & Turnbull to lead in the creation of an updated Historic Preservation Plan. The Preservation Plan will include recommendations on preservation principles on Johns Island. These recommendations should be adopted and implemented for the study area.

Adopt & Implement the recommendations of the City of Charleston Green Committee. The City has recently formed a Green Committee. The Charleston Green Committee will provide leadership and practical solutions to ensure a prosperous community that will sustain healthy lives for our citizens and a healthy earth. The committee will work with City government, business groups, nonprofit organizations and other partners to protect and enhance Charleston's distinctive environmental quality and livability. The Charleston Green Committee will work to inspire individuals and organizations –both within and outside City government – to take actions that help make Charleston a model of healthy and ecologically sustainable living.



JOHNS ISLAND COMMUNITY PLANNING WORKSHOP

The City of Charleston, Department of Planning, Preservation & Economic Innovation

Conducted: March 5th through 10th, 2007 Charleston, South Carolina

Ecological & Cultural Environs

The specific work of the Charleston Green Committee will include but is not limited to:

- creating a Local Action Plan on Climate Change that helps the City to implement policies to achieve the goals set forth in the U. S. Mayors Climate Protection Agreement as signed by Mayor Joseph P. Riley, Jr. in June 2005. This will include reducing global warming pollutants through programs that provide economic and quality of life benefits such as reduced energy bills, green space preservation, air quality improvements, reduced traffic congestion, improved transportation choices and economic development and job creation through energy conservation and new energy technologies.
- advising the City in the continued implementation of the City's Local Action Plan on Climate Change, including but not limited to:
 - suggesting further measures and goals to encourage the City's energy independence and greenhouse gas reduction
 - preparing recommendations regarding the adoption green building standards and certification programs
- monitoring progress on benchmarks in the City's Local Action Plan
- identifying grant opportunities and other possible funding streams to start and sustain programs
- collaborating with established City initiatives, such as the Bike/Pedestrian Committee and established advocacy organizations to promote an integrated community-wide approach to sustainability
- sponsoring and promote sustainability education and outreach programs and events, and develop linkages to schools, institutions and universities
- promoting regional cooperation in sustainability, energy conservation and environmental stewardship.

The Charleston Green Committee will be charged with developing civic policy recommendations related to four general categories of sustainability, as follows:

1. Energy Conservation and Efficiency / Renewable Energy
2. Greenhouse Gas Reductions / Alternative Fuels and Technologies
3. Green Building and Development Programs
4. Sustainability Leadership and Education Programs

Empower Natural Corridors. Large areas of open space contribute much more to environmental health if they are linked into continuous corridors. Such corridors should generally take one or two forms: wider corridors, which should be located only between neighborhoods since they interrupt urbanization; and narrower corridors, which may reach into green neighborhood centers in the form of parkways and boulevards. Narrow corridors should provide regular pedestrian crossings so as not to form wildlife barriers. Such continuous corridors would ideally be designated within a regional plan. (DPZ, Onondaga County Settlement Plan) A method by which to provide for these natural corridors would be via conservation easements, purchase/transfer of development rights—all of which should be evaluated and promoted. Further exploration should be given to the recommendation made to develop a long-term utility corridor plan in conjunction with Charleston Water System and the St. Johns Water Company that can be used to enhance natural spaces as wildlife corridors and/or as pedestrian or recreational corridors.



KENTLANDS, MARYLAND: A CONTINUOUS NATURAL CORRIDOR DIVIDES THE SITE INTO TWO SEPARATE NEIGHBORHOODS.

Illustration 31
Courtesy: Duany, Plater-Zyberk & Co.



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Charter of the New Urbanism. Congress for the New Urbanism. Various Authors.

Light Imprint for the New Urbanism. Tom Low, Duany, Plater-Zyberk, & Co.

Onondaga County Settlement Plan, Duany, Plater-Zyberk, & Co.

SmartCode Version 8. Duany, Plater-Zyberk, & Co.

Town of Bluffton Old Town Master Plan & Code. Dover, Kohl & Partners.

“Where would you prefer to live?” Dover, Kohl, & Partners.



JOHNS ISLAND COMMUNITY PLANNING WORKSHOP

The City of Charleston, Department of Planning, Preservation & Economic Innovation

Conducted: March 5th through 10th, 2007 Charleston, South Carolina

Ecological & Cultural Environs

Johns Island Community Planning Workshop Response Cards Summary					
I-526	5 Against 526	5 For 526			
Traffic	Need to attend to road needs to reduce congestion	Build one or more four lane roads across the Island	Island better served with several smaller roads.		
Preservation/environmental	Preserve trees	Contain runoff on property where originated	Preserve grave yards. Provide for life residents to continue to afford to live on the Island	Equestrian trail system along drainage ditch easement width of 10-12'	Bike paths on Maybank Map conservation easements
Infrastructure	Boat Ramp Green space within developments	Sidewalks on River Road	Need to know more about the effects of development on traffic	Hurricane shelters Reforest/restore ecology	Widen Maybank&Main Passing zones on Bohicket & Main
Zoning	Ensure affordable housing	Multi- story building to reduce sprawl	Reduce density to 4 or 5/acre	Traffic/development should be reviewed and discussed for the entire island Avoid apartments/condo	No big box stores River/Maybank commercial hubs
Johns Island Community Planning Workshop John's Island City Map Responses					
I-526	526 Will hurt the folly road interchange: Calhoun street just as much open your eyes!	Based on BCDCOG traffic counts 526 will increase traffic on Johns/James Island and WA	Improve existing roads 17 south passing lanes seem to working just fine	526 Must be completed. Long term will help Main Rd, Hwy 17, Maybank, Folly and everyone on Johns/James Islands.	
Preservation/environmental	Keep a rural feel to Maybank corridor. When its done is shouldn't be Rte17	Consider wildlife			
Infrastructure	Enforce speed limit on Bohicket				

Johns Island Planning Workshop Proposed I – 526 Map Responses					
I-526	12 No to I-526	9 Yes to I-526	Elevate over JI to protect wildlife with no on/off ramps	Connect to wider Maybank to protect River Road	
Traffic	Congestion on Maybank Do not construct exits onto Johns Island off 526	Build a road through center of Johns Island to Eden Vale	4 Lane Maybank West of the Stono		
Preservation/environmental	Preserve trees along Maybank	The UGB allows development along River Rd which will be environmentally damaging.	Preserve wetlands and all trees 24" in diameter		
Infrastructure	526 w/toll extension to Kiawah/Seabrook	Improve existing roads	Noise barriers for homes bordering 526	Schools to support density	Provide various types of recreational uses - bike paths/ horse trails
Zoning	Limit the density of new developments	Would be helpful to know the number of cars/ houses resulting from new development			



