



**JAMES ISLAND PLANNING COMMISSION
MEETING AGENDA
1122 Dills Bluff Road, James Island, SC 29412**

**August 11, 2022
6:35 PM**

NOTICE OF THIS MEETING WAS POSTED IN ACCORDANCE WITH THE FREEDOM OF INFORMATION ACT

This meeting will be live streamed on the Town's YouTube channel:
<https://www.youtube.com/channel/UCm9sFR-ivmaAT3wyHdAYZqw/featured>

Public Comments need to be received via email by noon on Thursday 8/11/2022 to
kcrane@jamesislandsc.us

- I. CALL TO ORDER
- II. COMPLIANCE WITH THE FREEDOM OF INFORMATION ACT
- III. INTRODUCTIONS
- IV. APPROVAL OF FEBRUARY 10, 2022 MINUTES
- V. PUBLIC COMMENTS
- VI. STAFF COMMENTS
- VII. PROPOSED AMENDMENTS TO THE TOWN OF JAMES ISLAND ZONING AND LAND DEVELOPMENT REGULATIONS ORDINANCE (ZLDR) INCLUDING:
 - a. Off-Street Parking Schedule A (153.332): Amending Civic/Institutional and Pre-school or Educational Nursery Requirements.
 - b. Off-Site Parking (153.332 D 2): Amending Off-Site parking requirements for Civic/Institutional Uses
 - c. Use Table (Table 153.110): Changing Use Allowance for Nonalcoholic Beverage Bars from a Special Exception Use to a Conditional Use in the OG, CN, CC, and I Zoning Districts.
Planning Commission will vote on a recommendation to Town Council
- VIII. DISCUSSION ON ADDITION OF RESILIENCE ELEMENT TO COMPRHENSIVE PLAN
 - a. Planning Commission will discuss the potential content and timeline of adding the required Resilience Element to the Town of James Island Comprehensive Plan.
No votes will be taken
- IX. CHAIR'S COMMENTS
- X. COMMISSIONERS COMMENTS
- XI. NEXT SCHEDULED MEETING DATE: SEPTEMBER 8, 2022
- XII. ADJOURN

The Planning Commission of the Town of James Island met on Thursday, February 10, 2022, at 6:35 p.m. in person at the James Island Town Hall, 1122 Dills Bluff Road, James Island, SC 29412.

Commissioners present: Ed Steers, Vice Chair, Deborah Bidwell, Zennie Quinn, Mark Maher, and Bill Lyon, Chairman, who presided. A quorum was present to conduct business. Also present: Kristen Crane, Planning Director, Flannery Wood, Planner II, Councilwoman Cynthia Mignano, Liaison to the Planning Commission, and Frances Simmons, Town Clerk and Secretary to the Planning Commission.

Call to Order: Chairman Lyon called the meeting to order at 6:35 p.m. and lead the Planning Commission in prayer. He asked Commissioners to take down their masks when speaking to be heard clearly on the recording.

Compliance with the Freedom of Information Act: Chairman Lyon announced that the meeting was duly noticed in compliance with the SC Freedom of Information Act. The meeting was also live-streamed on the Town's YouTube Channel and the public was provided information to participate.

Introductions: Chairman Lyon introduced the members of the Planning Commissioners and Town staff.

Approval of October 14, 2021 Meeting Minutes: The minutes of the October 14, 2021 meeting were approved upon a motion by Commissioner Quinn, seconded by Commissioner Bidwell and passed unanimously.

Public Comments: No members of the public present.

Staff Comments: Planning Director, Kristen Crane, informed the Commission that the date for its next meeting is March 10, not the 17th. She also informed the Commission that Town Council will hear a proposal at its February 17th meeting for Small Cell Consulting work by Johnson, Laschober & Associates (JLA). If the proposal is accepted by Town Council it would result in the creation of an ordinance that would be approved by Town Council.

Proposed Amendments to the Town of James Island Zoning and Land Development Regulations Ordinance (ZLDR) Including:

- a. Table 153.110: Removing Apiculture (beekeeping) from the Use Table, allowing apiculture in any zoning district with no regulation or enforcement by the Town's Zoning and Land Development Regulations Ordinance. *(Planning Commission will vote on a recommendation to Town Council)*

Mrs. Crane explained that Council at its December 16, 2021 meeting held discussion regarding the keeping of bees which resulted in a vote of 3-2 to strike all reference to apiculture (beekeeping) from the Zoning and Land Use Regulations Ordinance and Use Table. A copy of the meeting minutes was provided to the Planning Commission.

Commissioner Quinn asked if there were strong reasons why beekeeping should be stricken. Councilwoman Mignano responded that beekeeping should be a self-regulation; if the hives are not maintained, the bees would not stay and this should be a neighbor to neighbor relationship. She added that Councilman Boles felt there should be less government and regulations.

Commissioner Quinn asked if consideration was given to commercial businesses that would bring hives to their residence and if a business license would be required for that. Ms. Wood responded that business licenses are only required for Home Occupations that use their home as their business address, therefore if this amendment passes, the situation he described would not be able to be regulated through Home Occupations or Business License rules.

Commissioner Quinn talked about neighbor disputes and Councilwoman Mignano noted that law enforcement should be contacted to handle should there be a dispute(s).

Chairman Lyon called for a motion in order to have further discussion. Commissioner Steers moved, seconded by Commissioner Bidwell.

Commissioner Bidwell commented on neighbor disputes, allergies, and the fear that people have about bees. She commented that the current plan is that the Town doesn't have to approve the number of hives so then people could have any amount on their property. Chairman Lyon said he spoke to a neighbor who has hives that said if you have too many they will crash and not be productive

After further discussion, Chairman Lyon brought the motion to a vote.

Vote

Commissioner Maher	aye
Commissioner Steers	aye
Chairman Lyon	aye
Commissioner Bidwell	nay
Commissioner Quinn	nay

Motion passed: 3-2

Chairman Lyon announced that Town Council will hold a First Reading and Public Hearing at its March 17 meeting and a Second Reading on April 21.

Proposed Planning Commission Time Change: Chairman Lyon moved to change the time for the Planning Commission meetings to 6:30 p.m., seconded by Commissioner Bidwell. Chairman Lyon shared that meeting at 6:30 p.m. poses an issue for Councilwoman Mignano, (Planning Commission's liaison), because she sees patients until 6:30 p.m. and desires to attend the meetings. Mrs. Crane explained that Zoom meetings are scheduled on the hour and half-hour. There was discussion about waiting an extra five minutes for the meeting to begin and that perhaps some sort of screen saver or post could be displayed that the meeting would begin at 6:35 could be done. After the discussion, Chairman Lyon called for the vote. He said an "aye" vote would change the meeting time to 6:30 p.m. and a "nay" vote would keep it at 6:35 p.m.

Vote

Aye: None

Nay:

Commissioner Maher
Commissioner Steers
Commissioner Bidwell
Commissioner Quinn
Chairman Lyon

Passed unanimously to retain the meeting time to 6:35 p.m.

Vote for Chair and Vice Chair

Chairman: Commissioner Steers brought forth the nomination of Bill Lyon to serve as Chair; seconded by Commissioner Bidwell. There were no other nominations and the vote carried unanimously.

Vice Chair: Commissioner Steers brought forth the nomination of Deborah Bidwell to serve as Vice Chair, seconded by Chairman Lyon. There were no other nominations and the vote carried unanimously.

Terms for Chair and Vice Chair will be to December 31, 2022.

Chair's Comments: None

Commissioners Comments: Commissioner Quinn expressed appreciation for receiving the minutes from the December Town Council meeting and would like to have that done more.

Next Meeting Date: The next meeting of the Planning Commission will be held on Thursday, March 10 at 6:35 p.m.

Adjourn: There being no further business to come before the body, the meeting adjourned at 6:57 p.m.

Respectfully submitted:

Frances Simmons
Town Clerk and Secretary to the Planning Commission

DRAFT

§ 153.332 OFF-STREET PARKING AND LOADING.

(A) General.

(1) Applicability.

(a) New development. The off-street parking and loading standards of this section apply to any new building constructed and to any new use established.

(b) Expansions and alterations. The off-street parking and loading standards of this section apply when an existing structure or use is expanded or enlarged. Additional off-street parking and loading spaces will be required only to serve the enlarged or expanded area, not the entire building or use, provided that, in all cases, the number of off-street parking and loading spaces provided for the entire use (pre-existing + expansion) must equal at least 75% of minimum ratio established in Off-Street Parking Schedule A in this section.

(2) Timing of installation. Required parking spaces and drives shall be ready for use and approved by the Zoning Administrator prior to issuance of a certificate of occupancy.

(3) Reduction below minimums.

(a) The Zoning Administrator shall be authorized to reduce the number of required parking spaces by no more than 10% when more than ten spaces are required with the following conditions:

1. The site can support the minimum required number of parking spaces and meet all development standards in this chapter including buffers and landscaping requirements; or

2. The reduction is necessary to meet the tree protection and preservation regulations contained in § 153.334 of this code.

(b) This allowable reduction excludes medical offices and restaurant uses. Any change in use that increases applicable off-street parking or loading requirements will be deemed a violation of this chapter unless parking and loading spaces are provided in accordance with the provisions of this section.

(B) Off-Street Parking Schedule A. Unless otherwise expressly allowed, off-street parking spaces shall be provided in accordance with the following table:

Use Table	Number of Off-Street Parking Spaces Required (Minimum)
Use Table	
Number of Off-Street Parking Spaces Required (Minimum)	
RESIDENTIAL	
Adult/child group home or residential care facility	
1 per 3 beds, plus 1 per employee in single shift	
Congregate living	
1 per 3 beds	
Farm labor housing (dormitory)	
0.5 per bed	
Multi-family	
1.5 per 1-bedroom unit; 2 per 2-bedroom unit; 2.5 per 3-bedroom and larger units	

Retirement housing

0.75 per 1-bedroom unit; 1 per 2-bedroom unit; 1.5 per 3-bedroom and larger units

Single-family:

Detached and attached, including dwelling groups, duplexes, and manufactured housing units

2 per dwelling unit

CIVIC/INSTITUTIONAL

Adult or child day care facilities

1 per employee plus 1 per 5 children/adults

Cemetery

1 per full time employee

College or university facility

1 per 100 square feet classroom plus 1 per 300 square feet office/administrative plus 1 per 3 beds

Community recreation

1 per 250 square feet of gross floor area

Convalescent services

1 per 5 beds

Counseling service

1 per 150 square feet

Court of law

1 per employee plus 1 per every 3 seats of seating available to the public in the courtroom

Health care related services:

Including home health agency, laboratory, outpatient services and rehabilitation facilities

1 per 200 square feet of gross floor area with a minimum of 4 spaces

Historical sites, libraries

1 per 300 square feet

Archives or museums

~~1 per 300 square feet~~ **1 per 500 square feet of display area**

Hospital

1 per 2 beds plus 1 per 300 square feet of floor area of administrative and medical offices

Intermediate care facility for the mentally handicapped

1 per bed plus 1 per employee in single shift

Nature exhibition or botanical gardens

1 per employee in single shift plus 2 spaces per acre

Parks and recreation

1 per 5,000 square feet of land area plus outdoor recreation requirements

Personal improvement education

1 per every 3 students plus 1 per employee

Postal Service, United States

1 per 150 square feet of floor area

Pre-school or educational nursery

~~1 space per 6 students for which the facility is licensed plus 1 per employee~~ **1 per employee in single shift plus 1 per 1000 sf of classroom area**

Public assembly:

Including conference centers, concert halls, religious assemblies, professional, labor or political organizations and social clubs or lodges

1 per 5 fixed seats or 1 per every 3 persons in structures with non-fixed seating of the maximum occupancy load as established by building code. The number of spaces required may be reduced a maximum of 50% if the assembly area is located within 500 feet of any public or commercial parking lot where sufficient spaces are available by parking agreement.

Railroad freight depot

1 per 2,400 square feet

Recycling collection, drop-off

1 per recycle collection container

Safety services

1 per 2 employees

School, primary

1 space for each vehicle owned and operated by the school plus two per employee (including faculty, administrative, and the like)

School, secondary

1 space for each vehicle owned and operated by the school plus two per employee (including faculty, administrative, and the like) plus 1 per 8 students

Utility service, major

1 space per employee plus 1 per stored vehicle

Utility service, minor

None

Zoo

10 plus 1 per employee in single shift

COMMERCIAL

Agricultural sales/service

1 per 500 square feet of floor area plus 4 per acre outdoor sales/display/storage area

Banks and financial services

1 per 300 square feet of floor area, also see drive-through requirements

Bar or lounge

1 per 75 square feet indoor seating area plus 1 per 200 square feet outdoor seating area

Bed and breakfast

1 per guest room

Boat yard

1 per employee

Building materials or garden equipment and supplies retailers

1 per 200 square feet of floor area not including storage plus 1 per employee
Business or trade school
1 per 100 square feet classroom plus 1 per 300 square feet business/administrative office
Catering service
1 per 400 square feet of floor area
Charter boat or other recreational watercraft rental services
1 per rental boat or watercraft plus 1 per employee
Communication:
Including data processing and publishing services
1 per 300 square feet of floor area
Construction tools, commercial or industrial equipment rental
1 per 250 square feet of floor area not including storage areas
Convenience store
1 per 200 square feet of floor area
Convention center or visitors bureau
4 per 1,000 square feet of floor area
Fishing or hunting guide service
5 per employee
Fishing or hunting lodge (commercial)
1 per visitor plus 1 per 5 members
Food sales and grocery stores
1 per 175 square feet
Funeral services
1 per 4 seats or 1 per employee, whichever is greater
Gasoline service station
1 per 200 square feet of gross floor area plus vehicle stacking spaces per division (H) of this section
Golf courses or country clubs
1 per employee plus 4 per golf green, plus 1 per 4 seats for accessory restaurant or bar use
Hair, nail, or skin care service
2 per employee or work station, whichever is greater
Heavy construction service, general contractor, or special trade contractors
1 per 400 square feet indoor floor area plus 4 spaces per acre outdoor storage/display/sales area
Heavy duty truck or commercial vehicle rental or leasing
1 per rental vehicle plus 1 per employee in single shift
Hotel-motel
1 per room plus spaces as required for associated restaurants, bars, and offices
Kennel
1 plus 1 per employee
Liquor sales, beer or wine sales

1 per 200 square feet of floor area

Marina

1 space per 200 square feet of office area plus 1 per 3 wet slips and 1 per 5 dry stack storage

Nonstore retailers

1 per employee plus 2 spaces for deliveries

Office, business/professional/administrative

1 per 300 square feet of floor area

Office, medical

1 per 150 square feet of floor area

Office, parole or probation

1 per employee plus 1 per 200 square feet of floor area

Office, resort real estate

1 per 200 square feet of floor area

Office/warehouse complex

1 per employee in shift plus 1 per 2000 square feet of office space

Outpatient clinic

1 per 200 square feet of floor area with a minimum of 4 spaces

Parking, lot or garage

1 per employee

Pawn shop

1 per 200 square feet of floor area

Personal improvement service

1 per 200 square feet of floor area

Pet stores, grooming salons, or small animal boarding

1 per 300 square feet of floor area

Recreational vehicle park or campground

1 per employee plus 1 per recreational vehicle and camp site

Recreation and entertainment, indoor

1 per 3 seats or 1 per 200 square feet of floor area, whichever is greater

Recreation and entertainment, outdoor

1 per 200 square feet of public activity area, plus:

Athletic field: 15 spaces per diamond or field

Basketball: 5 spaces per court

Swimming pool: 1 per 200 square feet of water surface area

Tennis: 2 spaces per court

Recreation or vacation camp

1 per employee plus 1 per camp vehicle or camp site

Repair service, consumer
1 per 300 square feet of floor area

Restaurant, fast-food
1 per 75 square feet indoor seating area plus 1 per 200 square feet outdoor seating area plus vehicle stacking spaces per division (H) of this section

Restaurant, fast-food (no inside seating)
1 per employee plus 1 per 200 square feet outdoor seating area plus vehicle stacking spaces per division (H) of this section

Restaurant, general
1 per 75 square feet indoor seating area plus 1 per 200 square feet outdoor seating area

Retail sales and service, general
1 per 300 square feet indoor floor area plus 5 spaces per acre outdoor storage/display/sales area

Rooming or boarding house
1 per guest room

Scrap and salvage service
1 per employee plus 2 per acre

Self-service storage/mini warehouse
3 spaces plus 1 space per employee and 1 space per 100 units

Services to buildings and dwellings
1 per employee plus 1 space for deliveries

Shopping center (mixed retail, office, food sales, restaurant)
1 space per 200 square feet

Stable (boarding or commercial for hire)
1 per 2 stalls

Truck stop
1 per employee plus truck space parking plus any parking required in this table when restaurant or motel is included

Vehicle parts, accessories, or tire stores
1 per 300 square feet of floor area (10 space minimum)

Vehicle repair, consumer
2 per employee or service bay

Vehicle sales or vehicle rental or leasing
1 per 2,500 square feet of display, 1 per 250 square feet indoor enclosed floor space

Vehicle storage
1 per 2 employees

Veterinary services
3 spaces per each veterinarian or allied professional

INDUSTRIAL

Dry cleaning plant, carpet cleaning plant, or commercial laundry

1 per employee plus 1 per 3 washing/drying machines if provided for customer use

Manufacturing and production

1 per 400 square feet of office area plus 1 per 2 employees

Photo finishing laboratory

1 per 200 square feet of floor area

Repair service, commercial

1 per 400 square feet office area plus 1 per 2 employees

Warehouse and distribution facilities

1 per 300 square feet office area plus 1 per 600 square feet for first 12,000 square feet warehouse/storage area plus 1 per 900 square feet for remaining warehouse/storage area (over 12,000 square feet)

Wholesale sales

1 per 600 square feet for first 12,000 square feet plus 1 per 900 square feet for remaining area (over 12,000 square feet)

AGRICULTURAL AND OTHER USES

Agricultural processing

1 per employee

Animal production

None

Aviation

1 space per 5 aircraft tie down or storage plus 1 space per 4 seats in waiting room areas

Commercial timber operations

None

Communications towers

None

Crop production

None

Horticulture, greenhouse or hydroponics production

1 per employee

Lumber mills, planing or saw mills

1 per employee plus 1 per commercial vehicle plus 1 per 400 square feet of floor area

Recycling center or waste related use

1 per employee

Resource extraction

1 per 2 employees

Roadside stands

3 per stand

Sightseeing transportation, land or water

1 per 2 seats of sightseeing vehicle

Taxi or limousine service

1 per employee plus one per vehicle that provides service

Urban transit service

1 per 100 square feet of public waiting area plus 1 per two employees and 1 per transit vehicle

Water transportation

1 per two seats of transportation vehicle plus 1 per employee

(C) Rules for computing parking and loading requirements. The following rules apply when computing off-street parking and loading requirements.

(1) Multiple uses. Lots containing more than one use must provide parking and loading in an amount equal to the total of the requirement for all use.

(2) Fractions. When measurements of the number of required spaces result in a fractional number, any fraction of one-half or less will be rounded down to the next lower whole number and any fraction of more than one-half will be rounded up to the next higher whole number.

(3) Area measurements. Unless otherwise expressly stated, all square-footage-based parking and loading standards must be computed on the basis of gross floor area. Storage areas or common areas incidental to the principal use shall be exempt from this measurement when the following conditions are met.

(a) The storage area or common area is a minimum of 250 square feet.

(b) The applicant has provided documentation that such areas will not be used as space for employees, customers, or residents.

(4) Occupancy-based standards. For the purpose of computing parking requirements based on employees, students, residents, or occupants, calculations shall be based on the largest number of persons working on any single shift, the maximum enrollment, or the maximum fire-rated capacity, whichever is applicable and whichever results in the greater number of spaces.

(5) Unlisted uses. Upon receiving a development application for a use not specifically listed in an off-street parking schedule, the Zoning Administrator shall apply the off-street parking standard specified for the listed use that is deemed most similar to the proposed use or require parking spaced in accordance with a parking study prepared by the applicant.

(D) Location of required parking.

(1) On-site parking.

(a) Except as expressly stated in this division (D), all required off-street parking spaces must be located on the same lot as the principal use and shall be arranged and laid out so as to ensure that no parked or maneuvering vehicle will encroach upon a sidewalk, public right-of-way, or property line.

(b) Parking lots in office (O) and commercial (C) districts containing more than ten parking spaces shall be located to the side or rear of the principal structure's front facade or within a courtyard surrounded by a structure on at least three sides.

(2) Off-site parking.

(a) OFF-SITE PARKING is defined as the required parking not located on the parcel which the principal use is located. SHARED PARKING is parking for uses with different

operating hours or peak business periods that share required off-street parking spaces. Shared parking may or may not be off-site parking. Off-site and shared parking are allowed provided they meet the following standards. If any one of the following applicable standards cannot be met, special exception approval shall be required.

(b) A maximum of 50% of the required parking spaces may be off-site, **except for Civic/Institutional Uses that may have a maximum of 75% of the required parking spaces off-site**; however, off-site parking may not be used to satisfy the off-street parking standards for residential uses (except for guest parking), restaurants, convenience stores, or other convenience-oriented uses unless approved as part of a mixed use development. Required parking spaces reserved for persons with disabilities shall not be located off site.

1. Shared or off-site parking must be located within 600 feet from the primary entrance of the use served, unless shuttle bus service is provided to the remote parking area. Shared or off-site parking spaces may not be separated from the use that it serves they serve by a street right-of-way with a width of more than 80 feet, unless a grade-separated pedestrian walkway is provided, or other traffic control or shuttle bus service is provided to the remote parking area.

2. An applicant requesting shared parking shall submit a shared parking analysis to the Zoning Administrator that clearly demonstrates the feasibility of shared parking. The shared parking analysis must be approved by the Zoning Administrator and made available to the public. It must address, at a minimum, the size and type of the proposed development, the composition of tenants, the anticipated rate of parking turnover, and the anticipated peak parking and traffic loads for all uses that will be sharing off-street parking spaces. Approvals will only pertain to the specific uses addressed in the analysis and any change in use(s) will require a new shared parking analysis.

3. Off-site parking areas serving uses located in nonresidential zoning districts must be located in nonresidential zoning districts. Off-site parking areas serving uses located in residential or agricultural zoning districts may be located in residential, agricultural, or nonresidential zoning districts.

4. In the event that an off-site parking area is not under the same ownership as the principal use served, a written agreement will be required. An attested copy of the agreement between the owners of record must be submitted to the Zoning Administrator for recording on forms made available in the Planning/Zoning Department. Recording of the agreement with the Register of Mesne Conveyance must take place before issuance of a zoning permit, building permit, or certificate of occupancy for any use to be served by the off-site parking area. An off-site parking agreement may be revoked only if all required off-site parking spaces will be provided in accordance with this section.

5. Shared parking areas must be connected by a continuous network of sidewalks and pedestrian crosswalks.

EXISTING

Table 153.110	Zoning Districts											Condition	
	NRM-25	AG-5	AGR	RSL	RSM	MHS	OR	OG	CN	CC	I		
FINANCIAL SERVICES													
Banks								C	C	C	A	A	§ 153.153
Financial services, including loan or lending services, savings and loan institutions, or stock and bond brokers								C	C	C	A	A	§ 153.153
FOOD SERVICES AND DRINKING PLACES													
Bar or lounge (alcoholic beverages), including taverns, cocktail lounges, or member exclusive bars or lounges										S	S	S	
Catering service	S	S	S	S	S	S		C	C	A	A	A	§ 153.154
Nonalcoholic beverage bars including coffee shops and smoothie bars								S	S	S	S	S	
Restaurant, fast-food, including snack bars										S	S	C	§ 153.135
Restaurant, general, including cafeterias, diners, delicatessens, or full-service restaurants									C	C	C	C	§ 153.135
Sexually oriented business												C	§ 153.138
INFORMATION INDUSTRIES													
Communication services, including radio or television broadcasting studios, news syndicates, film or sound recording studios, telecommunication service centers, or telegraph service offices									S	S	A	A	
Communications towers	C	C							C	C	C	C	§ 153.125
Data processing services									A	A	A	A	
Publishing industries, including newspaper, periodical, book, database, or software publishers								S	A	A	A	A	

PROPOSED

Table 153.110	Zoning Districts											Condition	
	NRM-25	AG-5	AGR	RSL	RSM	MHS	OR	OG	CN	CC	I		
FINANCIAL SERVICES													
Banks								C	C	C	A	A	§ 153.153
Financial services, including loan or lending services, savings and loan institutions, or stock and bond brokers								C	C	C	A	A	§ 153.153
FOOD SERVICES AND DRINKING PLACES													
Bar or lounge (alcoholic beverages), including taverns, cocktail lounges, or member exclusive bars or lounges										S	S	S	
Catering service	S	S	S	S	S	S		C	C	A	A	A	§ 153.154
Nonalcoholic beverage bars including coffee shops and smoothie bars								S	S C	S C	S C	S C	153.154
Restaurant, fast-food, including snack bars										S	S	C	§ 153.135
Restaurant, general, including cafeterias, diners, delicatessens, or full-service restaurants									C	C	C	C	§ 153.135
Sexually oriented business												C	§ 153.138
INFORMATION INDUSTRIES													
Communication services, including radio or television broadcasting studios, news syndicates, film or sound recording studios, telecommunication service centers, or telegraph service offices									S	S	A	A	
Communications towers	C	C							C	C	C	C	§ 153.125
Data processing services									A	A	A	A	
Publishing industries, including newspaper, periodical, book, database, or software publishers								S	A	A	A	A	

Code of Laws

TITLE 6. LOCAL GOVERNMENT-PROVISIONS APPLICABLE TO SPECIAL PURPOSE DISTRICTS AND OTHER POLITICAL SUBDIVISIONS

CHAPTER 29. South Carolina Local Government Comprehensive Planning Enabling Act of 1994 ARTICLE 3. Local Planning - The Comprehensive Planning Process

SECTION 6-29-510. Planning process; elements; comprehensive plan.

(A) The local planning commission shall develop and maintain a planning process which will result in the systematic preparation and continual re-evaluation and updating of those elements considered critical, necessary, and desirable to guide the development and redevelopment of its area of jurisdiction.

(B) Surveys and studies on which planning elements are based must include consideration of potential conflicts with adjacent jurisdictions and regional plans or issues.

(C) The basic planning process for all planning elements must include, but not be limited to:

(1) inventory of existing conditions;

(2) a statement of needs and goals; and

(3) implementation strategies with time frames.

(D) A local comprehensive plan must include, but not be limited to, the following planning elements:

(10) a resiliency element that considers the impacts of flooding, high water, and natural hazards on individuals, communities, institutions, businesses, economic development, public infrastructure and facilities, and public health, safety and welfare. This element includes an inventory of existing resiliency conditions, promotes resilient planning, design and development, and is coordinated with adjacent and relevant jurisdictions and agencies. For the purposes of this item, "adjacent and relevant jurisdictions and agencies" means those counties, municipalities, public service districts, school districts, public and private utilities, transportation agencies, and other public entities that are affected by or have planning authority over the public project. For the purposes of this item, "coordination" means written notification by the local planning commission or its staff to adjacent and relevant jurisdictions and agencies of the proposed projects and the opportunity for adjacent and relevant jurisdictions and agencies to provide comment to the planning commission or its staff concerning the proposed projects. Failure of the planning commission or its staff to identify or notify an adjacent or relevant jurisdiction or agency does not invalidate the local comprehensive plan and does not give rise to a civil cause of action. This element shall be developed in coordination with all preceding elements and integrated into the goals and strategies of each of the other plan elements.

(E) All planning elements must be an expression of the planning commission recommendations to the appropriate governing bodies with regard to the wise and efficient use of public funds, the future growth, development, and redevelopment of its area of jurisdiction, and consideration of the fiscal impact on property owners. The planning elements whether done as a package or in separate increments together comprise the comprehensive plan for the jurisdiction at any one point in time. The local planning commission shall review the comprehensive plan or elements of it as often as necessary, but not less than once every five years, to determine whether changes in the amount, kind, or direction of development of the area or other reasons make it desirable to make additions or amendments to the plan. The comprehensive plan, including all elements of it, must be updated at least every ten years.

Chapter 3.11 Resilience Element

Element Goal
Charleston County will prioritize resilience in all County plans, policies, and regulations.

3.11.1: OVERVIEW

Resilience is the ability of a community to respond, adapt, and thrive under changing conditions, including, but not limited to, recurrent burdens and sudden disasters.

In light of flooding events over the past three years, along with annual hurricane threats, the existence of a major fault line, and unprecedented growth creating stresses on essential services, infrastructure, development, and the environment, it has become overwhelmingly apparent that Charleston County and surrounding areas need to plan and proactively approach resilience now to be prepared for changes in the future. By committing time, effort, and funding now we can research, assess, and implement projects to protect our citizens and community for future generations.

The need for a Resilience Element (Element) to be added to the Comprehensive Plan was identified after the 2015 flood event when Planning Commission saw the need for study and action, and wrote a letter to County Council about their concerns. This need was further demonstrated after flood events in 2016 and again in 2017. Planning Commission then determined that it would form a subcommittee containing different faces of the community so that several perspectives could sit at the same table. The end result is the formation of this Element, which contains goals and strategies to improve Charleston County's resilience, including, but not limited to, coordinated efforts with the

jurisdictions within the County. The subcommittee worked for nine months to develop this Element, and then recommended it to the Planning Commission for approval. The Planning Commission reviewed it and recommended it to County Council for approval on October 14, 2019, and County Council adopted it as part of the Comprehensive Plan on March 10, 2020.

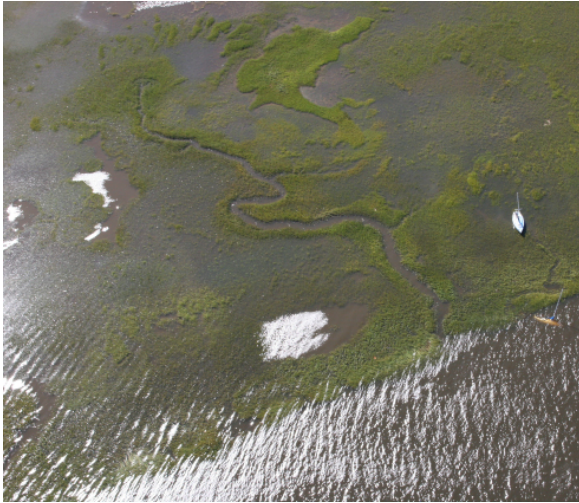


PHOTO: CHAS COUNTY PUBLIC INFORMATION OFFICE

Purpose and Intent

The primary purpose of the Resilience Element is to identify strategies to make the County more resilient. Although flooding is a major concern and addressed throughout the Element, other areas of concern are

also discussed, and Charleston County is dedicated to taking an all-hazards approach to resilience planning. This means when planning for resilience, the County is not planning around specific events, but rather taking a big-picture approach towards risk mitigation. Another purpose of the Resilience Element is to clarify the roles that government, the private sector, and individuals hold in regards to improving resilience.

3.11.2: BACKGROUND AND INVENTORY OF EXISTING CONDITIONS

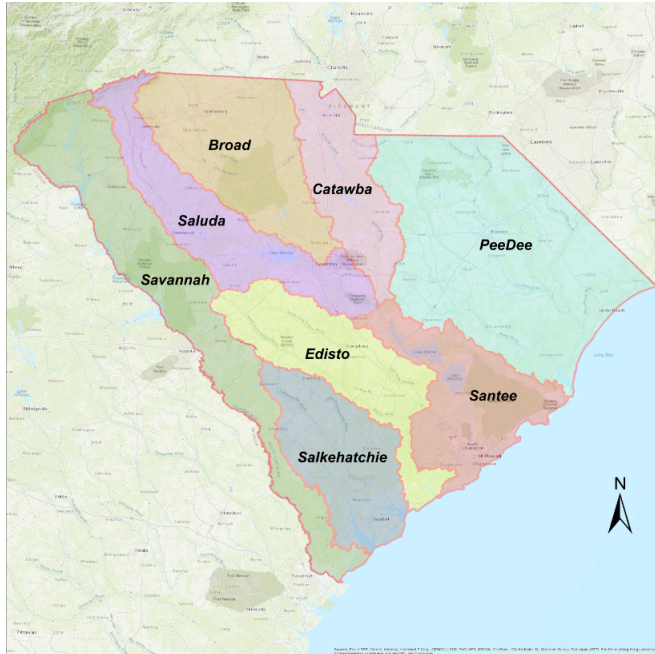
TOPOGRAPHY AND GEOGRAPHY

Charleston County's geography is first and foremost defined by water. Here, the Cooper River, Ashley River, Edisto River, Wadmalaw River, Stono River, and Wando River converge and meet the Atlantic Ocean.

In 1972, the United States Government began granting states funding to better manage its water quality. The Federal Water Pollution Control Act Amendments (US Public Law 92-500) prompted the state of South Carolina to launch its first watershed planning activities, and statewide planning activities were completed in the 1970s. Managed by the SC Department of Health and Environment Control (DHEC), the state created eight major regions, along hydrologic lines, known as river basins (Broad, Catawba, Edisto, Salkahatchie, Saluda, Santee, Savannah and Pee Dee). The majority

of Charleston County falls within the Santee River Basin; however, a portion of the southern/western County is located in the Edisto River Basin (see Map 3.11.1).

MAP 3.11.1: SOUTH CAROLINA WATERSHEDS (SCDNR)



The Santee River Basin encompasses 11 watersheds and 1,280 square miles. The Santee River originates in the Upper Coastal Plain region, giving way to the Lower Coastal Plain and Coastal Zone regions. The Santee River Basin includes nearly one million acres. There are a total of 976 stream miles, 94,668 acres of lake waters, and 5,276 acres of estuarine areas in the Santee River Basin. The Santee River is formed from the confluence of the Congaree and Wateree Rivers and flows through Lake Marion. It is diverted in lower Lake Marion, and either flows out of the Santee Dam to eventually drain into the Atlantic Ocean via the South Santee River and the North Santee River, or is channeled along a 7.5-mile diversion canal to fill Lake Moultrie.

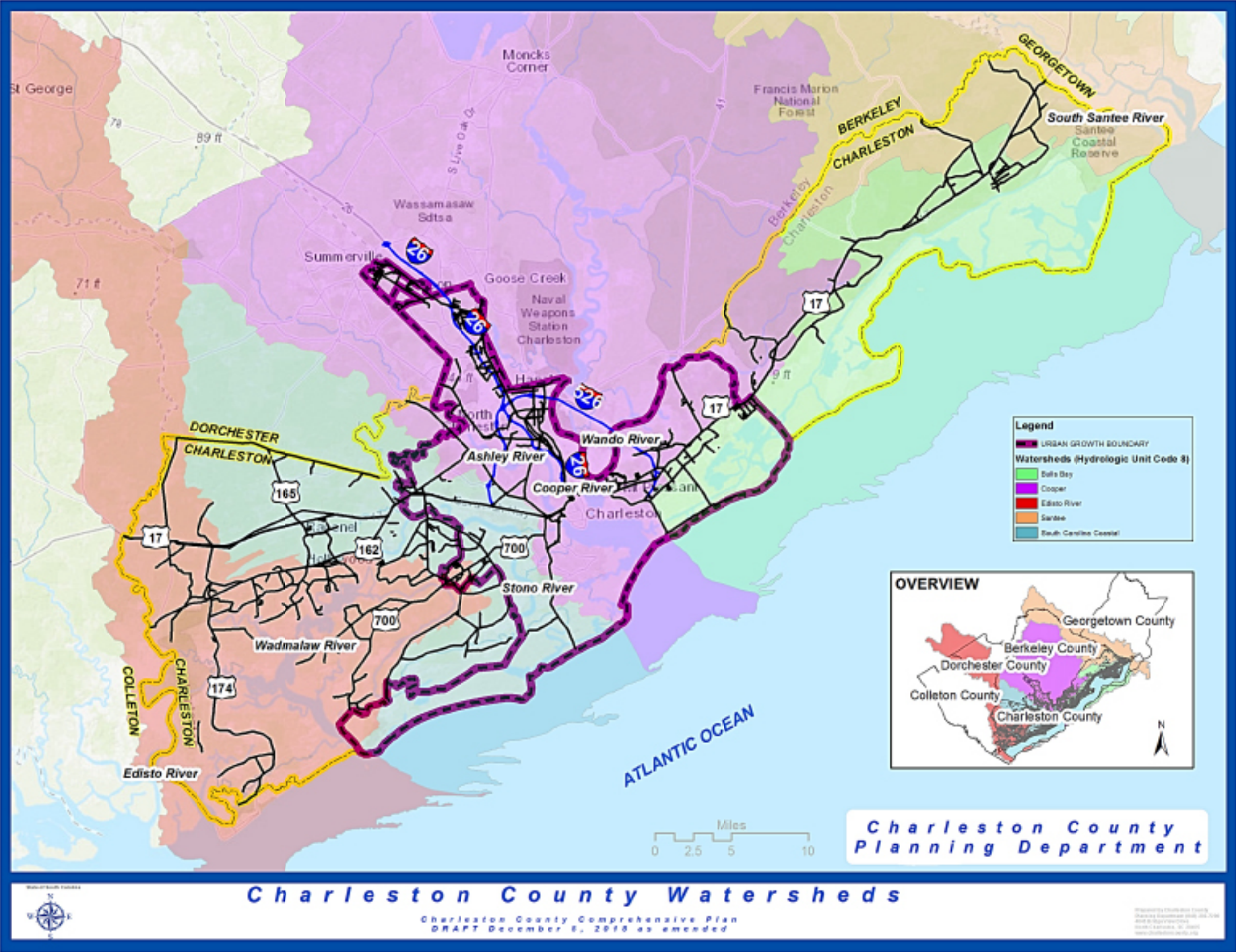
The Edisto River Basin originates in the South Carolina Sandhills region and flows through the Upper and Lower Coastal Plain Regions and into the Coastal Zone region. It encompasses 30 watersheds and some two million acres of the State. There are a total of 2,780 stream miles, 8,402 acres of lake waters, and 20,284 acres (31.7 square miles) of estuarine areas in the Edisto River Basin. The confluence of Chinquapin

Creek and Lightwood Knot Creek form the North Fork Edisto River, which is joined downstream by Black Creek, Bull Swamp Creek, and Caw Caw Swamp. The South Fork Edisto River accepts drainage from Shaw Creek, Dean Swamp Creek, Goodland Creek, and Roberts Swamp before merging with the North Fork Edisto River to form the Edisto River. Downstream from the confluence, the Edisto River is joined by Cattle Creek, Indian Field Swamp, and Four Hole Swamp. Prior to joining the Edisto River, Four Hole Swamp accepts drainage from Cow Castle Creek, Providence Swamp, Horse Range Swamp, and Dean Swamp. Downstream from the Four Hole Swamp, the Dawho River enters the Edisto River, and their confluence forms the South Edisto River and the North Edisto River, which both drain to the Atlantic Ocean.

Each of these river basins are further subdivided into specific regional watersheds, which are geographic areas into which the surrounding waters, sediments, and dissolved materials drain, and whose boundaries extend along surrounding topographic ridges. Each watershed or "unit" has a unique hydrologic unit code (HUC). Hydrologic unit codes are a United States Geological Survey (USGS) cataloging system that arranges watersheds from the largest area or region (2 digits - 03) to the smallest (12 digits - 030502020101). Charleston County includes five HUC-8 watersheds: Edisto River, Santee River, Cooper River, Bulls Bay, and South Carolina Coastal as shown on Map 3.11.2. HUC-8 maps show us the sub-basin level, which corresponds to medium-sized river basins. These watersheds can be even further divided into HUC-10 watersheds, of which Charleston County has eight: Edisto River, North Edisto River, Rantowles Creek, Stono River, Ashley River, Cooper River, Wando River, and Bulls Bay. DHEC produces a Watershed Water Quality Assessment (WWQA) for each watershed every five years.

The Cooper River Basin spans 843 square miles and the Ashley River Basin covers 894 square miles. The Charleston Harbor Watershed, a combined area also known as the Ashley/Cooper River Basin, continues inland 45 miles, and incorporates three freshwater lakes: Lake Moultrie, Bushy Park Reservoir, and Goose Creek Reservoir. The watersheds in Charleston County have been greatly influenced by time and increasing human interaction. Rice cultivation changed the shape of tidal rivers as farmers learned to control the water. Later, the practice of filling in wetlands added more land area, and as industry grew, pollutants entered the watershed. In 1939, as population and industry grew, the Santee-Cooper Hydroelectric Project formed Lake Moultrie, by damming the headwaters of the Cooper River. Because Lake Moultrie is connected to Lake Marion, on the Santee River, drainage from the Santee River Basin combined with the Ashley/Cooper River Basin, which increased the size of the watershed to 15,600 square miles.

MAP 3.11.2: CHARLESTON COUNTY HUC-8 WATERSHEDS



HAZARDS

Flooding

According to NOAA, flooding is an overflowing of water onto land that is normally dry. Flooding can be further classified, defined, and forecasted depending on several factors including cause, duration, and extent. Flooding is the most frequent and costly natural hazard in the United States. In Charleston County, the most common types of flooding are rain events, tidal flooding, and storm surges. Other issues that enhance the effects and extent of flooding are sea level rise and climate change. Because about 68% of the County lies within the floodplain, a proactive approach to flooding is necessary to protect the community and make it more resilient.

Sea Level Rise

Sea level rise is the result of two major causes: the thermal expansion caused by warming of the ocean and increased melting of land-based ice (NOAA). The current global rate of rise is about one-eighth of an inch per year, but could be measured at a rate higher or lower depending on other factors locally. Scientists are confident that the global mean sea level will rise 8 inches to 6.6 feet by the year 2100 (NOAA, Climate.gov). Global sea level trends and local sea level trends are different measurements. Just as the surface of the Earth is not flat, the surface of the ocean is also not flat—in other words, the sea level is not changing at the same rate globally. Sea level rise at specific locations may be more or less than the global average due to many local factors such as land subsidence from natural processes and withdrawal of groundwater and fossil fuels, upstream flood control, erosion, changes in regional ocean currents, variations in land height, and whether the land is still rebounding from the compressive weight of Ice Age glaciers.

There has been a more than one foot rise in sea level in the Charleston Harbor over the past 80 years. NOAA estimates the rate at which sea level is rising in South Carolina has been increasing, and is now around one inch of rise every two years. NOAA's predictions for sea level rise in Charleston can be seen in Figure 3.11.1, and includes six potential scenarios. The intermediate scenario suggests Charleston could see a four foot increase in sea level by 2100. The City of Charleston currently plans their Sea Level Rise Strategy around a 2 to 3-foot increase in sea level over the next fifty years.

In urban settings, rising seas threaten infrastructure necessary for local jobs and regional industries. Roads, bridges, subways, water supplies, oil and gas wells, power plants, sewage treatment plants, landfills—virtually all human infrastructure—is at risk from sea level rise.