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Workshop Comments

LIGHT IMPRINT NEW URBANISM

A CASE STUDY COMPARISON



DUANY PLATER-ZYBERK & COMPANY

ARCHITECTS AND TOWN PLANNERS

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LIGHT IMPRINT NEW URBANISM

Draft 12.21.06

In recent years, the development industry has begun to shift from the conventional suburban model towards the New Urban model, which advocates the development of compact, mixed-use, pedestrian-friendly communities. Much of this shift has emerged from the need to better address environmental and community goals; it also addresses the need to reconcile the needs of the development industry with land conservation organizations. While sprawl leads to excessive land use and automobile dependency, New Urbanist development offers a far more sustainable alternative.

Mixed-use, pedestrian-friendly developments, which allow residents to greatly decrease use of their cars, clearly yield environmental benefits, but such developments also have a great number of other environmental strengths. The U. S. Green Building Council (USGBC), which developed the LEED (Leadership in Energy and Environmental Design) Green Building Rating System, has recently recognized this fact. In partnership with the Congress of New Urbanism (CNU) and the Natural Resources Defense Council, the USGBC used the principles of New Urbanism to develop a new rating system, LEED for Neighborhood Development. The new system integrates the principles of smart growth, urbanism, and green building into the first national standard for neighborhood design.

Georgio Tachiev, an environmental engineer at Florida International University, also confirms the high level of environmental benefits. According to Tachiev, New Urbanist developments perform well on the regional scale for two important reasons. First, compact communities reduce the stress on the watersheds caused by runoff from roads; second, they require reduced regional infrastructure. Conversely, the excessive land use encouraged by sprawl leads to fragmentation of watersheds by roads. Ultimately, sprawl leads to the impairment of the services and resources provided by the watershed.

Dr. Tachiev explains that the connected networks advocated in New Urbanist development create a symbiotic connection between built and natural environment. He says, “The methods we apply to design our built environment affect the balance of economy, energy, environment and society. From an engineering point of view, New Urbanism is a methodology that implements sustainability in all four aspects. When discussing sustainability, we need to place an emphasis on the watersheds since they are the natural containers hosting the human habitat. Maintaining the watershed in its natural condition is the key factor for ensuring continued quality services of the watersheds (expressed in biodiversity, water quality and quantity, and assimilative capacity).”

In spite of providing these qualities of environmental protection, New Urbanist development has been criticized for not being “green” enough; however, it is in fact very green when applied comprehensively. Further supporting this, there are newly developed techniques for “Light Imprint New Urbanism” (LINU) - a development technique which aims to “lie lightly on the land,” by coordinating engineering practices and New Urbanist design practices. Light Imprint New Urbanism developed out of the need to coordinate engineering concerns with design concerns. It enables developers to give added consideration to environmental and preservation factors without compromising design priorities such as connectivity and the public realm. Like all New Urban planning, LINU respects site terrain and topography while it prioritizes public civic space. Additionally, LINU offers a range of cutting-edge environmental strategies for differing landscapes and urban conditions.

LINU planning introduces a tool set that deals with stormwater run-off through natural drainage, conventional engineering infrastructure, and innovative infiltration practices. These tools are to be used collectively at the sector, neighborhood, and block scale. The combination of tools are adjusted according to the appropriateness of their use in each transect zone. This toolset not only offers a great range of environmental benefits, but can also significantly lower construction and engineering costs. By using different tools in each transect zone, LINU is not limited

to a single approach for environmentally sensitive development. Rather, it offers a set of context-sensitive design solutions that ultimately work together on the community level.

Much of the criticism aimed at New Urbanist development and the Light Imprint model comes from advocates promoting their own specific environmental techniques within the framework of different development practices. Those techniques may be sound in their own individual agendas, but few offer a comprehensive approach to community development. Additionally, few take into account the general principles which make pleasant and livable communities, which are outlined in the Charter of the New Urbanism (http://www.cnu.org/cnu_reports/Charter.pdf). The Charter prioritizes diversity, walkability and connectivity, all of which contribute to the creation of sustainable neighborhoods. Leading planner Andres Duany, a principal of Duany Plater-Zyberk & Company, describes the layout of a typical New Urban community as an “open-mesh network” where a fine-grain system of connected streets mitigates traffic congestion and reinforces community connections. By prioritizing these design and planning issues, New Urbanist development offers multi-faceted environmental and community planning benefits, unlike more isolated environmental approaches.

Green Urbanism (GU) is one alternative environmental approach promoted by

landscape architects. Green Urbanism, which is considered a more environmentally viable alternative than New Urbanism, emphasizes an increased percentage of open space within a development site, typically in the range of 60% or greater per project. Greenway fingers serve as the primary organizing spines for development, and storm water filtration mechanisms are placed outside of and around these green spaces. However, when compared with New Urbanist developments, Green Urbanism developments offer far less connectivity, because streets are often terminated to prevent encroachment on greenway fingers. Three problems often arise in these developments. First, important connections are so disrupted that functional issues such as traversing the site become difficult. A second problem encountered is that land development issues make reserving significant open space impracticable. And finally, the increased requirement for open space may so reduce the amount of developable land that the project may not be economically feasible.

Low Impact Development (LID) is another popular environmental development strategy. The origins of LID are found in conventional suburban development. Many municipalities have adopted this approach. LID attempts to manage stormwater quality by using both on-site design techniques and Best Management Practices (BMP – see below). LID techniques can be applied to both conventional suburban residential development and commercial development. However,

LID offers similar approaches to these different sorts of development. High-density residential development, such as a typical suburban apartment complex, is thrown into the same classification as commercial development, such as a strip shopping center. This lack of differentiation between developments of different characters is one downfall of LID.

Best Management Practices (BMP) is an approach that typically focuses on engineering rather than planning and design for addressing methods for stormwater treatment. The EPA proposes using smart growth techniques as a best management practice for stormwater. However, problems arise when Best Management Practices designed to solve suburban engineering issues are applied to more urban communities. For example, compact development suffers when BMPs dictate the need for storm water detention areas in front of, or beside buildings. This approach can harm a community's social connectivity. It may even interfere with retail merchandizing needs.

New Urbanist Conventional Engineering deviates from these conventional engineering practices to accommodate the broader range of development standards necessary for community-oriented design. Municipalities reviewing New Urban communities are often interested in embracing the New Urbanist approach; however, their governing bodies may be conservative regarding acceptance of different standards. Problems arise when

designers attempt to overcompensate with standards and design. This overcompensation, or “gold plating,” of infrastructure has adverse effects on the ability to successfully implement a New Urban community. Project delays and additional infrastructure cost can ultimately prevent the implementation of a good community development.

Light Imprint New Urbanism offers a more manageable alternative by coordinating innovative engineering practices with the New Urban design approaches in specific transect zones. This strategy will ease implementation - which is crucial, given that currently only a limited number of New Urbanist practitioners have significant implementation experience – and also offer great environmental benefits. According to Tachiev, LINU reduces infrastructure on the neighborhood scale in terms of roads, public works and facilities. On the block scale, the implementation of light imprint methods results in reduced ecological footprint of individual buildings and reduced stormwater runoff.

Griffin Park, a DPZ-designed traditional neighborhood development in Greenville, South Carolina, offers one example of Light Imprint New Urban development. While there have been numerous studies comparing Conventional Suburban Development (CSDs) with Traditional Neighborhood Development (TNDs), there have been few comparing standard TNDs to “Light Imprint” TNDs. The

DPZ Charlotte office recently took on such a project, using Griffin Park as a case study.

Landscape architect Guy Pearlman and designer Patrick Kelly, both of the DPZ Charlotte office developed the LINU model for Griffin Park to create an environmentally sensitive community, preserve mature tree stands, and lower the construction costs for the first development phase. Pearlman explains, “The conventional TND engineering plan is engineered for both county review and bidding purposes; it reaches an extensive level of detail. The light-imprint engineering plan is based on many of the variables developed in the conventional plan. Added consideration, however, is given to environmental and preservation factors. Those factors enhance the overall value of the community and lower the total cost of construction.”

Environmental strategies at Griffin Park included the introduction of rain gardens and a tree protection fence. The introduction of these elements allowed for the development's underground piping system as well as curbs and gutters to be downsized thereby lessening the environmental impact of the development and saving significant sums on construction.

In order to achieve the desired goals of the light-imprint TND plan, a tree protection fence is introduced in the erosion control phase to protect the existing

mature trees. That strategy results in a 27% cost increase when compared with the conventional proposed method. Yet, a cost saving between the two methods was found in the storm water management phase. A 50% cost savings would be achieved by the following simple actions: 1) omission of curb and gutter in strategic areas; 2) reduction in the amount of pipe required as well as reduction in their lengths and size; 3) reduction in the need for inlets to underground pipes; and 4) the introduction of smaller rain gardens throughout the community to replace the one large retention pond.

The introduction of rain gardens also adds aesthetically pleasing natural areas and neighborhood recreation areas. Rain gardens would remove a greater amount of pollutants from runoff before the pollutants could reach the Reedy River. Also, there are two road pavement issues that reduce costs. First, building 24 feet wide roads instead of 26 feet wide roads results in a significant reduction of land coverage and paving costs. Second, substituting crushed stone in place of asphalt-paved alleys saves over 20% in development costs.

Pearlman summarizes, “Implementing the light-imprint engineering method results in over 30% cost savings in actual construction dollars for the first phase. That cost saving is in addition to the added value realized by the preserved mature trees and communal rain gardens.”

Stephen L. Davis, P.E., of Davis & Floyd Engineers, is also active in the development of Griffin Park. He is an enthusiastic supporter of the Light Imprint approach to New Urbanism but tempers it with reality from a long-range standpoint. Davis uses the term “ground truthing” to determine how practical it is to get Light Imprint communities approved by municipalities and then actually built. Ultimately, their success must be measured over the life of the community.

Davis explains, “Standard engineering methods are quicker to complete and easier to submit for permits for processing. In order to have the Light Imprint approach embraced by advocates of New Urbanism within municipalities and the development and building industry, it is important to have the Light Imprint model presented as a comprehensive strategy.” He also advises that this strategy should not substantially affect the New Urbanist design of street and lot layout along with other standard practices for common infrastructure elements including water and sanitary sewer. Additionally, when practicing Light Imprint New Urbanism, he states emphatically, “Engineering hydrology becomes critical.” For example, soil analyses are needed to verify that soil is in compliance with rain garden absorption requirements and to confirm that smaller pipe size is sufficient for the system.

Even though a comprehensive approach works best when applying the Light Imprint model, it is also important to make sure some of the technical issues work within the framework of good engineering practices. Davis points to the LINU strategy of allowing more storm water surface sheet-flow across pervious surfaces to encourage onsite absorption and to reduce the typical number of drain inlets and length of drainage pipe. This technique is good, but users should still apply the rule-of-thumb of a 400 linear feet maximum distance from a drain inlet using curb and gutter. Davis also finds additional ways to reduce infrastructure that may become over-designed for LINU. He suggests considering that the lots and streets along the neighborhood perimeter may not need swales since it may be possible to sheet flow the storm-water through the filtration landscaping directly into existing natural drainage systems.

Field supervision and on-going maintenance issues are also a major factor to consider. Additional supervision is needed to make sure the rain gardens are constructed properly. Proper design assures that water does not bypass the drainage area. Perforated drainpipes must be installed properly. Davis voices concern that there may be some binding with the rain gardens where they become dysfunctional over time. It helps if the rain garden plant material is indigenous and water tolerant; it should also be compatible with the desired community character and maintenance program. If

pervious road surfaces are being considered for alleys, lanes, and streets without curb and gutter, then measures are needed to stabilize the road and alley shoulders to prevent soil erosion and tire rutting.

Finally, Davis advises that it will take time for LINU to become the norm rather than the exception. Designers and developers may not be able to implement all Light Imprint elements right away, but they could implement LINU in incremental stages as certain components are approved. Due to the pace of development and the need for projects to succeed, it is especially important to plan for incremental implementation.

Joe W. Jelks, III, developer and founder of Griffin Park, sees the value in applying LINU. He explains, “For Griffin Park, the LINU case study for the first phase was compelling enough to lead our development team to apply LINU techniques even after the construction had started. The case study also convinced us to work with local stakeholders and approval agencies to holistically apply the LINU approach for the next phases.”