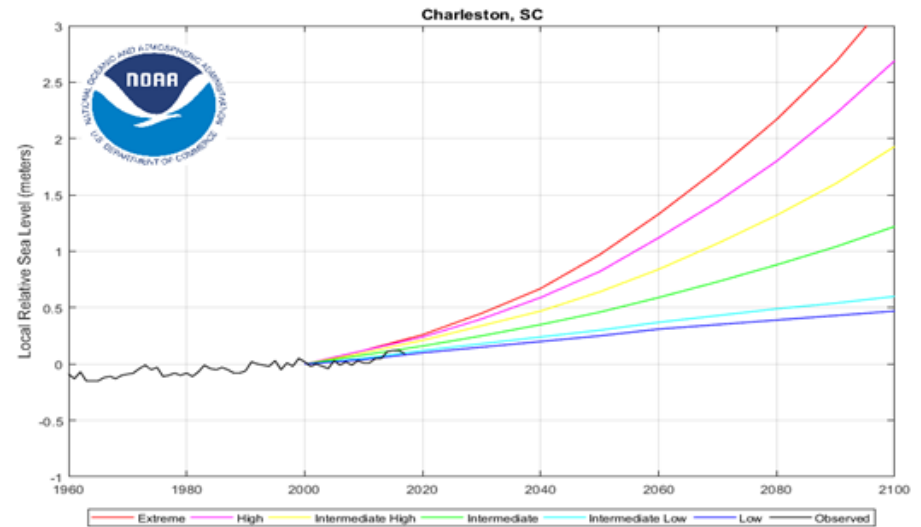


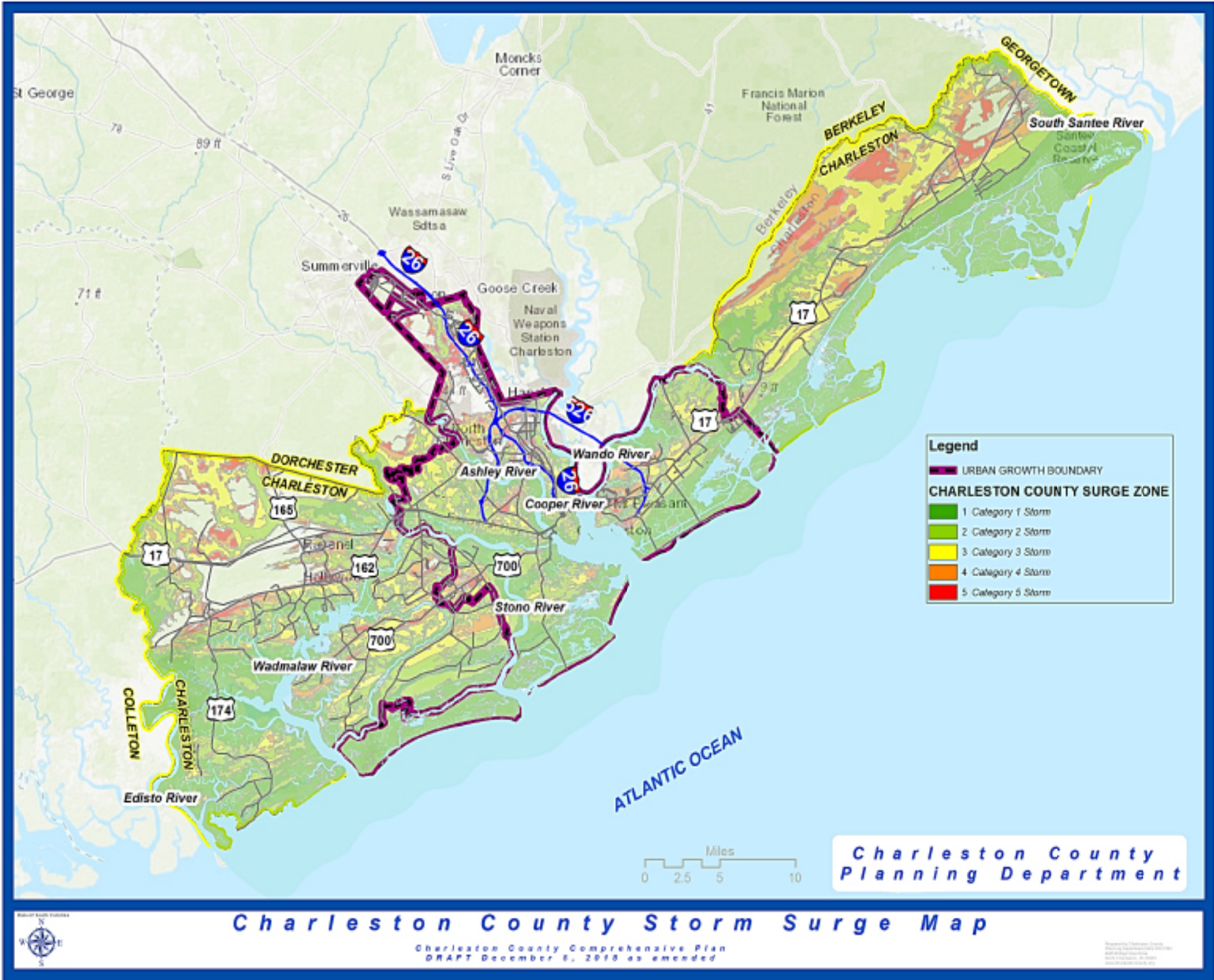
FIGURE 3.11.1 NOAA SEA LEVEL RISE PREDICTIONS

Rain Event Flooding

Rain event flooding can be classified by severe rain events, whether associated with tropical weather or not, that cause major flooding in areas that may not have experienced flooding in prior years. Like tidal flooding, these big rain events are exacerbated by a combination of several factors that result in widespread flooding, including king tides, sea level rise, drainage issues and storm surges. Charleston County experienced flooding as a result of continual rain lasting several days in 2015 that caused extensive damage and shut down the County for days. The storm drainage systems could not handle the amount of rain that fell in the area during those days, and because there was no break in the rain, the drainage systems had no time to recover. In addition, high tides peaked which added more struggle to the already aggravated system.

In 2016, the area was hit by Hurricane Matthew which made landfall near McClellanville, SC as a Category 1 Hurricane. The storm dumped nearly a foot of rain on parts of the County, and the combination of a six-foot storm surge and strong winds led to extensive damage along the coast, despite hitting the area during a relatively low tide. Matthew resulted in water levels three to five feet higher than normal astronomical tides. In 2017, Charleston County felt the effects of Hurricane Irma, which had weakened to a tropical storm before Charleston felt its effects. Tropical Storm Irma swept through Charleston during an extremely high tide, resulting in a peak storm tide recorded at almost 10 feet, the third highest on record in Charleston County. The greatest storm surge during Tropical Storm Irma was recorded at just under five feet. Additionally, four tornados were confirmed in Charleston County in association with this storm.

MAP 3.11.3 CHARLESTON COUNTY STORM SURGE MAP



Overall, rain events that have impacted the Charleston area since 2015 have brought the issue of flooding to the forefront. The purpose of this Element is to address these issues and pave the way for future planning to combat the problem.

Hurricanes

Records dating back to the 1600s indicate there were about 43 tropical cyclones before official records were kept in 1851. Since then, there have been an additional 41 tropical systems (25 hurricanes, 10 tropical storms and six tropical depressions) that have hit or affected the Charleston region (NOAA). The region will remain vulnerable to hurricanes and tropical weather and this threat may increase with climate change and warming seas. Hurricanes pose many threats to the area, including wind, rainfall, and storm surge. In addition, tides can also have a major effect on the extent of hurricane-related flooding.

Storm Surge

Storm surge is the rise of water level that occurs as a result of high winds pushing onto the coast due to tropical conditions. In combination with regular tides, storm surge can cause significant flooding in coastal areas, and is exasperated depending on the intensity of the storm. Some problems that storm surges cause include inland flooding, flooding in advance of a storm, dangerous debris carried by waves, severe beach erosion, and significant property damage.

Advancements in mapping have provided flood inundation maps to inform citizens of potential flood impacts during different categories of storm events where a citizen can simply type in their address on a web page and have a visual reference of where flooding can occur around them (NOAA). These tools are very helpful when planning and preparing for an event and determining the amount of storm preparation that would be required in advance.

Map 3.11.3 shows storm surge projections for Charleston County. The Sea, Lake, and Overland Surges from Hurricanes (SLOSH) Model was used to generate Map 3.11.3 and estimates storm surge heights, considering atmospheric pressure, size, forward speed, and track data to model the wind field, which generates storm surge. The model was developed by the National Weather Service and is a computerized numerical model that can be applied to a specific region's coastline. The SLOSH Model can be used to predict storm surge heights resulting from historical, hypothetical, or forecasted hurricanes. The SLOSH model does not include breaking waves/wave run-up, astronomical tide, or normal river flow and rain. However, the model does consider coastal reflection; overtopping of barrier systems, levees, and roads; inland inundation; deep passes between bodies of water; and flow through barriers, gaps, and passes. The SLOSH Model, like most storm surge models, is heavily reliant on the accuracy of meteorological input. Additionally, it is important to note that storm

surge is merely one element of total water level rise, with tides, waves, and freshwater flow making up the other components.

Tidal Flooding

The beauty and character of Charleston County lies in its breadth of winding tidal creeks and hidden reaches of waterfront property. With this beauty comes the risks associated with tidal flooding, also called nuisance flooding, because of the inconveniences caused during unusually high tides. Many factors contribute to this "perfect storm" of problems that can shutdown areas of Charleston County for hours or days.

Sea level rise is one contributing problem to tidal flooding in many areas within the County. Rising seas means higher tides, and more frequent king tides, which are now an issue to formerly non-flood-prone areas. In areas like Downtown Charleston that were built centuries ago on fill dirt, the land has subsided over time and is simply not high enough to avoid this flooding. Also because it was built on fill dirt, areas have further settled over time, leaving some parts of the City lower, and more affected than others.

Frequent road closures, property damage, loss of business, and potentially hazardous conditions leave areas affected by tidal flooding in a state of uncertainty. Sea level rise will continue to be a more frequent issue for all coastal areas within the County. Time is of the essence to study and make modifications to alleviate some of the effects that sea level rise will have on communities in the County. This not only affects area residents from being able to get to and from their homes, but also has a large impact on continuity of services for business operations, safety services, including access to area hospitals, and the general functioning of the area and its residents on a normal day-to-day level.

A recent example of how king tides can majorly affect Charleston occurred in November 2018 when the County was affected by the sixth highest record tide. This resulted in several road closures and flooding on a perfectly sunny day. Instances like these are becoming more and more common, and the County needs to plan for ways to protect and prepare the community.

Impacts to Groundwater

Groundwater aquifers are sponge-like, interconnected layers saturated slowly over time with water that comes from the surface water supply. Groundwater resources are of concern when considering resilience because when aquifers are depleted of groundwater, surface water sinks to replace it. The surface water supply is where most residents obtain drinking water, thus the depletion of this resource is of great concern. Additionally, due to its very dynamic nature beneath the earth's surface,



PHOTO: CHARLESTON COUNTY PUBLIC INFORMATION OFFICE

groundwater resources are not easily quantified, making it difficult to determine exactly how much groundwater exists and where it is located. The Charleston Aquifer runs under most of the South Carolina Coastal Plain, beginning at the boundary of the Piedmont and Coastal Plains (the Fall Line) and deepening and thickening as it gets closer to the ocean. As a result of groundwater being pumped from the Charleston Aquifer since the late 1800s to fuel development and industry, Charleston County now experiences regional declines in groundwater levels. Because of these declines, Charleston, Berkeley, and Dorchester Counties were designated as the Trident Capacity Use Area (CUA) in August of 2002. There are currently four CUAs in South Carolina, each within the Coastal Plain. In these areas, groundwater withdrawals in excess of three million gallons per month must be permitted by SCDHEC. During the year 2016, Charleston County reported a total of approximately 2.44 billion gallons of water withdrawn from groundwater. In the County, the number one use for this water is for the public water supply, followed by golf course irrigation, and then industrial use.

Drought

Drought, the lack of precipitation over an extended period of time, is another stressor that Charleston County may face. South Carolina experiences significant variability in rainfall and this makes it hard to pinpoint the start or end of a drought. The Coastal Plain of South Carolina receives around 48 to 56 inches of precipitation annually, although there is some variation. Charleston County is at risk for a drought during any season, and it can be brought about by factors such as changes in pressure, storm tracks, and the jet stream, as well as extreme heat, wind, and evapotranspiration rates. In the 2018 Charleston County Emergency Operations Plan, drought was listed as a moderate probability threat for the area, and is considered a serious economic threat to the County because of how severely it can adversely affect agricultural industries.

Earthquakes

Earthquakes regularly occur in South Carolina. An earthquake hit the City of Charleston with an estimated magnitude of 7.0 on August 31, 1886, and it changed the face of the City killing approximately 60 people.

The entire County of Charleston lies within a "high potential for liquefaction" area (South Carolina Department of Natural Resources). This issue needs additional study and evaluation as it is definitely an issue of concern. The County needs to address ways to protect against additional damage in the event of an earthquake beyond what is regulated through building codes.

Liquefaction is the transformation of loosely packed sediment or cohesionless soil to a liquid state as a result of increased porefluid pressure and reduced effective stress. Liquefaction is caused by the ground shaking during an earthquake. Soil-liquefaction potential is based on the interpretation of thick, cohesionless material (mostly sand) combined with a high water table (SCDNR).

Although no major damaging earthquake occurred in the County since 1886, there have been several small scale earthquakes, mainly clustered around the Summerville area. Charleston County should prepare for the impacts of an earthquake now so that it can be ready. Because we have regularly occurring issues like flooding, earthquake resilience is often overlooked or set aside in order to address more regularly occurring issues, but the threat is imminent on a day-to-day basis.

Winter Weather

Although a rare occurrence, Charleston County can be affected by winter weather. In January 2018, Charleston County experienced a variety of wintry precipitation including snow, sleet and freezing rain. The Charleston Airport measured 5.3 inches of snow, the third greatest snowfall on record. Due to the continued cold air in place after the storm, the snow and ice remained on the ground for many days, causing significant disruptions to day-to-day life throughout the County.

Just four years earlier in February 2014, Charleston experienced a winter storm event leaving about one quarter of an inch of ice throughout Charleston County. Most of Charleston County escaped the amount of accumulation to cause serious damage, but the surrounding counties of Berkeley, Dorchester and Colleton had significant damage to trees and power lines caused by ice. Although not as crippling as the 2018 storm, Charleston was not able to bounce back from this event quickly, having roads and business closures County-wide.

Because of the irregularity of winter weather in Charleston County, the area is not

typically prepared to handle such events. There are few, if any, salt trucks and snow plows available. The County must rely on outside resources to assist or just wait out the weather and shut down for several days creating disruptions in essential services, safety concerns, and financial hardships. Building resilience and planning for winter weather is definitely necessary for future events to limit the economic impact.

OTHER RESILIENCE ISSUES

Transportation Infrastructure

Transportation is essential for a community to function. Flooding can interrupt or detrimentally affect transportation. According to the Centers for Disease Control and Prevention, over half of all flood-related deaths occur when a vehicle is driven into hazardous flood water. The next highest percentage of flood related deaths is due to walking into or near flood waters. People continue to drive or walk through flood waters to get to work and school, and if they are not able to, this indicates a need to increase the County's economic resilience, as laid out later in this Element. Critical infrastructure, such as bridges, roads, ports, clinics and hospitals are the foundation upon which the County functions, and are essential elements in getting the community back up and running after an event.

Considering the unique topographical nature of Charleston County, including islands, peninsulas, and inland property, the County is reliant on its infrastructure to tie transportation facilities together. Of large importance are bridges, which are something that nearly every citizen of Charleston County must cross on a daily basis. Since many areas of the County are only accessible via bridges, bridge closures can prevent many of our citizens from being able to get to and from their home, work, or school, potentially creating vast negative economic consequences. Bridge closures are not typically associated with flooding, but other influential impacts on the area such as ice storms and strong winds can completely shut down access to and from work, home, and school.

Accessibility is also key to the functionality of a community. If specific areas are not accessible due to flooding, the economics of that area and those working there can be affected, and also cause major issues in terms of safety. Recently during a rain event, the hospitals in Downtown Charleston were not accessible, creating a hazard for caregivers, patients, and visitors.

Health Resilience

Charleston's climate makes it susceptible to the transmission of vector-borne diseases, those spread by the bite of an insect such as a mosquito. The 2018 National Climate Assessment, a federally mandated report, asserts that climate change will modify the

seasonality and prevalence of vector-borne diseases. Currently, Charleston's climate is suitable for the *Aedes aegypti* mosquito, that can spread several diseases including Zika, dengue fever, and chikungunya, from July through September. If temperatures were to increase in Charleston County, that active season could potentially lengthen, leading to increased disease risk. Additionally, the 2018 National Climate Assessment predicts an increase in labor hours lost from heat-related illnesses, as climate change contributes to higher temperatures. These stresses would be felt strongly in the labor-intensive agricultural, timber, and manufacturing sectors.

Economic Resilience

In Charleston County, we face frequent flooding and other events that impact our local economy by making it harder for employees to get to work, as well as affecting the County's ability to provide services to its citizens. In 2018, Charleston County offices were closed due to flooding, winter, and tropical storm events for several business days. Additionally, when there is a mandatory evacuation order for Charleston County, it adds to families' financial stresses, as they budget and plan for an extended stay away from home. Increasing our economic resilience, therefore, must include ways to reduce the number of down days due to such events.

The Charleston County Emergency Operations Plan (Operations Plan) includes the County's Continuity of Operations Program (COOP), the purpose of which is to ensure the continuity of mission essential emergency functions under all circumstances. The Operations Plan also encourages all County agencies to have a viable COOP in place. In Charleston County, several departments have a COOP which instructs departments on how to function in the event of an emergency. FEMA provides a course in Continuity of Operations, and also has templates and other resources available online for businesses and government entities to begin developing their own COOPs. Additionally, the Charleston County Emergency Management Department encourages local business owners to form disaster plans and COOPs of their own, and offers support for those looking to develop emergency operations plans. A collection of governmental and private sector business and industry leaders hold an annual workshop to assist businesses with the formation of these emergency operations plans.

Energy Resilience

The 2018 National Climate Assessment predicts that the southeast region will experience the highest costs in the United States associated with meeting increased electricity demands in a warmer world. Therefore, energy becomes an essential consideration when creating a resilient community. The Energy Element of the Comprehensive Plan already addresses some issues of energy resilience. It outlines planning and zoning techniques such as the establishment of an Urban Growth Boundary, Infill Development, and Transit-Oriented Development as tools for building sustainable

and resilient communities. Additionally, the Energy Element Strategies support goals for resilience including, but not limited to: promoting green building code standards and sustainable landscaping that aid in energy conservation; supporting tax incentives for properties that install/utilize alternative energy sources; and amending the Zoning and Land Development Regulations Ordinance to encourage local renewable energy generation and green building design, and providing standards for solar collectors and wind generators as accessory uses.

Food

The 2018 National Climate Assessment predicts climate change to have a negative impact on agricultural productivity, because changes in temperature can change the conditions for crops and livestock. All livestock are susceptible to heat stress, making it vital for Charleston County to consider new or enhanced adaptive care strategies. Additionally, climate change has the potential to impact local food sources, including regionally important crops. As the County experiences warmer temperatures during the winter months, the harvesting of corn, soybeans, rice, peaches, and many other crops are affected. However, for freeze-sensitive plants, including oranges, papayas, and mangoes, the increasing temperature has the potential to allow these crops to thrive in our region. An additional threat to food resilience is the impact of drought on crops and livestock. One of the most immediate effects of drought is a decrease in crop production. There are also other less obvious consequences of drought including poor soil quality and increased spending on feed and water for livestock, which impact our local food supply. These factors can all lead to higher food costs.

TOOLS AND EXISTING PROTECTIVE MEASURES

Charleston County Zoning and Land Development Regulations Ordinance

Strategic land use can bolster a county's resilience by shaping where, what, and how land can be developed. There are several regulations centered on the County's current Zoning and Land Development Regulations that contribute to resilience. One item that makes the County stand out is the required vegetated buffers from saltwater wetlands, waterways, and Ocean and Coastal Resource Management (OCRM) Critical Lines. These buffers provide a visual, spatial, and ecological transition zone between development and the County's saltwater wetlands and waterways, and to protect water quality and wildlife habitat. Additionally, Charleston County requires larger minimum lot sizes and widths for properties that contain or abut an OCRM Critical Line, in order to maintain a lower density along the waterfront. The Charleston County Zoning & Planning Department also works in close coordination with the County's Stormwater Management Division when property is being developed or redeveloped.

Charleston County Stormwater Manual

Charleston County developed both a manual and Charleston County Ordinance #1518 to protect, maintain, and enhance the water quality and the environment of the County, as well as to improve the short-term and long-term public health, safety, and general welfare of its citizens. This Manual is for stormwater management purposes only, and the requirements are specific to Charleston County.

The Charleston County Stormwater Permitting Standards and Procedures Manual (Manual) describes the policies and procedures used by the Public Works Department to implement the Ordinance and the County's Stormwater Management Plan (SWMP). These standards and procedures describe the requirements of construction activity applications and the approval process as it relates to stormwater management; convey the technical design standards to the engineering community, to include standards which address runoff flow rates, volumes, and pollutant load/concentration, as well as specific standards during construction, and post-construction for long-term performance; provide information on avenues to improve water quality, prevent illicit discharges, and minimize stormwater runoff impacts due to development and re-development; convey other protection provisions related to stormwater discharges such as wetlands and watercourse conservation.

Charleston Regional Hazard Mitigation Plan

In compliance with the Federal Emergency Management Agency's (FEMA) requirements to receive federal disaster funding, Charleston County, jurisdictions and community stakeholders and partners (i.e. Charleston County Parks & Recreation Commission, Roper St. Francis Hospital, Charleston County School District, individual water and sewer districts, etc.) have adopted a Hazard Mitigation Plan that is updated annually, with a full review every five years as required. The purpose of the Hazard Mitigation Plan is to continue guiding hazard mitigation efforts to better protect the people and property in the County from the effects of hazard events. This Hazard Mitigation Plan demonstrates the community's commitment to reducing risks from hazards, and serves as a tool to help decision makers direct mitigation activities and resources. This Hazard Mitigation Plan was also developed to ensure Charleston County and participating stakeholders and partners also earns points for the National Flood Insurance Program's Community Rating System (CRS), which provides for lower flood insurance premiums in CRS communities as described later in this Element.

Charleston County implores feedback from all jurisdictions within Charleston County and participation in planning the document is required. Public input is also obtained through surveys and open meetings. After updates, suggested edits and refocusing on the community's current hazard needs, the plan goes through a full adoption process

every five years. Adoption of the plan is required for all participating jurisdictions, stakeholders, and partners.



The Charleston Regional Hazard Mitigation Plan is incorporated into this Comprehensive Plan.

Community Rating System

Charleston County has participated in the Community Rating System (CRS) program since 1995. The purpose of the CRS is to support the National Flood Insurance Program (NFIP) by working to minimize flood losses nationwide. This can be accomplished by encouraging communities to reduce the exposure of existing building to flood damage, protect new buildings from known and future flood hazards, and encourage implementation of higher regulatory standards from the minimum NFIP requirements. It is a point-based system that once all efforts are tallied, CRS will issue a rating. This rating is associated with a discount that is assessed to all residents owning flood insurance policies within a participating jurisdiction. For those jurisdictions in Charleston County that have opted to allow the County to administer their floodplain management regulations, the rating they are currently assessed upon is a 30% discount in flood insurance premiums. This 30% means that Charleston County has accumulated enough points to be rated as a Class 4 community (ranging on a scale of 1-10 with Class 1 being the highest). Several County departments work with Building Inspection Services to either provide information for the required documentation or they work to implement higher regulatory standards. Although the County currently covers many of the sections in the CRS manual, there are a few sections that could be covered to implemented to make the community more resilient.

The Community Rating System program consists of nineteen creditable activities under four categories, including public information, mapping and regulations, flood damage reduction, and warning and response activities. The County participates in all four categories and most of the creditable activities contained within the categories. Some examples of the County activities include: raising the freeboard (the required

height at which buildings must be built) from one foot above base flood elevation to two feet above; digitizing and providing complimentary review and public access to elevation certificates; providing a Public Information Plan characterized by the County's activities to provide flood protection information to the public; designating and mapping open space preservation areas; assessing and mapping repetitive loss properties; providing notification of special flood hazard area information; and participating in annual drills, among many others. Other activities that the County can potentially participate in to increase its CRS rating will be detailed in the Strategies section of this element.

Beachfront Management Plan

The State of South Carolina requires that ocean beachfront counties and municipalities prepare local comprehensive beach management plans in coordination with the Department of Health and Environmental Control, Office of Coastal Resource Management (DHEC-OCRM). The plan must include a minimum of ten elements, be adopted by the community, and then submitted to DHEC for review and state approval. These plans provide guidance to state and federal agencies on local policies, regulations, and procedures related to beachfront management plans. Similar to the County's Comprehensive Plan, the Beachfront Management Plan must be reviewed every five years and updated every ten years.

The required elements include the following:

1. Inventory of beach profile data and historic erosion rate data for each standard erosion zone and inlet erosion zone under the local jurisdiction;
2. Inventory of public beach accesses along with a plan for enhancing public access and parking;
3. Inventory of all structures located in the area seaward of the setback line;
4. Inventory of turtle nesting and important habitats of the beach/dune system and a protection and restoration plan if necessary;
5. A conventional zoning and land use plan consistent with the purposes of the Act for the area seaward of the setback line;
6. Analysis of beach erosion control alternatives, including re-nourishment of the beach under the local government's jurisdiction;
7. Drainage plan for the area seaward of the setback zone;
8. Post disaster plan, including plans for cleanup, maintaining essential services, protecting public health, emergency building ordinances, and the establishment of priorities, all of which must be consistent with the Act;

9. Detailed strategy for achieving the goals of this chapter by the end of the forty-year retreat period. Consideration must be given to relocating buildings, removal of erosion control structures, and relocation of utilities; and

10. Detailed strategy for achieving the goals of preservation of existing public access and the enhancement of public access to assure full enjoyment of the beach by all residents of this state.

The Charleston County Beachfront Management Plan is prepared in coordination with several departments including the Deputy Administrator for General Services, Building Inspection Services, Zoning & Planning, GIS/Technology Services, Stormwater/Public Works, and Emergency Management. It has been adopted as a part of the Comprehensive Plan and is due for a ten-year update in 2020. Because the next update is in the near future, this is a great opportunity to collaborate and work on strategies to support this Beachfront Management Plan.

Emergency Management Accreditation Program (EMAP)

The Charleston County Emergency Management Department maintains extensive emergency management plans and strategies, accreditations and resources that can be utilized in planning for a resilient community. The Department's vision is "to be recognized as an accomplished and innovative leader in emergency management that is known as ready, relevant, resilient and responsible." The County is recognized as being the only EMAP accredited community in the state of South Carolina. EMAP, the voluntary standards, assessment, and accreditation process for disaster preparedness programs throughout the country, fosters excellence and accountability in emergency management and homeland security programs, by establishing credible standards applied in a peer-review accreditation process. EMAP was created by a group of national organizations to foster continuous improvement in emergency management capabilities. It provides emergency management programs the opportunity to be recognized for compliance with industry standards, to demonstrate accountability, and to focus attention on areas and issues where resources are needed.

Strategic Plan

Charleston County's Emergency Management Department utilizes strategic planning in an effort to maximize team members' ability to provide measurable projects and programs through preparedness, prevention, response, recovery, and mitigation. During the strategic planning process, goals and objectives are determined based on community need and the on-going changes in the field of emergency management. This Plan serves as the Strategic Plan for the entire Charleston County Emergency Management Program to include all municipalities and public services districts. As a result, the Emergency Management Department developed a comprehensive three-year plan to enhance the way Charleston County manages major events.

In collaboration with public, private, faith-based, and non-profit organizations; goals and objectives were developed that enhance the "whole community" approach to emergency management. The development of goals and objectives derives from strengths, opportunities for improvement, lessons learned, and best practices gathered from disaster events across the world. The 2016-2019 Strategic Plan aims to facilitate accountability of necessary goals and objectives by assigning action items and completion dates to measure achievements for the team throughout the planning process. The Emergency Management Department helps to coordinate the response among public, private, non-profit, and community organizations in order for Charleston County to remain resilient during major events.

The Emergency Management Department looks for opportunities to curb the trends of dwindling budgets, staffing shortages, availability of grants, and the overall decreasing volunteerism in order to build a resilient emergency management program. The team members seek new ways to better utilize existing resources and enhance their capability to respond and recover from large-scale events. The Emergency Management Department focuses on building community partnerships to help leverage the gaps analyzed as a result of the strategic plan. In doing so, organizations engage in exercises, trainings, and community meetings that promote a culture of preparedness. Research has shown that communities that train together, across all disciplines and jurisdictions, will ultimately build the resiliency needed to recover quickly from even the worst disaster to impact the community. These vital partnerships within our community allow Charleston County to maximize the utility of resources available to citizens after a major event.

The Emergency Management Department has several additional resources including the Redbook, the Emergency Operations Plan, and the Lowcountry CERT Program, among other training opportunities to keep County staff and volunteers current on training and documentation to prepare for most situations.

International Building Code Series

The State of South Carolina requires governing local entities to adopt, by ordinance, the state-approved versions of the International Building Code series. Currently the State approved Building Code in South Carolina is the 2015 International Building Code (IBC), and the 2009 Energy Code. The 2018 International Building Code is currently under review by the State, and will be required to be adopted by the local governing entities within six months after receiving notification of the approval.

The International Building Code series provides best practices to protect the public health, safety, and general welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings, structures, and certain equipment. In Charleston County, a series

of processes are in place that require a building plan review in order to check for compliance with the applicable building codes in effect. In addition, during this review, plans are also reviewed for compliance with FEMA standards for buildings located within the Special Flood Hazard Area, such as freeboard requirements, venting requirements and systems, wet or dry floodproofing, among others.

FEMA Flood Insurance Rate Maps (FIRM)

The Federal Government requires the adoption and maintenance of Flood Insurance Rate Maps (FIRM) by communities in order to participate in the National Flood Insurance Program (NFIP). These maps are tools for communities to not only identify the area's flood zones, but also provide information to citizens in evaluating their risks. These maps are updated periodically by either the introduction of new technology or due to the needs of a community. The process of updating these maps can be very costly, and for a community the size of Charleston, it is a lengthy process. After a private consultant prepares new map updates, the community is provided with a period of time to review the maps and submit any comments or appeals. The appeals can come from citizens or jurisdictions. If appeals are submitted, they are reviewed and will be further processed if the claim is based on quantifiable data. It is the responsibility of the property owner to either provide a survey or an engineering analysis if the claim is stating that the new data is inaccurate. After FEMA completes its review, the jurisdiction will receive a Letter of Final Determination, and is then required to adopt the new maps within six months to maintain the community's NFIP status. Charleston County has been in the process of updating the maps since September 2016. FEMA received comments and appeals, and has since been reviewing the data and working with the engineer that produced the maps. The County will likely adopt the new maps sometime in 2019.

Map 3.11.4 illustrates the County's flood zones according to the currently adopted 2004 maps. Most of the County lies within a flood zone, or about 68% of the land area. It is imperative that Charleston County as a whole works with other departments and jurisdictions to make floodplain management a collaborative effort so that systems and strategies compliment and support one another. Flood zones know no boundaries and by joining forces, the County can best serve its citizens. In addition, because a property is located in an X Flood Zone does not mean that the property does not have a risk of flooding because the flood zone designation is only associated with a potential for an annual chance of a flood. For example, properties located within the AE Flood Zone are identified as having a one-percent annual chance of flooding. X Zones are still considered to be areas of "moderate" risks as opposed to "high risk," therefore still have the potential to flood, just not as high of a chance as those zones within the Special Flood Hazard Areas. Public education is essential to inform citizens about what flood zones mean and how they can be affected by varying factors.

The Special Flood Hazard Area (SFHA) is the area that will be inundated by the flood event having a one-percent chance of being equaled or exceeded in any given year. This is also referred to as the "base flood" or "100-year flood." SFHA's are labeled as Zone A, AO, AH, A1-A30, AE, A99, AR, AR/AE, AR/AO, AR/A1-A30, AR/A, V, VE, and V2-V30. These are considered to be high hazard areas, and have additional building code and flood requirements. Moderate flood hazard areas are labeled B or Shaded X, and have a 0.2 percent annual chance of flood or also known as the 500-year flood. The area of minimal flood hazard, called Zone X, or C, are outside the SFHA and have a higher elevation than the 0.2 percent annual chance flood area.

Charleston County Building Ordinance

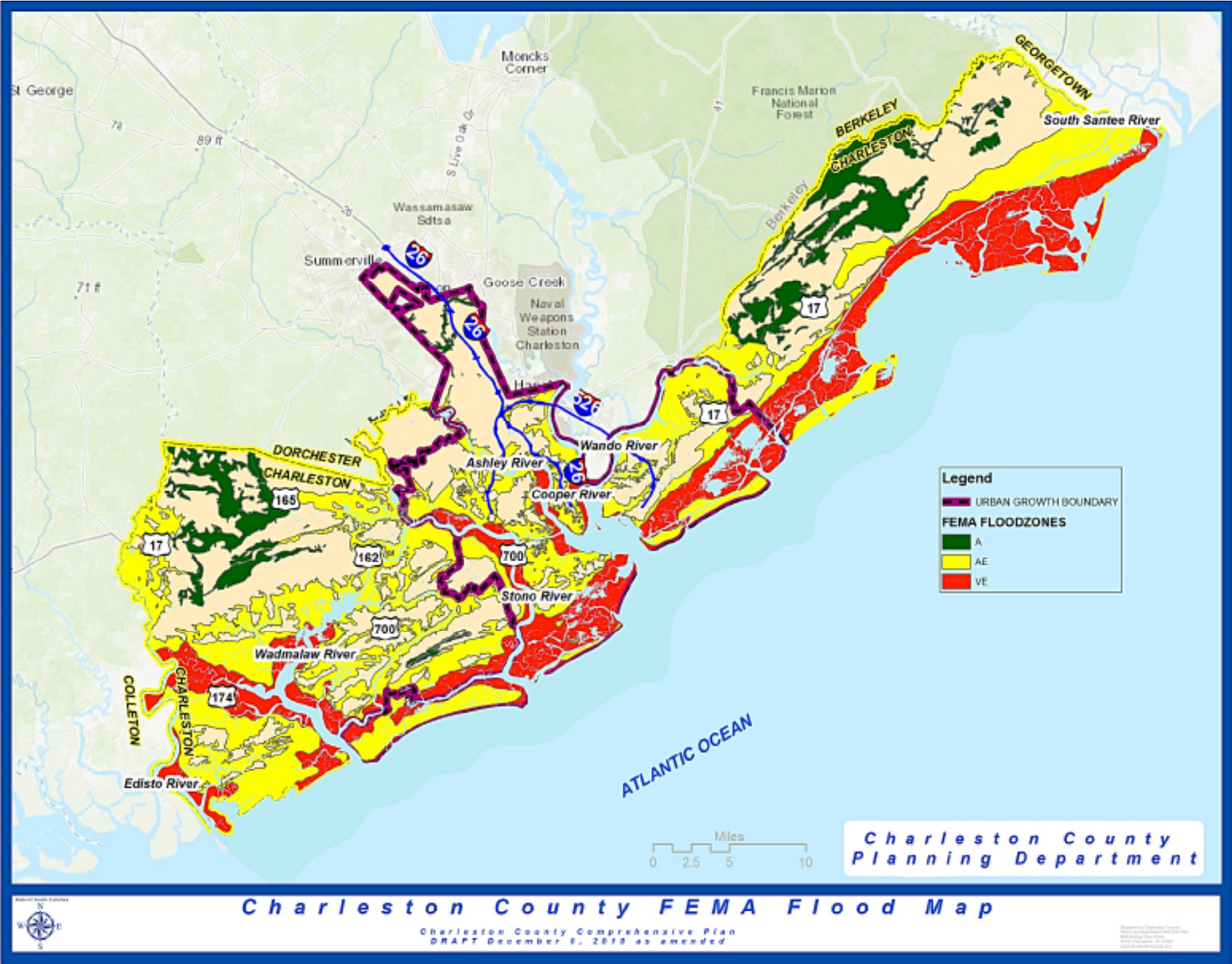
The Charleston County Building Inspection Services Department administers the County's Building Ordinance, which adopts the International Building Code (as required by the State of South Carolina), and sets out any additional standards above the minimum building code requirements that must be met to, and in the interest of, public health, safety, and welfare. There are several flood-related standards identified in the International Building Code, but the Code points to the FEMA regulatory standards when referencing requirements. The Charleston County Building Ordinance addresses all concerns regarding buildings, except flood requirements, which are found in the Charleston County Flood Damage and Prevention Ordinance.

Charleston County Flood Damage and Prevention Ordinance

One major step in ensuring compliance with FEMA flood regulations is in the adoption of a flood ordinance by local jurisdictions. It is required for communities to participate in the National Flood Insurance Program. The purposes of this Ordinance, also called the "Flood" Ordinance, is to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas. These provisions are designed to restrict or prohibit uses which are potentially in danger and vulnerable to water or erosion hazards, or which result in damaging increases in erosion or in flood heights and velocities. This ordinance also requires that structures vulnerable to flooding be protected against flood damage. Some examples of how the Ordinance can accomplish this is by implementing a minimum freeboard at which a building must be elevated or protected above the base flood elevation; requiring hydrostatic venting systems, dry or wet floodproofing techniques on commercial building, among several others.

Some ways that the Flood Ordinance ensures building protection against flood damage is by requiring building plans be reviewed for compliance with the Flood Ordinance prior to building permits being issued. During this review, the Department is looking for things such as breakaway wall certification from a design professional, elevation of mechanical systems, and reviewing the height at which the lowest floor is designed.

MAP 3.11.4 CHARLESTON COUNTY FEMA FLOOD MAP (ADOPTED 2004)



After a permit is issued and construction has begun, building inspectors will inspect the building to ensure that the requirements approved on the plans are also actually implemented during construction. All of the requirements must be met or corrected before a Certificate of Occupancy is issued.

Additional objectives of the ordinance help to minimize the expenditure of public money for costly flood control projects, minimize the need for rescue and relief efforts associated with flooding, minimize prolonged business interruptions, and to help maintain a stable tax base by providing for the sound use and development of flood prone areas in such manner as to minimize flood blight areas. And finally, to ensure that potential homebuyers are notified that property is in a flood zone.

Just as the Building Ordinance requires some additional standards above those outlined in the International Building Code, the Flood Ordinance provides an avenue for the County to legally require flood protection measures above and beyond minimum standards as set forth by FEMA regulations. The County's Flood Ordinance is where any existing higher regulatory standards can be found, as well as where any additional regulations can be implemented; such as requiring an increased minimum freeboard, requiring minimum flood standards for properties located in the X Flood Zone, requiring additional site plan review, etc. The Flood Ordinance is expected to be updated next when the new FEMA flood maps go into effect sometime within the next year.

Repetitive Loss Properties

Repetitive loss properties are classified by FEMA as any insurable building for which two or more flood insurance claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year time period, since 1978. The property may or may not be currently insured by the NFIP. Structures that flood frequently strain the National Flood Insurance Fund, draining the funds needed to prepare for catastrophic events. The primary objective of the Repetitive Loss identification program is to eliminate or reduce the damage to property and the disruption to life caused by repeated flooding of the same properties. There have been a number of efforts aimed at reducing the risks, one of which is providing the FEMA post-disaster Hazard Mitigation Grant Program (HMGP) projects, which has funded the mitigation of nearly 3,000 properties nationwide. Also the Flood Mitigation Assistance (FMA) Program offers monetary assistance to homeowners that mitigate their properties to reduce the impacts of flooding. Once mitigation efforts have been completed, the property owner may request for the property to be removed from the list.

Severe repetitive loss properties are classified as properties having four or more claims of more than \$5,000 each or two or more separate claims where the total dollar amount of the payments exceeds the current value of the property. Both situations must have occurred within a ten-year period. Similar to the grants mentioned above, there are additional funding options for property owners to alleviate some of the mitigation costs.

Due to privacy restrictions, these lists are not available to the public and there are currently no requirements regarding disclosure when such properties are for sale to inform potential buyers of the known risks.

As of May 2018, there were 152 properties on the Repetitive Loss list in Unincorporated Charleston County and the following jurisdictions: Town of Awendaw, Town of Hollywood, Town of James Island, Town of Lincolnville, Town of Meggett, Town of Ravenel and Town of Seabrook Island. These jurisdictions are currently served by the County's floodplain management program through intergovernmental agreements.

CONCLUSION

The scope of resilience goes far beyond the topics covered in this Element, and the County will work to introduce additional areas of concern, causes, and potential solutions over time to help create a more resilient Charleston County. The topic of resilience is covered in other Elements of this Comprehensive Plan, and during the next scheduled review of the Comprehensive Plan in its entirety, these topics will be consolidated and evaluated.



PHOTO: CHARLESTON COUNTY PUBLIC INFORMATION OFFICE

3.11.3: RESILIENCE ELEMENT GOAL

Charleston County will prioritize resilience in all County plans, policies, and regulations.

Resilience Element Needs

Resilience Element needs include, but are not limited to, the following:

- Improving the County's ability to handle and recover from sudden emergencies, as well as more persistent issues.
- Determining areas that are of the highest risk, evaluating development intensity regulations for these areas, and prioritizing projects in these areas.
- Strengthening partnerships with surrounding jurisdictions to combat issues that cross jurisdictional boundaries.
- Educating the public about their role in building resilience and how to recover.
- Review and consolidate resilience-related efforts detailed in other Elements of this Plan during the next five-year update, which may include, but not be limited to, advanced study and audit of existing facilities and programs.



PHOTO: CHARLESTON COUNTY PUBLIC INFORMATION OFFICE

3.11.4: RESILIENCE ELEMENT STRATEGIES, ACTION ITEMS AND TIME FRAMES

The County should undertake the following strategic actions in support of the Vision and Goals of this Plan. These implementation strategies and action items will be reviewed a minimum of every five years and updated every ten years from the date of adoption of this Plan.

RE.1 Coordinate resilience-related efforts within the County and across jurisdictional boundaries.

ACTION ITEM: Identify a Resilience Officer and resources to implement strategies, administer programs, pursue funding opportunities, and provide standards to coordinate resilience-related efforts of County Departments, municipalities and adjacent jurisdictions, applicable regulatory agencies, and regional partners.

ACTION ITEM: Identify and pursue amendments to existing County policies and regulations including, but not limited to, the Floodplain Management Program, Hazard Mitigation Plan, Stormwater Ordinance, Building Ordinance, and Zoning and Land Development Regulations Ordinance, to improve the County's resilience towards long-term stresses and acute disasters, using the best data available to inform decisions.

ACTION ITEM: Amend applicable County ordinances to address the Community Rating System (CRS) standards not currently addressed by the County, including, but not limited to:

- Requiring low-impact development design Best Management Practices such as non-structural flood protection techniques that can mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources in applicable areas;
- Increasing the freeboard in Special Flood Hazard Areas;
- Implementing freeboard requirements in X Zones;
- Increasing minimum lot size requirements in low density zoning districts (in the Rural Area);
- Prohibiting filling of land where determined to create or exacerbate flooding, whether the land is in a flood zone or not;
- Increasing OCRM Critical Line buffer requirements;
- Requiring additional review of flood hazards during the Site Plan Review process;
- Enacting transfer and/or purchase of development rights programs through Intergovernmental Agreements with other jurisdictions to provide incentives for low levels of development within the Special Flood Hazard Areas; and
- Requiring compensatory storage of stormwater in new development/re-development, where applicable.

ACTION ITEM: Work with adjacent jurisdictions to secure funding to perform a regional vulnerability, risk, and resilience assessment and watershed assessment, both of which should include implementation strategies.

ACTION ITEM: Amend County regulations and policies to implement the strategies of the regional vulnerability and watershed assessments.