In forthcoming articles, the authors will elaborate on this approach including other case studies that have formulated different green engineering techniques based on transect zones and how the proposed methodology reduces the impact on watersheds on a larger regional scale.

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Charts and Graphs:

The study, prepared by Duany Plater-Zyberk & Company, contains six plates of plan diagrams and one chart. The first two plates compare the master plan before and after the application of light imprint engineering. The second two plates show the engineering infrastructure for each of these plans. The fifth plate shows the Light Imprint TND catchment drainage area plan. The sixth plate shows the master plan with proposed reductions of pavement and curb and gutter. The chart is key, as it shows the substantial cost savings associated with applying the light imprint engineering techniques.

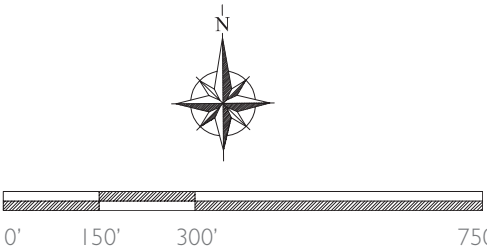
The referenced table shows the comparison between the two engineering methods for the first phase of the development of 42 acres and 174 lots. The table compares the costs of the two methods based on erosion control measures, storm water infrastructure, and pavement width and materials. Finally, it summarizes the cost of each.



CONVENTIONAL TND MASTER PLAN



LIGHT IMPRINT TND MASTER PLAN



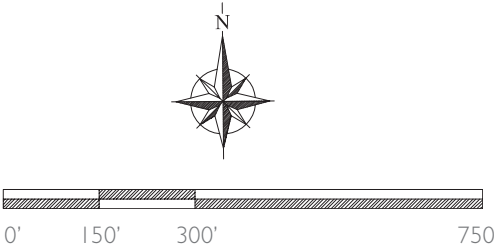


CONVENTIONAL TND STORM WATER PLAN



LIGHT IMPRINT TND STORM WATER PLAN

- | | |
|---|---|
|  STORM WATER INLET |  STORM WATER DISCHARGE |
|  MANHOLE |  UNDERGROUND STORM WATER STORAGE |
|  STORM WATER PIPE |  RAIN GARDEN |





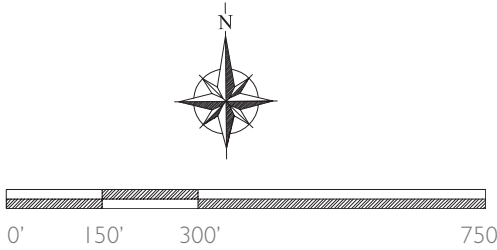
LIGHT IMPRINT TND CATCHMENT DRAINAGE AREA PLAN



STREET AND ALLEY REDUCTION PLAN

- | | |
|---|---|
|  STORM WATER INLET |  STORM WATER DISCHARGE |
|  MANHOLE |  UNDERGROUND STORM WATER STORAGE |
|  STORM WATER PIPE |  RAIN GARDEN |

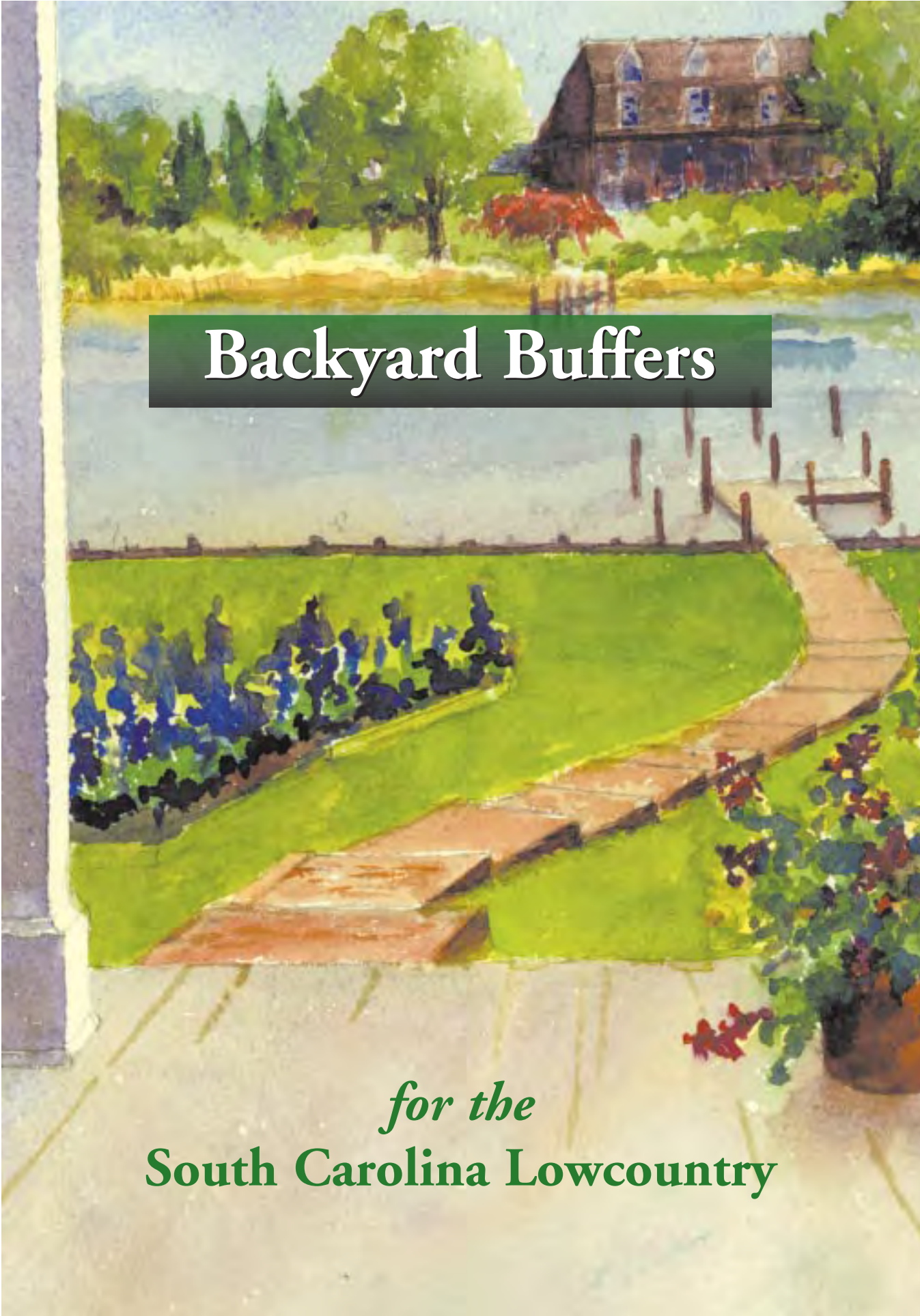
-  1) REPLACE IMPERVIOUS PAVING WITH CRUSHED STONE
-  2) REMOVE CURB AND GUTTER FROM STREET
-  3) REDUCE ALL STREET WIDTHS BY 2 FEET