ACTION ITEM: Create, implement, maintain and assist in public information programs in order to educate citizens about resilience practices including, but not limited to, assisting business owners with developing Continuity of Operations Plans; educating the public, including children, about contributing factors related to flood risks, sea level rise, and ways to reduce environmental impacts; creating targeted messaging that is understood at all educational levels, ages and nationalities, so that the public can be better informed; and incorporating K-12 educational efforts to promote resilience, mitigation and disaster preparedness at the school-aged level.

ACTION ITEM: Continually monitor local, state, federal, and private initiatives and recommendations regarding resilience.

ACTION ITEM: Coordinate with municipalities to reduce waste and duplication of efforts, and investigate diversion strategies in order to limit impacts on the environment.

RE.2 Develop, adopt, and implement a Drainage Master Plan and sea level rise strategies that are coordinated with adjacent jurisdictions.

ACTION ITEM: Create an asset management plan to identify existing drainage easements and structures, including ownership, and ensure their maintenance and longevity.

ACTION ITEM: Identify additional Best Management Practices to be utilized in areas as specified by the Drainage Master Plan.

ACTION ITEM: Identify where drainage easements and/or structures are needed and coordinate with property owners and/or jurisdictions to obtain the easements, construct the improvements, and maintain the improvements.

ACTION ITEM: Develop, adopt, and implement resilience strategies for capital expenditures for existing and new infrastructure.

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Element: Resilience

Background

Resilience is the ability of a community to respond, adapt, and thrive under changing conditions, including, but not limited to, recurrent burdens and sudden disasters. The primary purpose of the Resilience Element is to identify strategies to make the City more resilient. Although flooding is a major concern and addressed throughout the Element, other areas of concern are also discussed, and Folly Beach is dedicated to taking an all-hazards approach to resilience planning. This means when planning for resilience, the City is not planning around specific events, but rather taking a big-picture approach towards risk mitigation. Another purpose of the Resilience Element is to clarify the roles that government, the private sector, and individuals hold in regard to improving resilience.

Topography and Geography

The City of Folly Beach is a barrier island on the coast of South Carolina along the Atlantic Ocean with beach and saltwater marsh adjacent. Most of the City is made up of Folly Island with the Atlantic Ocean and Folly River being the two water bodies that surrounds it. The City of Folly Beach also includes various islands such as Little Oak Island, Oak Island, Long Island, Bowens Island and Pea Island with a vast tidal creek system. The City stretches up to Teal Marsh Road and Harris Teeter where it meets Unincorporated Charleston County and City of Charleston jurisdictions. Ground elevations for the City range from 5ft to 10 ft NAVD 88. Mean sea level is about 3 ft with mean higher high water around 6ft.

The City of Folly Beach is encompassed in the Santee River Basin. The Santee River Basin encompasses 11 watersheds and 1,280 square miles. The Santee River originates in the Upper Coastal Plain region, giving way to the Lower Coastal Plain and Coastal Zone regions. The Santee River Basin includes nearly one million acres. There is a total of 976 stream miles, 94,668 acres of lake waters, and 5,276 acres of estuarine areas in the Santee River Basin. The Santee River is formed from the confluence of the Congaree and Wateree Rivers and flows through Lake Marion. It is diverted in lower Lake Marion, and either flows out of the Santee Dam to eventually drain into the Atlantic Ocean via the South Santee River and the North Santee River, or is channeled along a 7.5-mile diversion canal to fill Lake Moultrie.

With over 10,000 acres of the state's roughly 350,000 acres of saltmarsh within its jurisdictional boundaries, the City of Folly Beach aims to preserve its marsh and protect the life and property of its citizens by encouraging responsible development along the marshfront. The salt marsh-tidal creek ecosystem within the City of Folly Beach is a highly productive coastal wetland between upland areas, such as the barrier or marsh islands, and the tidal rivers. The marsh is an intertidal habitat, meaning the surface of the salt marsh is under water at high tide and dry at low tide. A meandering network of tidal creeks winds through the marsh and allows tidal water onto the marsh surface and back into the rivers.



Hazards and Other Resilience Issues

Flooding

According to NOAA, flooding is an overflowing of water onto land that is normally dry. Flooding can be further classified, defined, and forecasted depending on several factors including cause, duration, and extent. There are generally three categories of flooding: storm surge, tidal and stormwater. Flooding is the most frequent and costly natural hazard in the United States. In Charleston County, the most common types of flooding are caused by rain events, tidal flooding, and storm surges. Other issues that enhance the effects and extent of flooding are sea level rise and climate change. Due to the proximity of the ocean and marshland with low lying roads and houses on Folly Beach, a proactive approach to flooding is necessary to protect the community and make it more resilient.

Hurricanes and Storm Surge

Records dating back to the 1600s indicate there were about 43 tropical cyclones before official records were kept in 1851. Since then, there have been an additional 41 tropical systems (25 hurricanes, 10 tropical storms and six tropical depressions) that have hit or affected the Charleston region (NOAA). The region will remain vulnerable to hurricanes and tropical weather and this threat may increase with climate change and warming seas. Hurricanes pose many threats to the area, including wind, rainfall, and storm surge. In addition, tides can also have a major effect on the extent of hurricane-related flooding.

Storm surge is the rise of water level that occurs as a result of high winds pushing onto the coast due to tropical conditions. In combination with regular tides, storm surge can cause significant flooding in coastal areas, and is exasperated depending on the intensity of the storm. Some problems that storm surges cause include inland flooding, flooding in advance of a storm, dangerous debris carried by waves, severe beach erosion, and significant property damage.

Advancements in mapping have provided flood inundation maps to inform citizens of potential flood impacts during different categories of storm events where a citizen can simply type in their address on a webpage and have a visual reference of where flooding can occur around them (NOAA). These tools are very helpful when planning and preparing for an event and determining the amount of storm preparation that would be required in advance. The Sea, Lake, and Overland Surges from Hurricanes (SLOSH) Model is a type of this mapping and estimates storm surge heights, considering atmospheric pressure, size, forward speed, and track data to model the wind field, which generates storm surge. The model was developed by the National Weather Service and is a computerized numerical model that can be applied to a specific region's coastline. The SLOSH Model can be used to predict storm surge heights resulting from historical, hypothetical, or forecasted hurricanes. The SLOSH model does not include breaking waves/wave run-up, astronomical tide, or normal river flow and rain. However, the model does consider coastal reflection; overtopping of barrier systems, levees, and roads; inland inundation; deep passes between bodies of water; and flow through barriers, gaps, and passes. The SLOSH Model, like most storm surge models, is heavily reliant on the accuracy of meteorological input. Additionally, it is important to note that storm surge is merely one element of total water level rise, with tides, waves, and freshwater flow making up the other components.



Rain Event and Stormwater Flooding

Rain event flooding can be classified by severe rain events, whether associated with tropical weather or not, that cause major flooding in areas that may not have experienced flooding in prior years. Like tidal flooding, these big rain events are exacerbated by a combination of several factors that result in widespread flooding, including king tides, sea level rise, drainage issues and storm surges. Folly experienced flooding from a continuous rain event in 2015 that caused flood damage to properties and access issues in various areas on the island. In particular; Tabby Drive, East Cooper Avenue vic. 9-11th blocks, 8-9th block of East Arctic, and 1st, 2nd, and 3rd block of West Indian Avenue. In 2016 Folly was hit with 1' of rainfall from hurricane Matthew and a 6 foot storm surge. This caused problematic flooding in all of the low areas along the Marsh side of the island from seawater combined with rainfall. In 2017, the passage of Hurricane Irma caused more of the same flooding experienced during Matthew.

Overall, rain events that have impacted the Folly Beach area since 2015 have brought the issue of flooding to the forefront. The purpose of this Element is to address these coastal flooding issues and pave the way for future planning to combat the problem.

Tidal Flooding, Sea Level Rise, and Nuisance Flooding

The beauty and character of Folly Beach lies in its breadth of winding tidal creeks and hidden reaches of waterfront property. With this beauty comes the risks associated with tidal flooding, also called nuisance flooding, because of the inconveniences caused during unusually high tides. Many factors contribute to this “perfect storm” of problems that can shutdown areas of Folly Beach for hours or days.

Sea level rise is the result of two major causes: the thermal expansion caused by warming of the ocean and increased melting of land-based ice (NOAA). The current global rate of rise is about one-eighth of an inch per year but could be measured at a rate higher or lower depending on other factors locally. Scientists are confident that that the global mean sea level will rise 8 inches to 6.6 feet by the year 2100 (NOAA, Climate.gov). Global sea level trends and local sea level trends are different measurements. Just as the surface of the Earth is not flat, the surface of the ocean is also not flat—in other words, the sea level is not changing at the same rate globally. Sea level rise at specific locations may be more or less than the global average due to many local factors such as land subsidence from natural processes and withdrawal of groundwater and fossil fuels, upstream flood control, erosion, changes in regional ocean currents, variations in land height, and whether the land is still rebounding from the compressive weight of Ice Age glaciers.

There has been a more than one-foot rise in sea level in the Charleston Harbor over the past 80 years. NOAA estimates the rate at which sea level is rising in South Carolina has been increasing and is now around one inch of rise every two years. The City of Folly Beach currently plans their Sea Level Rise Strategy around a 3-foot increase in sea level over the next fifty years.



In urban settings, rising seas threaten infrastructure necessary for local jobs and regional industries. Roads, bridges, subways, water supplies, oil and gas wells, power plants, sewage treatment plants, landfills—virtually all human infrastructure—is at risk from sea level rise.

Sea level rise is one contributing problem to tidal flooding in many areas within the City. Rising seas means higher tides, and more frequent king tides, which are now an issue to formerly non-flood-prone areas. King tides are highest seasonal tides that occur each year, usually around full and new moons in Spring and Autumn. Frequent road closures, property damage, loss of business, and potentially hazardous conditions leave areas affected by tidal flooding in a state of uncertainty. Sea level rise will continue to be a more frequent issue for all coastal areas within the City. The king tides and sea level rise are increasing the erosion rates all along the ocean side of the island. Time is of the essence to study and make modifications to alleviate some of the effects that sea level rise will have on properties and infrastructure within the City. This not only affects area residents from being able to get to and from their homes, but also has a large impact on continuity of services for business operations, safety services, including access to area hospitals, and the general functioning of the area and its residents on a normal day-to-day level.

A recent example of how king tides can majorly affect Folly Beach tidal flooding on all the lower areas along the Marsh side of the island has been experienced during each of the storms above and during the king tide cycles. Typical areas are East cooper between 9th and 12th, West Indian from 1st block to Lempesis, 4th block of East Indian, and the marsh side of the island from 16th to 17th Streets East.

Groundwater and Sea Level Rise Impacts on Septic Systems

Groundwater aquifers are sponge-like, interconnected layers saturated slowly over time with water that comes from the surface water supply. Groundwater is influenced by rainfall and sea level. Groundwater rising is a concern when considering resilience because it affects the functioning of septic systems on Folly Beach. In a functioning septic system, a liquid waste in the septic tank empties into the drainfield. From the drainfield, that liquid waste filters down through a layer of dry soil. The key there is dry soil. When the groundwater rises, that space of dry soil between drainfield and water tables shrinks, the soil goes from dry to soggy. Liquid waste doesn't filter through soggy soil properly. When the soil is permanently soggy, the wastewater flows through it quicker which cuts down on filtering time, allowing the wastewater to enter the groundwater and aquifer without being properly filtered. This means contaminated water, rather than completely treated wastewater, enters the aquifer and contaminating drinking water.

The recommended amount of space between the bottom of the drainfield and the water table is 24 inches during the rainy season. The State of South Carolina's regulations are way below the recommended "vertical separation distance" (area of unsaturated soil between drainfield and the water table) needed for organics and nitrates to breakdown. SC only requires 15 cm of unsaturated soil, but studies show 60 cm (24") is needed for system to function. To be resilient, 1 meter (3') is recommended as adequate to allow for future rising groundwater.



The management of septic systems is an ongoing concern for the City of Folly Beach. Septic failure may result from several burdens, the most basic of which is maintenance, which should be performed at least every ten years by a certified professional. Septic failure is not only a threat to water quality but also a direct health hazard to animals or even young children. Sewage bubbling to the surface is clearly a nuisance to all, visitors and residents alike. Failing septic systems have not been a major issue because soil conditions on the island are general favorable. However, as the systems age and higher occupancy increases pressure, sea levels rise, and maintenance concerns will become more pressing. In addition to new requirements for septic systems, the City has partnered with the Town of Nags Head and the North Carolina Sea Grant Consortium for a study to determine the effectiveness of septic tank management tools in the face of sea level rise. The final report is due in early 2021.

Drought

Drought, the lack of precipitation over an extended period of time, is another stressor that Folly Beach may face. South Carolina experiences significant variability in rainfall and this makes it hard to pinpoint the start or end of a drought. The Coastal Plain of South Carolina receives around 48 to 56 inches of precipitation annually, although there is some variation. Folly Beach is at risk for a drought during any season, and it can be brought about by factors such as changes in pressure, storm tracks, and the jet stream, as well as extreme heat, wind, and evapotranspiration rates. Drought can impact Folly Beach by lowering the water table, causing septic tank issues, cause a rise in heat index and therefore life safety concerns.

Earthquakes and Tsunamis

Earthquakes regularly occur in South Carolina. An earthquake hit the City of Charleston (the closest jurisdiction with an earthquake of significance) with an estimated magnitude of 7.0 on August 31, 1886, and it changed the face of the City killing approximately 60 people.

The entire City of Folly Beach lies within a "high potential for liquefaction" area (South Carolina Department of Natural Resources). This issue needs additional study and evaluation as it is definitely an issue of concern. The City needs to address ways to protect against additional damage in the event of an earthquake beyond what is regulated through building codes.

Liquefaction is the transformation of loosely packed sediment or cohesionless soil to a liquid state as a result of increased porefluid pressure and reduced effective stress. Liquefaction is caused by the ground shaking during an earthquake. Soil-liquefaction potential is based on the interpretation of thick, cohesionless material (mostly sand) combined with a high water table (SCDNR).

Although no major damaging earthquake occurred in the City since 1886, there have been several small scale earthquakes, mainly clustered around the Summerville area. Charleston County should prepare for the impacts of an earthquake now so that it can be ready. Because we have regularly occurring issues like flooding, earthquake resilience is often overlooked or set aside in order to address more regularly occurring issues, but the threat is imminent on a day-to-day basis.



With Folly being a beachfront community, there is also an increased risk of tsunamis triggered by earthquakes. Charleston County where Folly Beach is located is a Tsunami Ready community. This is a voluntary community recognition program that promotes tsunami hazard preparedness as an active collaboration among federal, state/territorial, and local emergency management agencies, community leaders and the public.

Winter Weather

Although a rare occurrence, the City of Folly Beach can be affected by winter weather. In January 2018, Charleston County experienced a variety of wintry precipitation including snow, sleet and freezing rain. The Charleston Airport measured 5.3 inches of snow, the third greatest snowfall on record. Due to the continued cold air in place after the storm, the snow and ice remained on the ground for many days, causing significant disruptions to day-to-day life throughout the County. The City had to chase water line breaks due to freezing all over the island for three days. The City had Public Works crews stay on the island for 72 hours to deal with these and road safety concerns.

Just four years earlier in February 2014, Charleston experienced a winter storm event leaving about one quarter of an inch of ice throughout Charleston County. Most of Charleston County escaped the amount of accumulation to cause serious damage, but the surrounding counties of Berkeley, Dorchester and Colleton had significant damage to trees and power lines caused by ice. Although not as crippling as the 2018 storm, Charleston was not able to bounce back from this event quickly, having roads and business closures County-wide.

Because of the irregularity of winter weather in Folly Beach, the area is not typically prepared to handle such events. There are few, if any, salt trucks and snowplows available. The City must rely on outside resources to assist or just wait out the weather and shut down for several days creating disruptions in essential services, safety concerns, and financial hardships. Building resilience and planning for winter weather is definitely necessary for future events to limit the economic impact.

Other Resilience Issues

Transportation Infrastructure

Transportation is essential for a community to function. Flooding can interrupt or detrimentally affect transportation. According to the Centers for Disease Control and Prevention, over half of all flood-related deaths occur when a vehicle is driven into hazardous flood water. The next highest percentage of flood related deaths is due to walking into or near flood waters. People continue to drive or walk through flood waters to get to work and school, and if they are not able to, this indicates a need to increase the County's economic resilience, as laid out later in this Element. Critical infrastructure, such as bridges, roads, ports, clinics and hospitals are the foundation upon which the City functions, and they are essential elements in getting the community back up and running after an event.

Considering the unique topographical nature of Folly Beach, including islands, beaches, and inland property, the City is reliant on its infrastructure to tie transportation facilities together. Of large importance are bridges, which are something that nearly every citizen of Folly Beach must cross on a daily basis. Since most areas of the Folly Beach are only accessible via bridges, bridge closures can prevent



many of our citizens from being able to get to and from their home, work, or school, potentially creating vast negative economic consequences. Bridge hazards are not typically associated with flooding, but other influential impacts on the area such as ice storms and strong winds can completely shut down access to and from work, home, and school. If specific areas are not accessible due to flooding, it can cause major issues in terms of safety, and the economics of that area and those working there can be affected.

Accessibility and connectivity are also key to the functionality of a community. Parking and access of the beachfront on Folly Beach is crucial for a resilient community as it strengthens economic resilience and island-wide partnerships. Some existing partnerships exist including Rethink Folly Road and the Battery to Beach path. Encouraging alternative modes of transportation such as bikeways, pedestrian paths and electric cars diversifies Folly's transportation structure and offers more avenues for recreation and amenities making people wanting to continue to frequent the City.

Health Resilience

Health resilience pertains to age of populations, logistics, access to medical supplies and institutions, climate, and disease transmission. All of these factors were exacerbated and brought to light by the COVID-19 pandemic. The City struggled with regulating the amount of people able to access the island to slow spread of the disease in the summer of 2020. Beaches of South Carolina make it a hot spot to recreate but can put residents in danger and strain local resources. Outside of the COVID-19 pandemic, there are also considerations to be made about other environmental diseases such as Zika and heat stroke. Folly's climate makes it susceptible to the transmission of vector-borne diseases, those spread by the bite of an insect such as a mosquito. The 2018 National Climate Assessment, a federally mandated report, asserts that climate change will modify the seasonality and prevalence of vector-borne diseases. Currently, Charleston's climate is suitable for the *Aedes aegypti* mosquito, that can spread several diseases including Zika, dengue fever, and chikungunya, from July through September. If temperatures were to increase in Charleston County, that active season could potentially lengthen, leading to increased disease risk. Additionally, the 2018 National Climate Assessment predicts an increase in labor hours lost from heat-related illnesses, as climate change contributes to higher temperatures. These stresses would be felt strongly in the labor-intensive agricultural, timber, and manufacturing sectors.

Economic Resilience

Folly Beach has a tremendous impact on the local, state, and national economy. While we believe that our beach and natural resources are priceless, it is important to also understand a dollar amount that we contribute in tax revenue, job creation, and wages. Folly Beach partnered with the College of Charleston who conducted an economic impact analysis for the City. According to the study, Folly generates \$117 million in sales annually and creates 1,200 jobs and \$40 million in salaries. Every year, Folly visitors generate \$22 million in taxes; \$17 million state/local, \$5 million federal. The beach protects \$500 million in property, beach access, and infrastructure, which generates \$11.6 million in property taxes for the state and local governments. Beach renourishment is an investment: For every \$1 invested in beach restoration, the beach generates \$37 in return. The total annual economic value for recreational beach users at Folly Beach was estimated to be nearly \$4.5 million.



In Folly Beach, we face frequent flooding and other events that impact our local economy by making it harder for employees, residents, and visitors to get to work and access the island, as well as affecting the City's ability to provide services to its citizens. When there is a mandatory evacuation order for Charleston County, it adds to families' financial stresses, as they budget and plan for an extended stay away from home. Increasing our economic resilience, therefore, must include ways to reduce the number of down days due to such events.

Energy Resilience

The 2018 National Climate Assessment predicts that the southeast region will experience the highest costs in the United States associated with meeting increased electricity demands in a warmer world. Therefore, energy becomes an essential consideration when creating a resilient community. The Folly Green Team is a local volunteer-based organization whose 'greening' objectives are supported by resolution of the Folly Beach City Council. As of May, 2016, we have a Community Garden in full growth, three water bottle filling stations, and 'keep the beach clean' signs at the walkovers. On-going efforts involve the clean-up of beach accesses, cooperation with other organizations to reduce cigarette butt and dog poop litter on the beach and a continuing presence at community events to increase awareness of environmental issues that impact our fragile barrier island. They also implemented LED light change outs in the past and are getting ready for a 3rd round starting in March 2021 for all of the utility street lighting on the island. Folly Green discussed previously about home owner incentives to increase energy efficiency.

Existing Long-Term Plans and Tools

City of Folly Beach Zoning Ordinance

Folly Beach has many ordinances and codes that it follows to bolster its resilience. Strategic land use can bolster a county's resilience by shaping where, what, and how land can be developed. There are several regulations centered on the City's current Zoning Ordinance that contribute to resilience. One item that makes the City stand out is the required vegetated buffers from saltwater wetlands, waterways, and Ocean and Coastal Resource Management (OCRM) Critical Lines. These buffers provide a visual, spatial, and ecological transition zone between development and the City's saltwater wetlands and waterways, and to protect water quality and wildlife habitat. Folly Beach also has a 40' setback from the baseline which delineates the beachfront. This setback's intent is to preserve the beach and dune system as well as eliminate encroachment on the beachfront. This helps to preserve views but also provide a buffer during hurricanes and other storm surge events. The Ordinance also limits lot coverage to 35% which encourages pervious surfaces (notably pervious driveways are required in residential areas). Pervious surfaces help to reduce impacts rainfall flooding of drainage infrastructure, assist recharge of groundwater, and reduction of runoff and pollutants.

International Building Code Series

The State of South Carolina requires governing local entities to adopt, by ordinance, the state-approved versions of the International Building Code series. Currently the State approved Building Code in South Carolina is the 2018 International Building Code (IBC), and the 2009 Energy Code. The International Building Code series provides best practices to protect the public health, safety, and general welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and



maintenance of all buildings, structures, and certain equipment. In Folly Beach, a series of processes are in place that require a building plan review in order to check for compliance with the applicable building codes in effect. In addition, during this review, plans are also reviewed for compliance with FEMA standards for buildings located within the Special Flood Hazard Area, such as freeboard requirements, venting requirements and systems, wet or dry floodproofing, among others.

FEMA Flood Insurance Rate Maps (FIRMS) and Flood Ordinance

The Federal Government requires the adoption and maintenance of Flood Insurance Rate Maps (FIRM) by communities in order to participate in the National Flood Insurance Program (NFIP). These maps are tools for communities to not only identify the area's flood zones, but also provide information to citizens in evaluating their risks. These maps are updated periodically by either the introduction of new technology or due to the needs of a community. The Special Flood Hazard Area (SFHA) is the area that will be inundated by the flood event having a one-percent chance of being equaled or exceeded in any given year. This is also referred to as the "base flood" or "100-year flood." SFHA's are labeled as Zone A, AO, AH, A1-A30, AE, A99, AR, AR/AE, AR/AO, AR/A1-A30, AR/A, V, VE, and V2-V30. These are considered to be high hazard areas and have additional building code and flood requirements. Moderate flood hazard areas are labeled B or Shaded X and have a 0.2 percent annual chance of flood or also known as the 500-year flood. The area of minimal flood hazard, called Zone X, or C, are outside the SFHA and have a higher elevation than the 0.2 percent annual chance flood area. The City of Folly Beach has a stringent flood ordinance that includes additional freeboard requirements and all buildings designed to V Zone standards. These provisions are designed to restrict or prohibit uses which are potentially in danger and vulnerable to water or erosion hazards, or which result in damaging increases in erosion or in flood heights and velocities. This ordinance also requires that structures vulnerable to flooding be protected against flood damage.

Community Rating System

Folly Beach has participated in the Community Rating System (CRS) program since 1996. The purpose of the CRS is to support the National Flood Insurance Program (NFIP) by working to minimize flood losses nationwide. This can be accomplished by encouraging communities to reduce the exposure of existing building to flood damage, protect new buildings from known and future flood hazards, and encourage implementation of higher regulatory standards from the minimum NFIP requirements. It is a point-based system that once all efforts are tallied, CRS will issue a rating. This rating is associated with a discount that is assessed to all residents with flood insurance policies within a participating jurisdiction. Folly Beach currently has a 30% discount on flood insurance which means that the City has accumulated enough points to be rated as a Class 4 community (ranging on a scale of 1-10 with Class 1 being the highest).

The Community Rating System program consists of nineteen creditable activities under four categories, including public information, mapping and regulations, flood damage reduction, and warning and response activities. The City participates in all four categories and most of the creditable activities contained within the categories. Some examples of the City activities include: raising the freeboard (the required height at which buildings must be built) from one foot above base flood elevation to two feet above; digitizing and providing complimentary review and public access to elevation certificates; providing



a Public Information Plan characterized by the City's activities to provide flood protection information to the public; designating and mapping open space preservation areas; providing notification of special flood hazard area information; and participating in annual drills, among many others.

Beachfront Management Plan

The State of South Carolina requires that ocean beachfront counties and municipalities prepare local comprehensive beach management plans in coordination with the Department of Health and Environmental Control, Office of Coastal Resource Management (DHEC-OCRM). The plan must include a minimum of ten elements, be adopted by the community, and then submitted to DHEC for review and state approval. These plans provide guidance to state and federal agencies on local policies, regulations, and procedures related to beachfront management plans. Similar to the City's Comprehensive Plan, the Beachfront Management Plan must be reviewed every five years and updated every ten years.

The required elements include the following:

1. Inventory of beach profile data and historic erosion rate data for each standard erosion zone and inlet erosion zone under the local jurisdiction;
2. Inventory of public beach accesses along with a plan for enhancing public access and parking;
3. Inventory of all structures located in the area seaward of the setback line;
4. Inventory of turtle nesting and important habitats of the beach/dune system and a protection and restoration plan if necessary;
5. A conventional zoning and land use plan consistent with the purposes of the Act for the area seaward of the setback line;
6. Analysis of beach erosion control alternatives, including re-nourishment of the beach under the local government's jurisdiction;
7. Drainage plan for the area seaward of the setback zone;
8. Post disaster plan, including plans for cleanup, maintaining essential services, protecting public health, emergency building ordinances, and the establishment of priorities, all of which must be consistent with the Act;
9. Detailed strategy for achieving the goals of this chapter by the end of the forty-year retreat period. Consideration must be given to relocating buildings, removal of erosion control structures, and relocation of utilities; and
10. Detailed strategy for achieving the goals of preservation of existing public access and the enhancement of public access to assure full enjoyment of the beach by all residents of this state.

Other SC communities have both a setback line and a baseline, but there is no setback line on Folly Beach. SCDHEC's beachfront permitting jurisdiction is limited to areas seaward of the baseline. Unlike other coastal communities where lines are updated every 8 to 10 years, the baseline on Folly Beach is fixed and not subject to periodic readjustment. A recent ruling by the SCDHEC Board clarified SCDHEC's permitting jurisdiction on Folly Beach. The Board concluded that the SCDHEC has no jurisdiction landward of the baseline on Folly Beach. The City of Folly Beach is unique in that it has an exemption to some of the state criteria and thus had to increase its resiliency within City ordinances and practices after decades of dependence on renourishment projects and a blasé attitude on the stability of the



beach. In the last five years, there has been a major paradigm shift in the Folly Beach community. Where coastal development regulations were once a taboo topic and additional ordinances were difficult to pass, City leaders now embrace proactive planning. There are several ordinance changes that have occurred in the past 3 years – strengthening setbacks, creating a Dune Management Area, limiting hard structures on the beachfront, and investing in aspects other than nourishment as a resilience technique. Another zoning ordinance change is the City merged all of the remaining substandard, superbeachfront lots with the lots behind them, thereby preventing the future construction of superbeachfront houses in front of the existing row of beachfront houses. Overall, the effort was an exceptionally progressive and efficient process of implementing adaptation actions by the City. The beachfront is the City's top economic resource and a strong beachfront management plan supplements and strengthens overall resilience for Folly Beach.

Dune Management Plan

Dunes act as a barrier for storm surge and protection of homes against hurricanes. The dunes stabilize the beach and act as critical infrastructure for resiliency in the City of Folly Beach. It is imperative to have strong long-term planning efforts in place. The City of Folly Beach Dune Management Plan aims to develop recommendations for how to restore and preserve the dune system along the City's beachfront through a proactive, planned approach. The Dune Management Plan, which was developed in 2018, recommends the establishment of a 40-ft wide dune management area (DMA) landward of the perpetual easement line (PEL). Permissible improvements within the DMA include seawalls, appropriate plantings and/or sand fencing, beach compatible sand, and walkovers. Above grade structures, septic tanks, or non-native landscaping are not permitted. The plan aims to enhance storm protection by establishing a continuous line of defense along the beachfront in the form of seawalls at 8-ft or dunes at 10-ft above NAVD88. This plan was developed over several years in response to chronic erosion, storm-induced erosion following the passage of Hurricanes Matthew and Irma in 2016 and 2017, and the loss of private lands landward of the federal renourishment project. The plan is a product of numerous meetings with City staff, the Planning Commission, and City Council.

Island Wide Drainage Study

The purpose of this study is to provide an overview of the existing drainage conditions in Folly Beach, SC and to provide conceptual changes to the existing stormwater system and stormwater program to help alleviate the drainage issues that residents and businesses experience during heavy rainfall events and/or coastal storms.

Heavy rainfall events and/or coastal storms create ponding of water at various locations (low areas of roads and yards) and coastal erosion. The City faces a number of problems with the current drainage system including low topographic relief, large areas that lack stormwater drainage features and limitations of the system to drain based on rising tidal flooding and sea-level rise. Often times, stormwater will pond until the tide changes and groundwater levels recede. Large areas of the island lack stormwater collection systems, allowing the increased runoff from development to exceed the natural infiltration capacity of the soil. These issues are further compounded by a high water table. The Study models stormwater conditions on the island with sea level rise projections, identifies Capital Improvement Projects for problem areas that are frequently flooded, and encourages the implementation of Low Impact Development (LID) and Green Infrastructure (GI) techniques or soft approaches in cooperation with capital improvement projects can help reduce stormwater problems and issues.

Sea Level Rise Adaptation Report



Folly Beach is already being impacted by rising seas, particularly during “King” tide events when stormwater drainage systems backup and flood low-lying roads and yards, especially on the marsh side of the island due to low-lying topography. This report includes information on local sea level rise trends and details the 11 adaptation actions identified by the project team. The trends are increased sea level rise, more flood days per year, and more impacts to infrastructure on the island. The adaptation actions include items pertaining to water infrastructure management, land management, education, transportation adaptation, coordination, collaboration and cooperation between government entities and stakeholders. Through this planning process, the City and stakeholders agreed to plan for 3 feet of sea level rise over the next 50 years, or by 2066. The Report recommended short-, medium-, and long-term actions to be taken to increase resiliency to sea level rise impacts and led to partnerships to support the development of a septic vulnerability assessment, marshfront management plan and drainage management plan. The actions outlined in this plan should be followed closely and incorporated into the needs and goals assessment within this Comprehensive Plan as sea level rise is arguably the biggest resilience threat to the City.

Marshfront Management Plan

With over 10,000 acres of the state’s roughly 350,000 acres of saltmarsh within its jurisdictional boundaries, the City of Folly Beach aims to preserve its marsh and protect the life and property of its citizens by encouraging responsible development along the marshfront. The Marshfront Management Plan (MMP) is the first of its kind in the state. It is an adaptive management effort that occurred in conjunction with a 2018 waterfront building moratorium and aimed to develop recommendations to guide planning efforts along the city’s marshfront. The MMP describes future marshfront management opportunities such as mapping of the marshfront critical line, a more detailed inventory of habitable marshfront structures and bulkheads including their distance from the critical line, a marsh mitigation bank fund, a detailed outline of how other communities handle marshfront management, continued public education and engagement, and a septic vulnerability assessment. To ensure that the next generation of Folly Beach residents experiences the same quality of life that today’s residents enjoy, a long-term commitment to marshfront management and protection and restoration of the saltmarsh ecosystem is needed.

Emergency Operations Plan

The City of Folly Beach has a detailed Emergency Preparedness Plan that outlines the steps required by each department in the City annually, within 48 hours of a predicted emergency event, 24 hours of a predicted event, during an emergency, and after an emergency. Annually, each department is required to review supplies, aid agreements, applicable contracts, emergency contact information, FEMA employee training certifications, and operational plans. In the event of a predicted emergency (hurricane, tornado, flood), the Mayor and Emergency Management Team will assess the projected severity level to determine whether an evacuation of citizens and staff is necessary. Because Folly is a barrier island, it may be necessary to evacuate all staff and equipment, even emergency responders in the event of a significant emergency. In this event, citizens will be required to evacuate from the City for their own safety. Prior to an emergency (if possible), emergency responders will be notified of the increased mobilization schedule. Staff will also begin notifying citizens of necessary public precautionary measures. Departments will begin mobilizing equipment, setting up housing and aid stations, and debris collection sites at that time, depending on the severity determinations made. During this time, all employees will begin to log and detail work performed to prepare for an emergency, in accordance with FEMA regulations. After an emergency, staff will follow procedures outlined for resuming City operations. If the City has been evacuated or citizens ordered to seek shelter, first responders and public works employees, the Mayor,



and the Emergency Management Team will make the determination as to when it is safe for staff, citizens, and business owners to return or emerge. The administration will rely on pre-assembled emergency kits to reestablish business operations, depending on existing conditions at the time. All electronic systems are backed up and all employees have manual options and cash available should electronic systems be unavailable. Citizens will be notified via emergency callout systems, the City website, and local media of when the City is considered safe and/or operational after an emergency event.

Hazard Mitigation Plan

In compliance with the Federal Emergency Management Agency's (FEMA) requirements to receive federal disaster funding, City of Folly Beach, surrounding jurisdictions and community stakeholders and partners (i.e. Charleston County Parks & Recreation Commission, Roper St. Francis Hospital, Charleston County School District, individual water and sewer districts, etc.) have adopted a Regional Hazard Mitigation Plan that is updated annually, with a full review and adoption every five years as required. The purpose of the Hazard Mitigation Plan is to continue guiding hazard mitigation efforts to better protect the people and property in the County from the effects of hazard events. This Hazard Mitigation Plan demonstrates the community's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources through grant funding. This Hazard Mitigation Plan was also developed to ensure Charleston County and participating stakeholders and partners also earns points for the National Flood Insurance Program's Community Rating System (CRS), which provides for lower flood insurance premiums in CRS communities as described later in this Element.

Charleston County who updates the plan for all jurisdictions within the County, including the City of Folly Beach, implores feedback and participation in planning the document is required. Public input is also obtained through surveys and open meetings. After updates, suggested edits and refocusing on the community's current hazard needs, the plan goes through a full adoption process every five years. Adoption of the plan is required for all participating jurisdictions, stakeholders, and partners.

Strategic Plan

The City of Folly Beach Council adopts a Strategic Plan annually which highlights the City's legislative priorities for the fiscal year. The vision statement is: The City of Folly Beach aspires to be an eclectic and relaxed community centered around the livability of residents and families while welcoming visitors. We will stand as leaders in environmental protection and resilience while building on a foundation of fiscal responsibility. Some resilience priorities include:

- Emergency Vehicle Access Over Groins
- Saving for Renourishment
- Walkover Extension/Retreat
- Backup Water Source
- Water Main Replacements:
- Traffic & Parking Study Arctic Avenue
- Drainage Capital Projects
- Pedestrian Paths and Crosswalks
- Streetlight Upgrades
- ALS Program
- Marine Launch
- Saving for Fire Engine and Police Car Replacement



- Prepare for Sea Level Rise

CONCLUSION

The scope of resilience goes far beyond the topics covered in this Element, and the County will work to introduce additional areas of concern, causes, and potential solutions over time to help create a more resilient Charleston County. The topic of resilience is covered in other Elements of this Comprehensive Plan, and during the next scheduled review of the Comprehensive Plan in its entirety, these topics will be consolidated and evaluated.

RESILIENCE AND EQUITY

Resilience considers the impacts of flooding, high water, and natural hazards on individuals, communities, institutions, businesses, economic development, public infrastructure and facilities, and public health, safety and welfare.

Equity is the guarantee of fair treatment, access, opportunity, and advancement while at the same time striving to identify and eliminate barriers that have prevented the full participation of some groups.

In many ways, the City of Charleston exemplifies the term “resilience.” The city has endured through countless hurricanes, economic downturns, earthquakes, fires, devastating wars, and, of course, global pandemics. However, the impacts of these disasters hit some communities harder than others, and the ability to overcome these challenges is too often dependent on socioeconomic status, which in Charleston strongly correlates with race. There have been multiple examples in Charleston’s past of disasters leading to displacement of communities – who could not afford or were not permitted to build back their homes that were impacted. Furthermore, systemic racism continues to perpetuate racial disparities across jobs, wages, education, health, and living conditions. These inequities create instability and threaten our community’s ability to achieve resilience. Therefore, confronting inequality and promoting equity – racial and economic – are critical to ensuring sustainable growth and building resiliency. *Resilience was added to the list of required elements in 2020. The Charleston City Plan also addresses equity as a key element of the plan. Both resilience and equity are interwoven throughout the plan and summarized in the Resilience and Equity recommendation matrix on page 142.*

The following core beliefs shape the *Resilience and Equity Framework*, applied throughout the Charleston City Plan.

1. *An agenda to build resiliency of a community must begin with achieving equity; and all strategies for resiliency should prioritize addressing existing disparities and protecting vulnerable communities from any unintended negative impacts of new policies or investments.*
2. *There are existing disparities that deny certain communities equal access to opportunities and healthy environments; and increase their vulnerability to disasters and climate-related displacement.*
3. *Communities are inherently stronger and more resilient when we can meet the unmet needs of all community members.*

The purpose of this framework is to highlight the inter-related nature of resilience and equity. The recommendations for both elements have been combined due to their overlap, and the Resilience and Equity recommendation matrix at the end provides a summary of all recommendations throughout the plan other elements that serve to advance these goals in our community.

KEY TERMS

Carbon footprint refers to the amount of carbon dioxide and other carbon compounds that a particular person or group emits due to consumption of fossil fuels.

Climate Change refers to the changes in climate patterns that are primarily attributed to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.

Climate Gentrification is a relatively new term that has emerged as climate change has begun to have impacts on the real estate market. It describes the process of wealthier, often whiter populations moving to areas less exposed to the effects of climate change that were previously occupied by lower-income residents and communities of color, thus exacerbating displacement and disparities.ⁱ

Economic Equity, or inclusive growth, is the full inclusion of all groups in an area’s economic growth and prosperity, regardless of socioeconomic status; which requires addressing economic injustices at the root causes and creating opportunities for all.

Equity (vs. Equality) involves understanding and giving people what they need to enjoy full, healthy lives. Equality, in contrast, aims to ensure that everyone gets the same things in order to enjoy full, healthy lives. The principle of equity acknowledges that there are historically underserved and underrepresented populations, and that fairness regarding these unbalanced conditions is needed to assist equality in the provision of effective opportunities to all groups.ⁱⁱ

Equity Lens is the process of paying disciplined attention to race, ethnicity and other socioeconomic characteristics that are predictors of disparate outcomes, while analyzing problems, looking for solutions, and defining success. Application of an equity lens illuminates disparate outcomes, patterns of disadvantages and root causes.ⁱⁱⁱ

Exclusionary Zoning includes zoning regulations that prevent the location of housing that is affordable to lower- and moderate-income communities out of certain neighborhoods through land use and building code requirements. Though exclusionary zoning is almost never explicitly discriminatory, it results in the perpetuation of racial and socioeconomic segregation.

Food Deserts are defined by the US Department of Agriculture (USDA) as areas in which a substantial number or share of residents have low levels of access to retail outlets selling healthy and affordable foods.

Greenhouse Gas Emissions refers to the production of any gaseous compound that traps and holds heat in the atmosphere, or creates the “greenhouse effect.”

RESILIENCE

CLIMATE

Enacting policies that reduce the city’s overall carbon footprint and adapt to and mitigate the effects of climate change.

Charleston is a place in which the effects of climate change are tangible and noticeable. Sea level rise, increased frequency and intensity of storms, extreme heat, wildfires, and droughts are all impacts of climate change and have the potential to affect public health and safety, racial and economic equity, economic development, plant and animal habitats, and overall quality of life for our city.

In 2019, the Mayor’s Office of Resilience and Emergency Management (OREM) updated the City’s Sea Level Rise Strategy, which serves as a strategic plan to protect citizens, neighborhoods, businesses, and critical city infrastructure from flooding due to sea level rise. In 2020, the OREM completed the City’s All Hazards Vulnerability and Risk Assessment, which serves as a resource for City leaders to continuously assess and better manage impacts from hazards such as flooding, sea level rise, earthquakes, extreme heat, water shortage, and hazmat. In 2021, the ORS updated the City’s Climate Action Plan. This plan outlines a strategy for programs, projects, and policies that the City can implement to reduce greenhouse gas emissions and mitigate climate change. The City Plan Land and Water Analysis used projections from the Sea Level Rise Strategy to show how elevation risk zones will change over time with rising sea level.

FLOODING

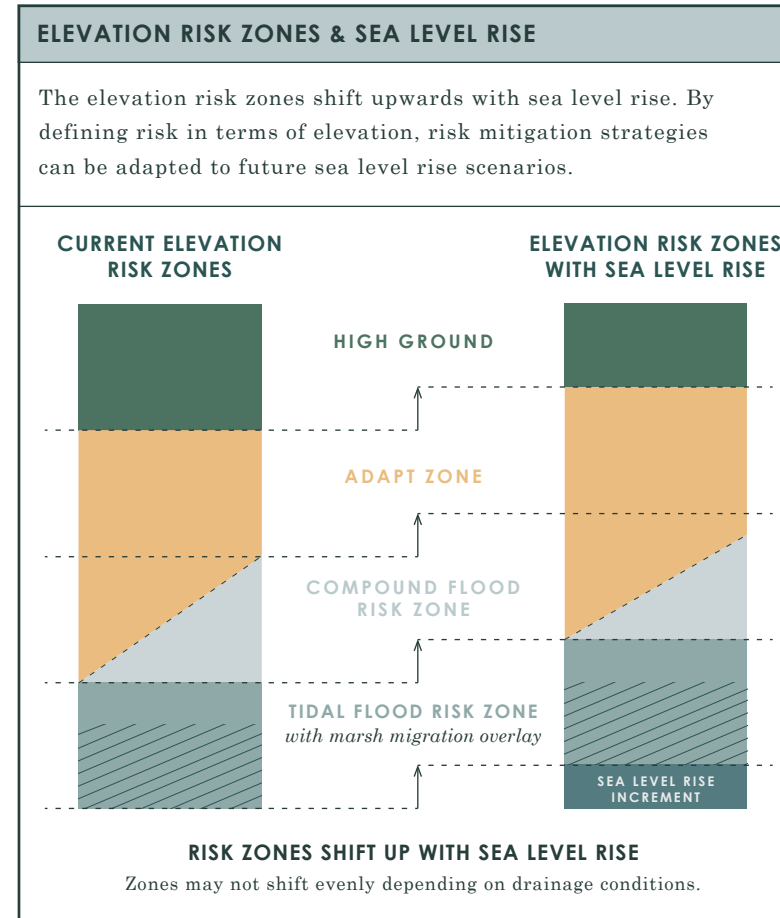
Enacting policies that protect community members from the effects of flooding.