ENGINEERING COMPARISON									
Project: Light Imprint New Urbanism Study					174 Lots				
Date: 6-Dec-06									
Details: Phase I, 42 Acres, 176 Lots									
Conventional TND Engineering					Light Imprint TND Engineering				
Material	Quantity	Unit	Cost	Total	Material	Quantity	Unit	Cost	Total
Erosion Control									
Silt Fence	8450	LF	\$4.00	\$33,800.00	Silt Fence	8450	LF	\$4.00	\$33,800.00
Rip Rap	200	Tons	\$55.00	\$11,000.00	Rip Rap	200	Tons	\$55.00	\$11,000.00
					TPF	4225	LF	\$4.00	\$16,900.00
Total				\$44,800.00					\$61,700.00
Storm Water									
Inlets	101	Ea	\$2,500.00	\$252,500.00	Inlets	24	Ea	\$2,500.00	\$60,000.00
Pipes	9434	LF	\$30.93	\$291,793.62	Pipes	4182	LF	\$30.93	\$129,349.26
Retention Pond	1	Lump	\$48,400.00	\$48,400.00	Rain Gardens	20	Ea	\$5,120.00	\$102,400.00
Total				\$592,693.62					\$291,749.26
Pavement									
Curb & Gutter	18910	LF	\$7.60	\$143,716.00	C & G	13091	LF	\$8.00	\$104,728.00
Sidewalk	8276	SY	\$25.00	\$206,900.00	Sidewalk	7000	SY	\$25.00	\$175,000.00
Paved Road	26705	SY	\$18.64	\$497,781.20	Paved Road	20515	SY	\$18.64	\$382,399.60
Paved Alley	6470	SY	\$13.36	\$86,439.20	Crushed Stone - Alley	5765	SY	\$12.00	\$69,180.00
Total				\$934,836.40					\$731,307.60
Grand Total					\$1,084,756.86				
Cost per Lot				176	174				\$6,234.23
				\$8,933.69					

Notes:
TPF - Tree Protection Fence
LF - Linear Feet
SY - Square Yard
Ea - Each

Overall 31% Saving
Per Lot 30% Saving



Backyard Buffers

for the
South Carolina Lowcountry



What's *wrong* with this picture?



Many people in South Carolina who live along the water would be surprised to discover that typical landscaping may actually harm the state's rivers and creeks.

Loss of Natural Shoreline

Landscaping with lawn all the way to the water increases stormwater runoff amounts. This runoff carries fertilizer, pesticides, sediments, and pet waste from lawns directly into waterways, polluting the aquatic environment. Landscaping to the water also increases riverbank erosion, increases the potential for flood damage, and decreases the available habitat for wildlife. Scenic natural views are lost as well.

Reduced Quality of Place

Failure to understand the effects of our actions on the environment has impaired natural biological functions and led to a loss of natural beauty throughout the South Carolina Lowcountry.

What's *right* with this picture?



By retaining or restoring native shoreline plantings we improve our immediate environment as well as the overall health of our waterways.

A More Natural Environment

A vegetated buffer between upland development and water protects more fish, shellfish, and terrestrial wildlife and produces less polluted stormwater runoff.

A Sheltered Look

Your views as well as those from the water are enhanced by native plantings. With buffers on both sides of the water, the view from each bank is primarily of trees and other vegetation and not of lawns and houses. Docks become the main visible manmade structures.

Good Economics

The efforts made at each home can lead directly to increased property values, lower yard maintenance costs, and less chance for property damage from Mother Nature.



Benefits of Vegetated Riparian Buffers

Shoreline or riparian buffers are corridors of native vegetation along rivers, streams, and tidal wetlands that protect waterways by providing a transition zone between upland development and adjoining surface waters. Vegetated buffers are beneficial environmentally, aesthetically, and economically.

Minimize Stormwater Pollution

Buffer vegetation captures sediments and pesticides in runoff and a large amount of nitrogen and phosphorus, which are primary pollutants to waterways. By slowing stormwater runoff, the vegetation absorbs some pollutants and allows sediments to settle out before reaching a waterway.

Reduce Erosion

The deep root systems of trees and shrubs absorb stormwater and stabilize shoreline soil to reduce erosion along the banks of waterways.

Reduce Heating of Waterways

Stormwater runoff heated by sunlight can raise the temperature of receiving waterbodies, which can impair the aquatic environment. The trees in a riparian buffer shade the ground to reduce surface heating.

Create a Sense of Place & Privacy

A homeowner can plan a landscape to frame desirable views, screen unwanted views, and enhance what others see from the water. Dense plantings reduce noise pollution.

Reduce Flooding and Flood Damage

Vegetated buffers reduce downstream flooding by slowing stormwater velocity and storing water in soils. Riparian buffers also reduce flood damage by keeping development back from the immediate banks of waterways.

Preserve Natural Habitat

Many wildlife species either live in riparian areas or use them as travel corridors. Wider buffers support more species and continuous buffers are very effective in protecting amphibians, colonial water birds, and coastal fish spawning and nursery areas.

Save Money

By keeping development away from floodwaters, storm surges, and extreme high tides, buffers lessen property damage. By reducing flooding, erosion, and sedimentation they reduce public investment in stormwater management and waterway protection. Vegetated buffers cost less to maintain than turf, and using native vegetation has the additional advantage of requiring little or no fertilizers and pesticides.

Enjoy Your Surroundings

Your outdoor activities may be more enjoyable and healthful in the shade beneath trees, with more opportunities for recreational activities such as bird watching.

Planning Your Backyard Buffer

If you haven't built your home yet, have your builder clear only around the footprint of your home and minimize clearing near the water. It will significantly reduce both the amount of sedimentation caused by construction and future stormwater runoff amounts. In addition, your yard maintenance costs will be lower with native vegetation. Limit the amount of lawn on your property to what you really need.