In 2015, Charleston received over 20 inches of rainfall in an event known as the “Thousand Year Rainfall,” causing widespread flooding throughout the city. Since then, other major flood events during hurricanes Irma and Matthew have served as continual reminders of the city’s vulnerability to flooding. With sea level rise and other effects of climate change, the total geographic area impacted by flooding and the intensity and frequency of flood events will increase.

This recent history and looming threat of sea level rise have created an increased sense of urgency among local policymakers to better understand and reimagine water management in the city. In 2018, Mayor Tecklenburg and City Council approved the creation of the City’s first Stormwater Department with the mission of alleviating flooding and improving drainage throughout the city. The City has also contracted with a group of independent, highly skilled engineers and subject area experts to form the new Stormwater Program Management team. These teams have strengthened the City’s Stormwater Design Standards Manual for new development/redevelopment and completed and planned dozens of drainage projects.

These infrastructure projects include “grey”, more traditional man-made drainage infrastructure such as the massive Spring-Fishburne tunnel and pump project featuring a 30-foot diameter drop shaft running 174

The nearly \$200m Spring/Fishburne Drainage Project began in 1999 and is expected to be complete by 2024. Photo courtesy of City Department of Stormwater Management



KEY TERMS (CONT.)

Hazmat is the abbreviation for hazardous materials, which is defined by the National Oceanic and Atmospheric Administration (NOAA) as the substances that pose a reasonable risk to health, property or the environment such as toxic chemicals, fuels, nuclear waste products, and biological, chemical and radiological agents.

Impervious Surface in the City of Charleston Zoning Ordinance is defined as a surface which is compacted or covered with material that is resistant to infiltration by water, including, but not limited to, most conventional surfaced streets, roofs, sidewalks, parking lots, and other similar structures.

Net Zero refers to achieving an overall balance between emissions produced and emissions taken out of the atmosphere.

Racial Equity is the condition where one’s race identity has no influence on how one fares in society. Race equity is one part of race justice and must be addressed at the root causes and not just the manifestations. This includes the elimination of policies, practices, attitudes, and cultural messages that reinforce differential outcomes by race.^{iv}

Redlining refers to the practice by the Federal Housing Administration in the 1930’s which refused to insure mortgages in and near African-American neighborhoods, while at the same time subsidizing construction of subdivisions with racial covenants that excluded any non-white household.^v

Renewable Energy is energy created from source that is not depleted when used, such as wind or solar power.

Resilience can be defined as the ability for a community to overcome challenges confronting it and to survive through periods of hardship.^{vi}

Sea Level Rise is an increase in the level of the world’s oceans due to effects of global warming.

Systemic Racism also referred to as Institutional or Structural Racism, is a network of institutional structures, policies and practices that create (even if unintentionally) advantages for White people, and discrimination, oppression and disadvantages for racialized people.

Tree Canopy Cover is defined by the US Department of Agriculture (USDA) as the layer of leaves, branches and stems that provide tree coverage of the ground when viewed from above.

Urban Agriculture includes production (beyond that which is strictly for home consumption or educational purposes), distribution and marketing of food and other products within the cores of metropolitan areas and at their edges.^{vi}

feet below grade, and “green” stormwater infrastructure like a simple street tree, which can intercept between 760 to 3,000 gallons of stormwater per tree per year.^{vii} In addition to governance, infrastructure, and outreach, the Sea Level Rise Strategy identified land use planning as a key way to alleviate flooding.

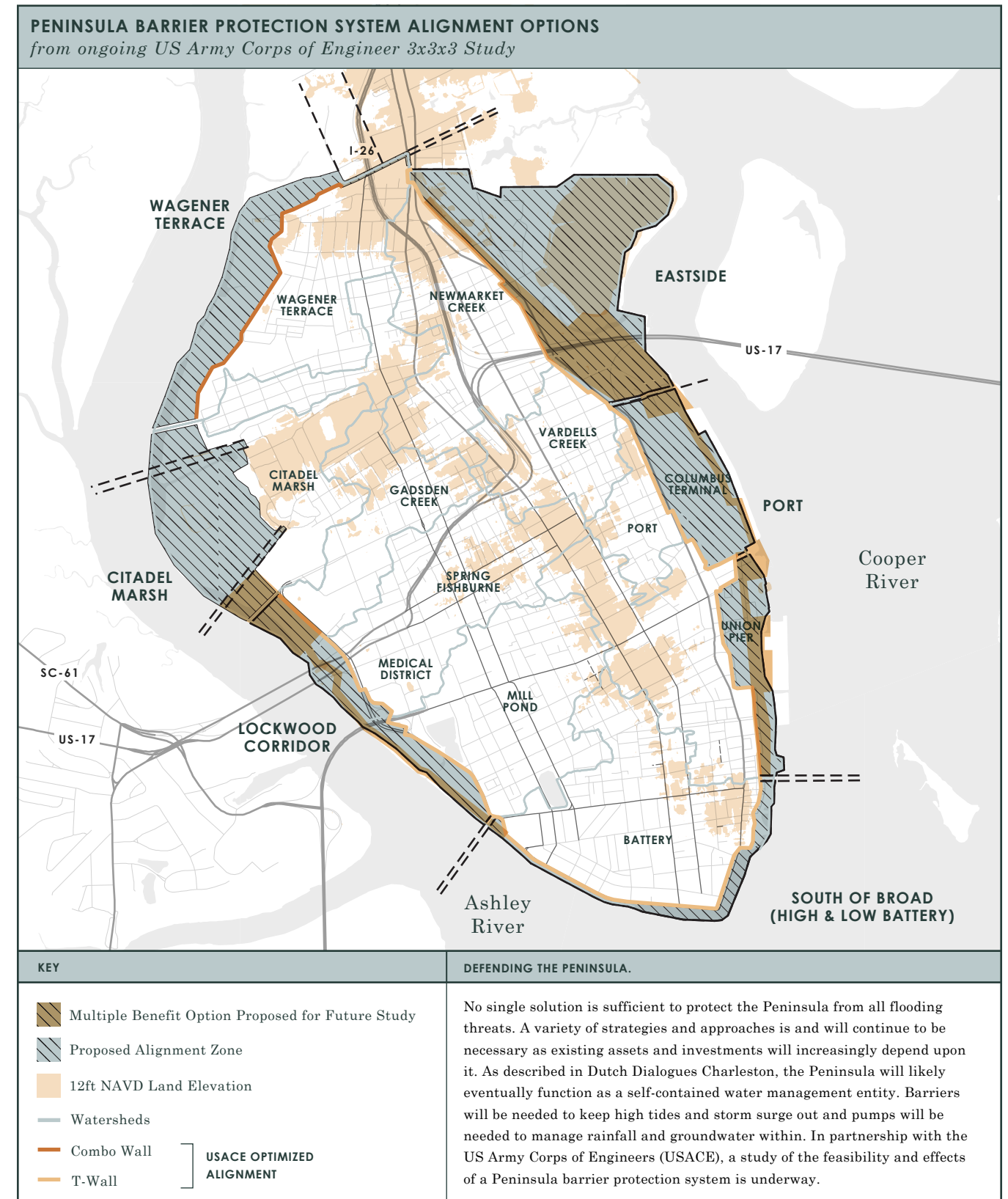
In 2019, Historic Charleston Foundation partnered with the City to undertake the Dutch Dialogues Charleston study. The Dutch Dialogues team worked with local, national and international experts to conceptualize a “living with water” future for Charleston, one in which the urban landscape works harmoniously with the natural flow of water. Dutch Dialogues provided guidance for achieving this vision through the use of planning, urban design, stormwater management, and natural resources/resiliency planning. To build on the Dutch Dialogues process, members of the same team returned to conduct the City Plan Land and Water Analysis. This study analyzed elevation zones, environmental sensitivity, and watershed sensitivity to guide land use decisions in the City Plan. The result is one of the most comprehensive and innovative future land use plans in the entire country in terms of stormwater and flooding resilience.

ECOLOGICAL

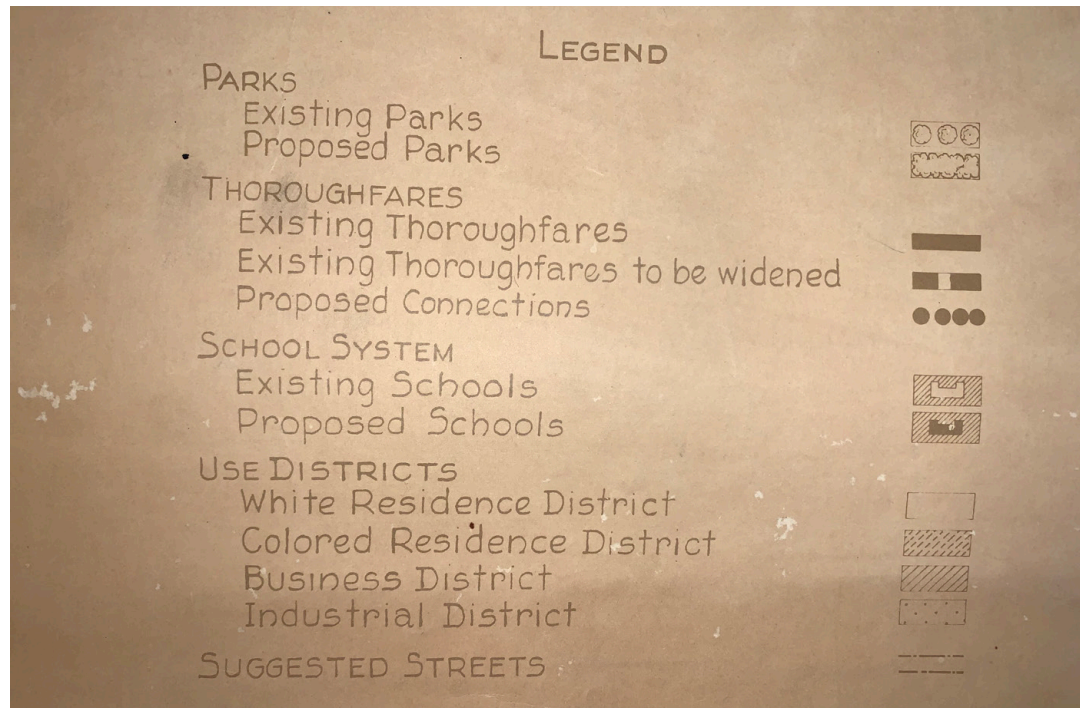
Enacting policies that protect the native plants, ecosystems and animals that define our region.

Native plants and animals, waterways and landscapes are some of the most defining features of Charleston and the Lowcountry as a whole. In the past, development of the built environment has often come at the cost of precious ecological resources. On the Peninsula, for example, only 17.4% of land is covered by tree canopy, and 62.8% is covered by impervious surfaces, according to the City’s 2018 Trees to Offset Stormwater study.^{vii} From 1992 to 2016, the City of Charleston lost about 5% of its tree canopy according to researchers at the College of Charleston’s Lowcountry Hazards Center.^{ix}

Since the 1990s, the City and Charleston County have taken key actions to preserve and protect natural resources. The Urban Growth Boundary is a significant planning tool implemented in the 1990s and reinforced over time that reduces the increased spread of suburban development and ensures areas surrounding the City’s boundaries remain rural in character. The Charleston County Greenbelt Advisory Board continually awards grant funding for preserved green space for conservation and public recreation.



Legend and portion of “General City Plan” map from 1931 Morris Knowles Report that provided the blueprints for the City of Charleston’s first Zoning Ordinance. xvi



Moving forward, the City’s Department of Parks and Recreation is finalizing its first ever Master Plan, which will identify future parks needs and strategies for parks enhancements and new park creation. City Council recently approved a Conservation Subdivision ordinance, which allows developers to group buildings in smaller areas in order to preserve the majority of the area of the site as permanent green space. This is one example of a concept known as “conservation design.” By applying conservation design principals to more zoning and planning policies in the future, the city can continue to develop in a more ecologically resilient manner, ensuring that the prized natural resources of the Lowcountry are safe for years to come.

SOCIAL
Enacting policies that promote health and wellness for all citizens regardless of age, race, or socioeconomic status.

According to the 2020 All Hazards Vulnerability and Risk Assessment, the community members most at risk to environmental threats are often the most socially vulnerable.^x The Center for Disease Control defines social vulnerability as “the potential negative effects on communities caused by external stresses on human health. Such stresses include natural or human-caused disasters, or disease outbreaks.”^{xi} Low-income communities, communities of color, and communities with high concentrations of elderly people in the City of Charleston are disproportionately

Concept Rendering from West Ashley Greenway + Bikeway Master Plan.



The Septima P. Clark Parkway is an urban highway constructed in the 1960's that divided a predominantly Black neighborhood and displaced many residents in the process. Image courtesy of © 2019 Eagleview.



The Septima P. Clark Parkway is an urban highway constructed in the 1960's that divided a predominantly Black neighborhood and displaced many residents in the process. Image courtesy of Becca Hopkins.

vulnerable to extreme heat and exposure to hazardous materials (hazmat).^{xiii}

Zoning and Land use planning have direct impacts on public health. The Health in All Policies (HiAP) framework is a national movement to better infuse public health considerations into policy and programming across the wide spectrum of public services. Because behaviors and environment are the best determinants of health and wellness, programs that incentivize or enable healthy behaviors can have significant preventative health outcomes. Social determinants of health include “the conditions in which people are born, grow, work, live and age, and the wider set of forces and systems shaping the conditions of daily life.”^{xiii} Some planning policies that can address social determinants of health include safe and affordable housing creation; zoning and land use decisions on locations of job centers, supermarkets, and green spaces; complete streets which include pedestrian and bicycle facilities; and transit oriented development which reduces reliance on single occupancy vehicles, improving air quality.

Access to healthy foods is a key component of the HiAP framework. Due to a variety of factors, many predominantly nonwhite neighborhoods around our region are considered “food deserts” as residents have little or no access to grocery stores with fresh produce and other healthy foods. One proven strategy for addressing food deserts involves supporting local urban agriculture and community gardens. These gardens are often cared for by volunteers or nonprofit workers and provide a vital source of healthy, sustainable food production year round.

EQUITY

The discipline of city planning can play a major role in advancing equity in cities, especially since it has directly contributed to creating inequities in the past. Many of the first zoning codes in American cities contained explicit language barring nonwhites from inhabiting specific areas of town until specific racial zoning was ruled unconstitutional in 1917. Despite this ruling, cities continued to consider race in planning practices and decisions. In the 1931 Report of the City of Charleston Planning and Zoning Commission, which

provided the blueprints for the City’s first zoning regulations, race-based residential districts were outlined in the plan.^{xiv} These and more subversive measures such as racial covenants on deeds, exclusionary zoning and land use practices, and urban renewal programs in the 1960s, which cleared entire nonwhite and low income neighborhoods to make room for freeways, had devastating consequences that continue to persist today. The practice of redlining majority nonwhite neighborhoods by banks and other financial institutions further segregated and undermined the ability for nonwhite Charlestonians to build generational wealth.^{xv}

These historical planning and real estate-induced inequities along with still-widening racial wealth inequality are some of the reasons that the City of Charleston has experienced a decline in the number of low-income and nonwhite residents over the past decade. During the City Plan public engagement process, many community members lamented this loss of socioeconomic and racial diversity, and advocated for more strategies to mitigate gentrification and reduce displacement.

Additionally, the Charleston community faces serious environmental and social threats which will require bold and strategic actions in the future. Without mitigation or intervention, adaptation can leave people behind, exacerbate disparities and contribute to climate gentrification. Many adaptation strategies, such as more sustainable building codes and elevating historic homes, require significant financial investment and have the potential to leave low-income residents behind. This is why it is critical to ensure that equity considerations are built into all plans, programs, and strategies that improve quality of life and make Charleston more resilient.

The Department of Planning, Preservation and Sustainability (PPS) enlisted the support of the College of Charleston Community Assistance Program (CAP) to bolster staff’s efforts to apply an equity framework to the Charleston City Plan. Graduate Assistants with the program shared best practice research, facilitated conversations with staff, and reviewed draft plan materials for opportunities to further apply an equity lens. Simultaneously, CAP was assisting the City’s newly created Special Commission

of Equity, Inclusion and Racial Conciliation (EIRC) to establish their framework for racial equity. The EIRC Commission was created in June 2020 to create measurable outcomes, promote greater accountability, and coordinate community-wide efforts to dismantle systemic racism and achieve racial equity in the Charleston community.

The Charleston City Plan addresses racial and economic equity in all elements by acknowledging existing racial and socioeconomic disparities and their root causes; and including recommendations that prioritize protections, opportunity and improved quality of life for those communities that have historically suffered from differential outcomes due to race or socioeconomic status.

In addition to pursuing the recommendations included in this plan that advance equity, all future planning decisions and actions should continue to apply an equity lens by considering the following questions.

Are the impacted communities playing an active role in the decision-making process?

How does this (policy, project, decision or action) address existing disparities and prioritize underserved communities?

What measures are in place to ensure this benefits all residents equitably?

What are potential unintended negative impacts on vulnerable populations and what are strategies to prevent such impacts?

ⁱ Beeman, Anna. 2019. "Climate Gentrification and Resilience Planning: What is at stake for at-risk communities?" Vibrant Environment Blog, Environmental Law Institute, September 18. <https://www.eli.org/vibrant-environment-blog/climate-gentrification-and-resilience-planning-what-stake-risk-communities#:~:text=In%20some%20cases%2C%20such%20as,by%20lower%2Dincome%20residents%20and>

ⁱⁱ The Final Report of the Special Commission on Equity, Inclusion and Racial Conciliation and the "Racial Equity Framework Glossary" provided by the College of Charleston Community Assistance Program.

ⁱⁱⁱ Ibid.

^{iv} Ibid.

^v Silver, Christopher (1997). *The Racial Origins of Zoning in American Cities*. Thousand Oaks: Sage Publications. p. 23.

^{vi} Cox, R.W. and Miller, D.Y. 2014. *Governing the metropolitan region: America's new frontier*. New York: M.E. Sharpe.

^{vii} The Final Report of the Special Commission on Equity, Inclusion and Racial Conciliation and the "Racial Equity Framework Glossary" provided by the College of Charleston Community Assistance Program.

^{viii} United States. Green Infrastructure Center, City of Charleston, SC. Mayor's Office of Resilience and Sustainability, Department of Planning, Preservation, and Sustainability. *Trees to Offset Stormwater*. September 2018. Accessed May 2021. <https://www.charleston-sc.gov/1567/Trees-to-Offset-Stormwater>.

^{ix} Ibid.

^x The Impact of Forest Cover on Flooding and Climate Change in Charleston County, SC. College of Charleston Lowcountry Hazards Center. 2020. Accessed May 2021. <https://gis.cofc.edu/portal/apps/MapSeries/index.html?appid=8dd072b2b2774b83b4807c25f57ca8bd>.

^{xi} United States. City of Charleston, SC. Mayor's Office of Resilience and Sustainability. *All Hazards Vulnerability and Risk Assessment*. November 2020. Accessed May 2021. <https://www.charleston-sc.gov/DocumentCenter/View/27994/All-Hazards-Vulnerability-Assessment-Full-Report>.

^{xii} "CDC/ATSDR's Social Vulnerability Index (SVI)." Centers for Disease Control and Prevention. April 28, 2021. Accessed May 10, 2021. <https://www.atsdr.cdc.gov/placeandhealth/svi/index.html>.

^{xiii} United States. City of Charleston, SC. Mayor's Office of Resilience and Sustainability. *All Hazards Vulnerability and Risk Assessment*. November 2020. Accessed May 2021. <https://www.charleston-sc.gov/DocumentCenter/View/27994/All-Hazards-Vulnerability-Assessment-Full-Report>.

^{xiv} Whitehead, Sandra, Ph.D, MPA. "Healthy St. Pete: Health in All Policies for a Healthier Community." Lecture.

^{xv} "Report of the City Planning and Zoning Commission upon a program for the development of a city plan with specific study of certain features thereof." Created by Morris Knowles, Inc, 1931. Courtesy of the Charleston Library Society.

^{xvi} Silver, Christopher (1997). *The Racial Origins of Zoning in American Cities*. Thousand Oaks: Sage Publications. p. 23.

^{xvii} City of Charleston Records Division, Clerk of Council Department. Map accompanying 1931 "Report of the City Planning and Zoning Commission upon a program for the development of a city plan with specific study of certain features thereof." Created by Morris Knowles, Inc.

RESILIENCE AND EQUITY RECOMMENDATIONS



01.

Work with other City departments to implement the recommendations in the All Hazards and Vulnerability Risk Assessment, Sea Level Rise Strategy, Climate Action Plan, Trees to Offset Stormwater and Dutch Dialogues Charleston.

02.

Work with other City departments to implement recommendations from the Special Commission on Equity, Inclusion and Racial Conciliation, when finalized.

03.

Update the Downtown Plan to fully implement recommendations from various plans and studies that address flood protection, new development and redevelopment, and tourism management.

04.

Develop and fund a program to address lack of access to Federal Emergency Management Agency (FEMA) and other disaster assistance aid for lower income households and heirs properties.

05.

Collaborate with regional and state partners to increase preservation and restoration of saltwater ecosystems like our marshes and wetlands as these are key carbon sequestering assets.

06.

Create design guidelines for renewable energy standards in the historic district, with measures in place to prevent placing additional burdens on lower-income households.

07.

Expand incentives for sustainable construction and renewable energy via the zoning code, such as building certification programs like Charleston RISES.

08.

Create more incentives that empower individual property owners and small-scale developers to play a more prominent role in efforts to increase resiliency and affordability in the Charleston area.

09.

Continue to promote urban agriculture and community gardens, especially in areas qualifying as food deserts.

10.

Reduce emissions to 50% below 2018 levels by 2030 to mitigate the city's impact on climate change.

11.

Reduce emissions to net zero by 2050.

12.