What Are Your Concerns?

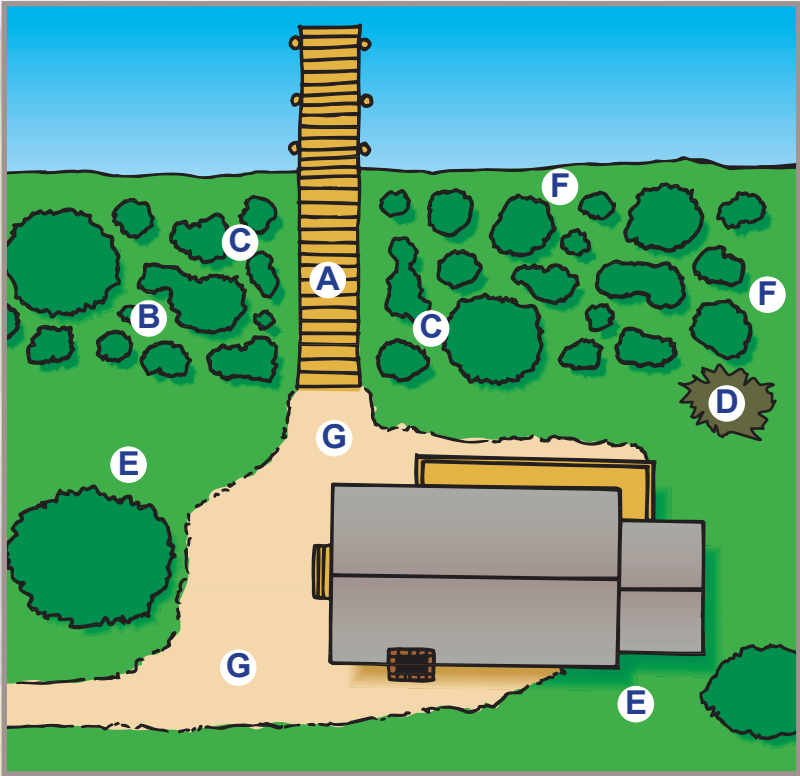
- **View:** Consider the views you want to maintain and frame a “view corridor” from your home with plantings composed of small trees, shrubs, and/or native grasses (but not lawn) that won't obstruct your view. Keep the view corridor at one-third your lot's total width or less. Preserve and plant larger trees in the rest of your buffer.
- **Attractive Foliage:** Do you want to attract certain animals to your backyard buffer, such as hummingbirds or butterflies? Do you want to keep nuisance animals, such as deer, away? Certain plants will attract certain animals, while other plants are known to be deer-resistant (see pages 6-8).
- **Plant Type:** Do you want flowering plants? Evergreens? What time of year do you want to see blooms?
- **Plant Location:** Determine where you want different plant types. Where do you want shrubs and where you do want trees, flowering plants, or native grasses? Don't worry about particular species yet, but to aid you later in picking particular species, decide the maximum plant height and spread you want in certain areas. If you want to attract birds or butterflies, determine where in your yard you would like to see them.

Preparing Your Yard

- The first step is to remove any sod in the first area you are going to plant. Most herbicides should not be used for this purpose because they can pollute stormwater runoff and receiving waterbodies. Instead, cover the sod with a tarp to block sunlight and kill the grass. (You could cover the tarp with pine straw in the interim.) Till the soil after the grass is dead to break up the soil.
- Remove all other non-native vegetation from the buffer area.
- Determine your soil type and test the soil for its pH level. Many plants will tolerate a wide pH range, but will do best when planted in the right soil. Be aware that different areas on the same property may have vastly different soils because of imported fill. You can take a soil sample to your local Clemson Extension Service to determine the pH of your soil for a nominal fee.

Planning Your Layout

- The buffer can be phased in over time. You don't need to do everything at once.
 - Pick the native plants you want in your buffer (refer to page 6-8 for plant information). For those who have not yet built their homes, saving existing native plants reduces costs, leaves habitat undisturbed, and limits the substantial amount of erosion caused by clearing for construction.
 - Slower growing plants may take longer to fill in empty spaces, but they will require less maintenance and most will last longer because they are more resistant to damage from storms.
- A**To get from your back lawn to your dock and to the water, construct a boardwalk through the buffer to prevent the channelization of stormwater runoff that occurs with dirt footpaths. Dirt footpaths are permissible in a buffer if they run parallel to the water.
- B**Mass your plants together. You want to be sure your plantings are dense and that there are no large patches of unplanted ground because you will increase the amount of sediment washed into the receiving waterbody. Dense plantings provide better stormwater filtration. You will need enough space between plants, however, to allow each to reach its full spread at maturity.
- C**Strive for diversity - a mix of trees, shrubs, ground covers, and native grasses. Large expanses of the same species of plant are prone to disease and infestation from insects. Select plants that flower and bear fruit at different times of the year.
- D**Snags and dead trees are beneficial for birds as perches, for nests and roost sites, and as sources of insects for food. If they do not threaten structures or driveways, consider leaving dead trees and snags in place.
- E**Locate tall trees on the east and west sides of the house to shade roof and walls.
- F**After planting, mulch your buffer area two to four inches deep with organic matter such as pine straw, leaves, or bark.
- G**Select ground cover instead of hard surfaces to absorb rainfall and reduce heat buildup. Porous surfaces, such as brick driveways and mulch paths, are better for handling stormwater runoff than paved surfaces because they allow water to soak into the ground.



South Carolina Lowcountry Native Plant List

- EVERGREEN or DECIDUOUS: Is it an evergreen or a deciduous plant?
- ATTRACT WILDLIFE: What wildlife does it attract?
- DEER RESISTANCE: Is the plant resistant to being fed upon by deer? (Lack of other available natural forage may affect deer resistance.)
- BLOOM: When does it bloom, if at all?
- COLOR BLOOM: What is the color of the blooms?
- FRUIT: What fruit does it produce, if any?
- SOIL TYPE: What type of soil does it prefer?
- SALTWATER/BRACKISH: If you are planting at the water's edge, is the plant tolerant to salt water or brackish conditions?
- HEIGHT at MATURITY: What is the plant's height at maturity?
- SPREAD at MATURITY: What is the plant's spread at maturity?
- SUN PREFERENCE: Does it have a sunlight preference?

FLOWERING PERENNIALS

Scientific Name	Common Name	Evergreen/Deciduous	Attract Wildlife	Deer Resistant	Bloom	Color Bloom	Fruit	Soil Type	Salt/Brackish	Height at Maturity	Spread at Maturity	Sun Preference
Asclepias tuberosa	Butterfly Weed		Butterflies	No	May-Aug	Orange		Dry or moist		12-30"	12-18"	Full sun/part shade
Coreopsis augustifolia	Tickseed Coreopsis		Butterflies, songbirds		Aug-Oct	Yellow		Dry or moist		3-5'	2-3'	Full sun/part shade
Coreopsis lanceolata	Coreopsis		Butterflies, songbirds	No	Apr-Jun	Yellow		Dry		12-18"	12-18"	Full sun/part shade
Eyrthrina herbacea	Coral Bean		Butterflies, hummingbirds	Yes	May-Jul	Red	Scarlet seeds	Dry or moist, sandy	Salt	2-5'	2-5'	Full sun/part shade
Helianthus angustifolius	Swamp Sunflower		Butterflies, songbirds		Jul-frost	Yellow		Moist or wet, sandy		3-6'	2-3'	Full sun
Hibiscus moscheutos	Swamp Rose mallow		Butterflies		Jun-Sep	White, Pink		Moist or wet	Brac	3-4'	3-4'	Full sun/part shade
Iris virginica	Blue Flag Iris		Hummingbirds		Apr-May	Blue		Moist or wet, acidic		1-2'	6-12"	shade to part shade
Kosteletzkya virginica	Seashore Mallow		Butterflies, hummingbirds		Jul-Oct	Pink, Lavender, White		Moist or wet	Brac	5'	2-3'	Full sun
Liatris spicata	Blazing Star		Butterflies		Sep-Oct	Lavender		Moist or dry, acidic	Salt	1-6'	6-12"	Full sun
Oenothera drummondii	Beach Evening Primrose		Butterflies	Yes	Mar-Nov	Yellow		Dry	Salt	6-12"	1-2'	Full sun
Oenothera speciosa	Evening Primrose		Butterflies		Apr-Oct	Pink		Dry	Salt	1-2'	Ground cover	Full sun
Phlox carolina	Carolina Phlox		Butterflies, hummingbirds	No	May-Jul	Pink, Lavender, White		Moist, acidic		1-3'	6-18"	Full sun/part shade
Rudbeckia fulgida	Black-eyed Susan		Birds		Aug-Oct	Yellow or Orange		Moist or dry, acidic	Salt	2-3'	18-24"	Full sun/part shade
Rudbeckia hirta	Black-eyed Susan		Birds	No	May-Jul	Yellow, Orange, Red		Moist or dry, acidic		3-4'	2-3'	Full sun/part shade
Salvia coccinea	Scarlet Sage		Butterflies, hummingbirds		Feb-Nov	Red		Dry, sandy		24"	3-6"	Full sun/part shade
Salvia lyrata	Lyre-leaved Sage		Butterflies, hummingbirds		Apr-May	Blue		Dry to wet, acidic		12-32"	3-5"	Sun or shade
Solidago sempervirens	Seaside Goldenrod		Butterflies, birds		Aug-Nov	Yellow		Moist or dry, acidic	Salt	1-6'	1-2'	Full sun/part shade
Verbena canadensis	Pink Verbena		Butterflies		Mar-May	Pink,		Dry		6-12"	Ground cover	Full sun

TREES

Scientific Name	Common Name	Evergreen/Deciduous	Attract Wildlife	Deer Resistant	Bloom	Color Bloom	Fruit	Soil Type	Salt/Brackish	Height at Maturity	Spread at Maturity	Sun Preference
Acer rubrum	Red maple	Dec	Song birds	No	Feb-Mar	Red	Red winged seed	Wet or dry		50-60'	35'	Full sun to part shade
Magnolia grandiflora	Southern Magnolia	Evg	Birds	No	May-June	Creamy white	Cone, Red seed	No pref	Salt	60-80'	30-50'	Full sun to part shade
Pinus elliotii	Slash Pine	Evg	Song birds	No			Cones	Moist	Salt	Up to 100'	40-60'	Full sun
Pinus taeda	Loblolly Pine	Evg	Song birds	No			Cones	Acidic	Salt	50-90'	20-30'	Full sun
Quercus falcata	Southern Red Oak	Dec	Birds, mammals	No			Acorn	Dry, acidic	Salt	70-80'	40-50'	Full sun to part shade
Quercus laurifolia	Laurel Oak	Evg	Birds, mammals	No			Acorn	Dry or moist, sandy		40 to 60'	30-40'	Full sun to part shade
Quercus phellos	Willow Oak	Dec	Birds, mammals	No			Acorn	Wet or moist, acidic		60-75'	40-60'	Full sun
Quercus virginica	Live Oak	Evg	Birds, mammals, Butterflies	No			Acorn	Moist	Salt	40-80'	60-100'	Full sun
Sabel palmetto	Cabbage Palmetto	Evg	Birds, mammals, Butterflies	Yes	Yes	Cream	Black berries	Moist	Salt	30-50'	8'	Full sun
Taxodium distichum	Bald Cypress	Dec	Birds	No			Cones	Wet		100-120'	30-40'	Full sun

SMALL TREES

Scientific Name	Common Name	Evergreen/Deciduous	Attract Wildlife	Deer Resistant	Bloom	Color Bloom	Fruit	Soil Type	Salt/Brackish	Height at Maturity	Spread at Maturity	Sun Preference
Aesculus pavia	Red Buckeye	Dec	Humming-birds, squirrels	Apr-May	Red			No Pref	Brac	20-25'		Part shade
Cercis canadensis	Eastern Redbud	Dec	Birds	Mar-May	Lavender			Moist or dry, acid		Up to 30'	15-35'	Full sun to part shade
Chinanthus virginicus	Fringe Tree	Dec	Birds, mammals	Jul-Sep	Off white					Up to 30'		
Cornus florida	Dogwood	Dec	Birds	Mar-Apr	White, pink, red	Red berry		Moist or dry		Up to 40'	Up to 50'	Sun or shade
Gordonia lasianthus	Loblolly Bay	Evg		No	Jul-Sep	White		Wet or moist, acidic		Up to 75'	20-30'	Full sun
Juniperus virginiana	Red Cedar	Evg	Songbirds, butterflies, mammals	No	No		Blue berry	No pref	Salt	40-60'	20-30'	Full sun
Magnolia virginiana	Sweetbay Magnolia	Semi Evg	Birds, butterflies	No	Apr-Jul	White	Cone, red seed	Moist or wet, acidic		40-50'	15-25'	Full sun to part shade
Persea borbonia	Red Bay	Evg	Birds, butterflies	No	No		Blue berry	Moist or dry	Salt	30-40'	20-30'	Full sun to part shade
Prunus caroliniana	Cherry Laurel	Evg	Birds	Mar-Apr	White	Black berry		Moist	Salt	Up to 40'	6-10'	Full sun to part shade
Sassafras albidum	Sassafras	Dec	Birds	Mar-Apr	Yellow			Moist	Brac	Up to 50'	25-40'	Full sun to part shade

SHRUBS

Scientific Name	Common Name	Evergreen/Deciduous	Attract Wildlife	Deer Resistant	Bloom	Color Bloom	Fruit	Soil Type	Salt/Brackish	Height at Maturity	Spread at Maturity	Sun Preference
Baccharis halimifolia	Salt Myrtle	Dec			Sep-Oct	White	Downy plumes	No pref	Brac	3-9'		Full sun/ part shade
Callicarpa americana	Beauty Berry	Dec	Birds, mammals	Yes	June-July	Pink	Purple berries	Dry or moist, acidic	Salt	Up to 8'	4-6'	Sun or shade
Cephalanthus occidentalis	Button Bush	Dec	Ducks & waterbirds		June-Aug	White		Wet		3-4'		Sun or shade
Clethra alnifolia	Sweet Pepper bush	Dec	Butterflies, birds, mammals	Yes	May-July	White		Wet, acidic, sandy or clay		3-10'	3-4'	Sun or shade
Ilex glabra	Inkberry	Evg	Birds	Yes	Mar-Apr	White	Black berries	Moist, acidic, sandy	Brac	7-9'	7-8'	Sun or shade
Ilex vomitoria	Yaupon Holly	Evg	Songbirds		Mar-Apr	White	Red berries	Moist or dry	Salt	20-25'	10-15'	Full sun/ part shade
Itea virginica	Virginia Sweetspire	Dec	Butterflies, birds	No	May-June	White		Moist or wet, acidic		3-6'	3-4'	Part shade to shade
Leucothoe axillaris	Leucothoe	Evg			Mar-May	White		Moist or wet, acidic		Up to 5'	2-3'	Part shade to shade
Myrica cerifera	Wax Myrtle	Evg	Song birds		No		Blue berries	No pref	Salt	15-20'	15-20'	Full sun/ part shade
Osmanthus Americana	Wild Olive	Evg	Birds, mammals		Apr-May	Cream	Blue drupe	Dry or moist, acidic	Salt	15-30'	20-30'	Full sun/ part shade
Rhododendron canescens	Wild Azalea	Dec	Butteflies, Hummingbirds		Mar-May	Pink		Moist, acidic		6-10'	6-10'	Full sun/ part shade
Rhododendron atlanticum	Dwarf Azalea	Dec	Butteflies, Hummingbirds		Apr-May	Pink		Moist or dry		3-5'	2-3'	Full sun/ part shade
Sabal minor	Shrub Palmetto	Evg	Birds	Yes	May-June	White	Black berries	Moist or wet	Brac	4-5'	4-5'	Part shade to shade
Sabal repens	Saw Palmetto	Dec	Birds	Yes	May-July	White	Blue-black drupe	Moist or dry	Salt	4-5'	4-5'	Full sun/ part shade
Vaccinium aboreum	Sparkle-berry	Evg	Birds, butterflies	No	Apr-Jun	White	Black berries	Dry or moist	Salt	Up to 30'	15-20'	Sun or shade
Yucca aloifolia	Spanish Bayonet	Evg	Moths	Yes	June-July	White	Purple	Dry	Salt	5-10'	2-3'	Full sun/ part shade
Yucca filamentosa	Bear Grass	Evg	Moths	Yes	Apr-June	White	Purple	Dry	Salt	2-4'	1-2'	Full sun/ part shade

GRASSES

Scientific Name	Common Name	Evergreen/Deciduous	Attract Wildlife	Deer Resistant	Bloom	Color Bloom	Fruit	Soil Type	Salt/Brackish	Height at Maturity	Spread at Maturity	Sun Preference
Andropogon glomeratus	Bushy Broomsedge		Birds, mammals		Aug-Oct	Silvery white	Silver	Moist	Brac	2-5'	1-2'	Full sun
Andropogon virginicus	Broomsedge		Birds		Sep-Oct		White	Dry or moist	Salt	2-5'	1-2'	Full sun
Dichromena latifolia	Whitetop Sedge				May-Sep	white		Wet or Moist	Brac	Up to 4'	6-12"	Full sun/ part shade
Muhlenbergia filipes	Sweetgrass Perenn			Yes	Oct-Nov		Pink	Purple	Salt	2-4'	1-2'	Full sun
Panicum amarum	Seaside Panicum		Birds	Yes	Oct		Purple	Dry	Salt	15-40"	2-3'	Full sun
Panicum virgatum	Switch Grass		Birds	Yes	Jun-Oct	Pink, Purple		Moist or wet	Brac	3-4'	1-2'	Full sun/ part shade
Uniola paniculata	Sea Oats		Birds	Yes	Jun-Nov		Oats	Dry	Salt	3-6'	1-2'	Full sun

Buffer Management

- Plant all cleared areas and remove any non-native plants. Inspect your buffer at least annually for invasive, non-native plants and remove them promptly. Such nuisance plants can overrun a buffer in a short period, impairing the buffer's ability to provide habitat and protect the aquatic environment.*
- Use fertilizer and pesticides sparingly, if at all. Native plants grew here before man arrived, so they are adapted to tolerate the area's extreme conditions and have their own natural defenses against pests.
- Pruning and Cutting: You may prune branches over time to maintain your view corridor, but be sure not to damage your trees or shrubs by cutting too many limbs.

* Contact OCRM or The Department of Natural Resources (DNR) for a list of the worst invasive, non-native plants in South Carolina.

Whom to Call for More Information:

South Carolina Department of Health and Environmental Control Office of Ocean and Coastal Resource Management (DHEC-OCRM): (843) 744-5838
United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (in the phone book)
Your local Clemson Extension Service (in the phone book)
Charleston Soil and Water Conservation District (843) 727-4160, ext 3
Your local chapter of the South Carolina Native Plant Society (in the phone book)

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