Continue to study the effects of extreme heat and pursue policies that protect people in all areas of the city from extreme heat, especially lower income and elder community members who may have more limited ability to adapt.

13.

Prioritize City Plan recommendations that advance resilience and equity, included in the Resilience and Equity Recommendation matrix on pages 142 - 151.

RESILIENCE AND EQUITY

ALL CITY PLAN RECOMMENDATIONS THAT ADVANCE RESILIENCE AND EQUITY BY ELEMENT		
Other Plans, Studies, Reports Key		Type of Resilience/Equity Key
CAP <i>Climate Action Plan</i>	DD <i>Dutch Dialogues</i>	EQ <i>Equity</i>
SLR <i>Sea Level Rise Strategy</i>	LWA <i>Land and Water Analysis</i>	S <i>Social Resilience</i>
VRA <i>All Hazards Vulnerability and Risk Assessment</i>	HIAP <i>Health in All Policies</i>	E <i>Ecological Resilience</i>
CTP <i>Citywide Transportation Plan</i>		C <i>Climate Resilience</i>
		F <i>Flooding Resilience</i>
COMMUNITY FACILITIES & PRIORITY INVESTMENT		
Prioritize stormwater and flooding solutions for Special Protection Areas (SPAs), older communities, and existing neighborhoods in Tidal Flood Risk zones.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C, F	
	OTHER PLANS, STUDIES, REPORTS SLR, DD, LWA	
Assign priority to areas in greatest need of improved infrastructure and amenities, in tangent with anti-displacement protections.	TYPE OF RESILIENCE/EQUITY EQ, E, C, F	
	OTHER PLANS, STUDIES, REPORTS SLR, DD, LWA, HFC	
Grow the City's capacity to improve maintenance of existing drainage infrastructure.	TYPE OF RESILIENCE/EQUITY E, C, F	
	OTHER PLANS, STUDIES, REPORTS SLR, DD, LWA	
CULTURAL RESOURCES		
Build, maintain and preserve an array of high quality cultural facilities and sites, with an emphasis on increasing access for black and brown communities, and areas of the city with fewer existing cultural resources.	TYPE OF RESILIENCE/EQUITY EQ	
	OTHER PLANS, STUDIES, REPORTS	
Support policies, incentives and plans that stimulate historic preservation, restoration and reuse of cultural resources, especially resources relating to African American heritage and history.	TYPE OF RESILIENCE/EQUITY EQ, S, C	
	OTHER PLANS, STUDIES, REPORTS	
Identify and protect significant sites citywide, including historic houses of worship, cemeteries and burial grounds, that contribute to Charleston's identity and represent its history; especially those sites significant to African-American heritage and history.	TYPE OF RESILIENCE/EQUITY EQ, S, C	
	OTHER PLANS, STUDIES, REPORTS	
Update and maintain a cultural resource inventory to evaluate the status of known cultural resources, identify under-documented and/or threatened cultural resources, especially in African-American settlement communities, and prioritize documentation needs and designation recommendations.	TYPE OF RESILIENCE/EQUITY EQ, S, C	
	OTHER PLANS, STUDIES, REPORTS	

CULTURAL RESOURCES (CONT.)	
Support development of community plans for settlement communities within corporate City limits that outline future goals related to preservation, investment and development; and recommendations for policies and other strategies for achieving those goals.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C, F
	OTHER PLANS, STUDIES, REPORTS
Work with neighboring jurisdictions to elevate the voices and concerns of settlement communities in ongoing conversations related to preservation, resiliency, gentrification and displacement, and future development and infrastructure projects.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C, F
	OTHER PLANS, STUDIES, REPORTS
Increase the amount of markers and monuments documenting sites and key figures culturally and historically significant to Charleston's African-American and other underrepresented communities.	TYPE OF RESILIENCE/EQUITY EQ, S, C
	OTHER PLANS, STUDIES, REPORTS
ECONOMIC DEVELOPMENT	
Continue to create tailored training and support programs for women and minority owned businesses.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS
Explore opportunities to support new commercial and mixed-use developments to enter into community benefit agreements or other commitments to hiring residents from the surrounding neighborhoods.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS
Increase access to fresh and quality food by attracting grocery stores to food deserts, expanding opportunities for food markets, and promoting small neighborhood groceries like corner stores on the Peninsula.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS HIAP
Develop policies, programs, tools and resources to attract and recruit a racially diverse workforce in the City of Charleston and to promote an economy that provides a variety of jobs paying living wages.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS
Focus on transit-oriented business incentives for offset in parking, business fees, or other fees associated with opening businesses.	TYPE OF RESILIENCE/EQUITY S, E, C
	OTHER PLANS, STUDIES, REPORTS CTP, CAP, HIAP

ALL CITY PLAN RECOMMENDATIONS THAT ADVANCE RESILIENCE AND EQUITY BY ELEMENT (CONT.)		
Other Plans, Studies, Reports Key	Type of Resilience/Equity Key	
CAP <i>Climate Action Plan</i>	DD <i>Dutch Dialogues</i>	EQ <i>Equity</i>
SLR <i>Sea Level Rise Strategy</i>	LWA <i>Land and Water Analysis</i>	S <i>Social Resilience</i>
VRA <i>All Hazards Vulnerability and Risk Assessment</i>	HIAP <i>Health in All Policies</i>	E <i>Ecological Resilience</i>
CTP <i>Citywide Transportation Plan</i>		C <i>Climate Resilience</i>
		F <i>Flooding Resilience</i>
ENGAGEMENT		
Dedicate independent funding and resources for all departments to increase accessibility and promote community integration in planning and other decision-making processes; including additional resources to expand in-house communications capacity.	TYPE OF RESILIENCE/EQUITY EQ	
	OTHER PLANS, STUDIES, REPORTS	
Establish mechanisms to coordinate engagement, education and outreach efforts across all departments.	TYPE OF RESILIENCE/EQUITY EQ	
	OTHER PLANS, STUDIES, REPORTS	
Invest in technology and other tools to expand access to public meetings and ongoing planning efforts.	TYPE OF RESILIENCE/EQUITY EQ	
	OTHER PLANS, STUDIES, REPORTS	
Increase the city's capacity to consistently provide materials and information in both English and Spanish, and to proactively arrange English to/from Spanish interpretation for public meetings.	TYPE OF RESILIENCE/EQUITY EQ	
	OTHER PLANS, STUDIES, REPORTS	
Continue to research and diversify data sources to be data smart thus supporting staff when formulating policy, processes and ordinance development.	TYPE OF RESILIENCE/EQUITY EQ	
	OTHER PLANS, STUDIES, REPORTS	
Develop strategies to ensure transparency and accountability for the implementation of plan recommendations, including a methodology to communicate progress for recommendations put forth in all sections of the City Plan.	TYPE OF RESILIENCE/EQUITY EQ	
	OTHER PLANS, STUDIES, REPORTS	
HOUSING		
Continue to fully implement recommendations from the Housing for a Fair Charleston Report.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C, F	
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP	

HOUSING (CONT.)	
Continue to support creation of senior and affordable senior housing in all areas of the city.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP
Create incentives and policies to increase available housing stock, especially affordable housing stock, through reuse and rehabilitation of existing buildings.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP
Implement policies and allocate resources to reduce regulatory barriers that hinder development of affordable housing and disproportionately burden lower-income and vulnerable communities, including: expedited review and permitting, reduced fees, affordable materials standards, flexibility for design and architectural standards when appropriate, and allocating staff devoted to shepherding projects through the development process.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP
Pursue strategies (incentives, policies and educational programs) to encourage landlord participation in rental assistance and other community housing programs; and establish a rental registration program.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP
Allocate dedicated resources and staff to assist lower-income homeowners and African-American owners of historic homes to retain, reinvest, and redevelop their properties to increase the amount of Naturally Occurring Affordable Housing stock.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP
Strongly encourage development of housing in compatible mixed-use and mixed-income (market rate and subsidized units mixed together within the same development) neighborhoods and in close proximity to parks, bicycle and pedestrian facilities, public transit, schools, grocery stores, job centers and civic uses. Incentivize transit-oriented development and affordable housing development along the future Low Country Rapid Transit route and other key public transit corridors.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP
Any future increases to maximum residential densities within the zoning code should be conditional on the basis that a certain percentage of new units be reserved for affordable housing.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP
Create a dedicated funding stream for affordable housing development through zoning and other planning tools.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP

ALL CITY PLAN RECOMMENDATIONS THAT ADVANCE RESILIENCE AND EQUITY BY ELEMENT (CONT.)		
Other Plans, Studies, Reports Key	Type of Resilience/Equity Key	
CAP <i>Climate Action Plan</i>	DD <i>Dutch Dialogues</i>	EQ <i>Equity</i>
SLR <i>Sea Level Rise Strategy</i>	LWA <i>Land and Water Analysis</i>	S <i>Social Resilience</i>
VRA <i>All Hazards Vulnerability and Risk Assessment</i>	HIAP <i>Health in All Policies</i>	E <i>Ecological Resilience</i>
CTP <i>Citywide Transportation Plan</i>		C <i>Climate Resilience</i>
		F <i>Flooding Resilience</i>
HOUSING (CONT.)		
Expand incentives for affordable housing developments in more base zoning districts, including unit density bonuses, reduced setbacks and lot sizes, and reduced or eliminated parking minimums when located in proximity to public transit. Incorporate a tiered incentive structure for affordable housing projects based on type and level of affordability provided and geographic location, prioritizing City-funded projects.	TYPE OF RESILIENCE/EQUITY EQ, S	
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP	
Expand partnership with the Charleston Redevelopment Corporation (Palmetto Community Land Trust) and establish a land bank for future affordable housing development.	TYPE OF RESILIENCE/EQUITY EQ, S	
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP	
Adopt policies to increase housing security for existing residents in areas at risk of displacement; including policies tailored to preserving historic African American settlement communities.	TYPE OF RESILIENCE/EQUITY EQ, S	
	OTHER PLANS, STUDIES, REPORTS HFC, HIAP	
LAND USE		
Make best use of highest land around the city for residential, commercial and mixed-use development, especially areas around current or future public transit corridors.	TYPE OF RESILIENCE/EQUITY F, C	
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR	
Reduce densities on low-lying areas vulnerable to flooding, and eliminate development in future marsh migration areas. Adapt and defend structures currently in these areas wherever feasible.	TYPE OF RESILIENCE/EQUITY F, C, E	
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR, VRA	
Pursue further studies of middle ground areas (between Tidal Flood Risk and High Ground Zones) and develop land use strategies based on analysis of individual drainage basins and stormwater easements.	TYPE OF RESILIENCE/EQUITY F, C, E	
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR, VRA	
Develop proactive measures to educate property owners and potential developers as to parcel elevation, areas of known flooding, drainage basins, soil types and drainage easement challenges that inform stormwater management on their site.	TYPE OF RESILIENCE/EQUITY E, C, F	
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR, VRA	

LAND USE (CONT.)	
Underscore responsibility of effective water management on higher ground of the city to better protect middle and lower ground downstream.	TYPE OF RESILIENCE/EQUITY F, C, E
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR, VRA
Encourage use of green stormwater infrastructure including clusters of trees, use of pervious surfaces, green roofs, etc.	TYPE OF RESILIENCE/EQUITY S, E, C, F
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR, VRA, TOS, CAP
Further limit fill-and-build construction methods in areas vulnerable to future flooding and potential marsh migration.	TYPE OF RESILIENCE/EQUITY E, C, F
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR
Encourage, walkable, efficient neighborhood patterns that support connectivity, mobility and health through development regulations and incentives.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C, F
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR, VRA, CTP, HIAP
Create a new zoning ordinance that is based on elevation, tied to the dynamic nature of sea level rise and other climate change implications, and that applies conservation design principles and other recommendations in this plan to all new and infill development.	TYPE OF RESILIENCE/EQUITY E, C, F
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR, VRA
Support the Urban Growth Boundary (UGB) through land use regulations and incentives, continued coordination with adjacent jurisdictions and by protecting land outside the UGB via land acquisition, park development and conservation easements.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C, F
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR, VRA
Continue to work collaboratively with BCDCOG and North Charleston to provide for transit-oriented developments along the Lowcountry Rapid Transit Corridor.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C, F
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR, VRA, CTP, HIAP
Work with Charleston County to implement an overlay district for properties fronting along Ashley River Road between Magwood Drive and Church Creek to emphasize reduction of residential densities and encourage new business development along the corridor.	TYPE OF RESILIENCE/EQUITY E, C, F
	OTHER PLANS, STUDIES, REPORTS CTP, DD, LWA
Continue to improve collaboration with adjoining jurisdictions and existing entitled developments to implement the recommendations of the City Plan Land and Water Analysis: to make the best use of high ground, limit use of low-lying areas, create compatible densities and increase connectivity.	TYPE OF RESILIENCE/EQUITY E, C, F
	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR, VRA

ALL CITY PLAN RECOMMENDATIONS THAT ADVANCE RESILIENCE AND EQUITY BY ELEMENT (CONT.)		
Other Plans, Studies, Reports Key	Type of Resilience/Equity Key	
CAP <i>Climate Action Plan</i>	DD <i>Dutch Dialogues</i>	EQ <i>Equity</i>
SLR <i>Sea Level Rise Strategy</i>	LWA <i>Land and Water Analysis</i>	S <i>Social Resilience</i>
VRA <i>All Hazards Vulnerability and Risk Assessment</i>	HIAP <i>Health in All Policies</i>	E <i>Ecological Resilience</i>
CTP <i>Citywide Transportation Plan</i>		C <i>Climate Resilience</i>
		F <i>Flooding Resilience</i>
LAND USE (CONT.)		
Continue research and outreach efforts with African-American Settlement Communities to ensure future development and land use recommendations are in concert with communities' goals.	TYPE OF RESILIENCE/EQUITY EQ, S	
	OTHER PLANS, STUDIES, REPORTS	
NATURAL RESOURCES		
Develop policies and processes to amplify environmental justice considerations in land use, infrastructure and natural resources planning; including the prioritization of environmental justice communities in improvements to the environment and analysis of potential negative impacts of projects on environmental justice communities.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C, F	
	OTHER PLANS, STUDIES, REPORTS CAP	
Develop a Greenbelt prioritization plan and work with surrounding jurisdictions to preserve more green spaces, particularly along the Urban Growth Boundary.	TYPE OF RESILIENCE/EQUITY S, C, E, F	
	OTHER PLANS, STUDIES, REPORTS TOS, LWA, DD, CAP, SLR	
Support land conservation around the edges of the Urban Growth Boundary, specifically along the Brownswood Road corridor and south of Cane Slash and Plow Ground Roads on Johns Island; along southern parts of Folly Road on James Island; and areas adjacent to the UGB in West Ashley and the Wando area on the Cainhoy Peninsula.	TYPE OF RESILIENCE/EQUITY E, C	
	OTHER PLANS, STUDIES, REPORTS TOS, LWA, DD, CAP, SLR	
Continue to provide and expand the parks system to include large and small parks and Promote equitable access and safe alternative connectivity to green spaces and water around the City.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C	
	OTHER PLANS, STUDIES, REPORTS TOS, CAP, HIAP	
Dedicate staff and resources to support collaboration between Stormwater Management, Parks and Planning to oversee preservation, creation and maintenance of green infrastructure.	TYPE OF RESILIENCE/EQUITY E, C, F	
	OTHER PLANS, STUDIES, REPORTS TOS, LWA, DD, SLR	
Increase incentives and educational opportunities for residents to increase and maintain green infrastructure on their properties.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C, F	
	OTHER PLANS, STUDIES, REPORTS TOS, LWA, DD, CAP, HIAP	

NATURAL RESOURCES (CONT.)	
Implement recommendations of the Trees to Offset Stormwater study including updating the City's Tree Protection Ordinance to preserve clusters of trees during the development process, track and increase tree canopy percentages around the city, and prioritize underserved areas or areas with aging inventory for tree planting.	TYPE OF RESILIENCE/EQUITY EQ, S, E, C, F
	OTHER PLANS, STUDIES, REPORTS TOS, LWA, DD, CAP, HIAP
Continue to promote planning and zoning policies that align with the "living with water approach" outlined in the Dutch Dialogues Charleston study, including encouraging the use of green infrastructure in landscaping practices and stormwater management. Green infrastructure includes features such as such as bio-swales, porous pavements, raingardens, wetland buffers and other practices that leave existing natural features and ecosystems undisturbed.	TYPE OF RESILIENCE/EQUITY S, E, C, F
	OTHER PLANS, STUDIES, REPORTS TOS, LWA, DD, CAP, SLR
Ensure land development regulations adequately protect the city's farms, prime soils for farming, natural resources and rural areas.	TYPE OF RESILIENCE/EQUITY S
	OTHER PLANS, STUDIES, REPORTS HIAP
Create incentives for the use of conservation easements, including developing a toolkit for green space preservation.	TYPE OF RESILIENCE/EQUITY S, E, C, F
	OTHER PLANS, STUDIES, REPORTS TOS, LWA, DD, CAP, VRA
Implement land use and transportation planning strategies to account for marsh and wetland migration due to sea level rise; including vegetated buffers to allow space for the marsh or wetland to migrate and restricting development and roadways in tidal flood risk zones.	TYPE OF RESILIENCE/EQUITY E, C, F
	OTHER PLANS, STUDIES, REPORTS TOS, LWA, DD, CAP, SLR
RESILIENCE / EQUITY	
Work with other city departments to implement the recommendations in the All Hazards and Vulnerability Risk Assessment, Sea Level Rise Strategy, Climate Action Plan, Trees to Offset Stormwater and Dutch Dialogues Charleston.	OTHER PLANS, STUDIES, REPORTS
Update the Downtown Plan to fully implement recommendations from various plans and studies that address flood protection, new development and redevelopment, and tourism management.	OTHER PLANS, STUDIES, REPORTS DD, LWA, SLR
Expand incentives for sustainable construction and renewable energy via the zoning code, such as building certification programs like Charleston RISES.	TYPE OF RESILIENCE/EQUITY F, C, E
	OTHER PLANS, STUDIES, REPORTS CAP
Collaborate with regional and state partners to increase preservation and restoration of saltwater ecosystems like our marshes and wetlands as these are key carbon sequestering assets	TYPE OF RESILIENCE/EQUITY F, C, E
	OTHER PLANS, STUDIES, REPORTS CAP, DD, LWA, SLR

RESILIENCE AND EQUITY

ALL CITY PLAN RECOMMENDATIONS THAT ADVANCE RESILIENCE AND EQUITY BY ELEMENT (CONT.)		
Other Plans, Studies, Reports Key		Type of Resilience/Equity Key
CAP <i>Climate Action Plan</i>	DD <i>Dutch Dialogues</i>	EQ <i>Equity</i>
SLR <i>Sea Level Rise Strategy</i>	LWA <i>Land and Water Analysis</i>	S <i>Social Resilience</i>
VRA <i>All Hazards Vulnerability and Risk Assessment</i>	HIAP <i>Health in All Policies</i>	E <i>Ecological Resilience</i>
CTP <i>Citywide Transportation Plan</i>		C <i>Climate Resilience</i>
		F <i>Flooding Resilience</i>
RESILIENCE/EQUITY (CONT.)		
Create design guidelines for renewable energy standards in the historic district, with measures in place to prevent placing additional burdens on lower-income households.	TYPE OF RESILIENCE/EQUITY S, C, E, EQ	
	OTHER PLANS, STUDIES, REPORTS CAP	
Reduce emissions to 50% below 2018 levels by 2030 to mitigate the city's impact on climate change.	TYPE OF RESILIENCE/EQUITY C	
	OTHER PLANS, STUDIES, REPORTS CAP	
Reduce emissions to net zero by 2050.	TYPE OF RESILIENCE/EQUITY C	
	OTHER PLANS, STUDIES, REPORTS CAP	
Work with other City departments to implement recommendations from the Special Commission on Equity, Inclusion and Racial Conciliation, when finalized.	TYPE OF RESILIENCE/EQUITY EQ, S	
	OTHER PLANS, STUDIES, REPORTS	
Develop and fund program to address lack of access to Federal Emergency Management Agency (FEMA) and other disaster assistance aid for lower income households and heirs properties.	TYPE OF RESILIENCE/EQUITY EQ, E, C, F	
	OTHER PLANS, STUDIES, REPORTS SLR	
Create more incentives that empower individual property owners and small-scale developers to play a more prominent role in efforts to increase resiliency and affordability in the Charleston area.	TYPE OF RESILIENCE/EQUITY EQ, E, C, F	
	OTHER PLANS, STUDIES, REPORTS	
Continue to study the effects of extreme heat and pursue policies that protect people in all areas of the city from extreme heat, especially lower income and elder community members who may have more limited ability to adapt.	TYPE OF RESILIENCE/EQUITY EQ, S, C	
	OTHER PLANS, STUDIES, REPORTS HIAP	

RESILIENCE/EQUITY (CONT.)	
Continue to promote urban agriculture and community gardens, especially in areas qualifying as food deserts.	TYPE OF RESILIENCE/EQUITY S, C, E, EQ
	OTHER PLANS, STUDIES, REPORTS HIAP
TRANSPORTATION	
Continue to implement recommendations from the Citywide Transportation Plan.	TYPE OF RESILIENCE/EQUITY EQ, S, C, F
	OTHER PLANS, STUDIES, REPORTS CTP, HIAP
Work with BCDCOG and neighboring jurisdictions to advance existing plans to provide water taxi/high-speed ferry systems as a public transit option.	TYPE OF RESILIENCE/EQUITY EQ, S, C, F
	OTHER PLANS, STUDIES, REPORTS CTP, HIAP
Advocate for strategies to improve flow and safety of traffic in heavily congested roadways (such as Highway 61 in West Ashley), including the installation of advanced traffic control devices and other methods that can fit within existing rights-of-way, and that prioritize walkability and preservation of natural and cultural resources.	TYPE OF RESILIENCE/EQUITY S, E
	OTHER PLANS, STUDIES, REPORTS CTP
Work to improve access and comfort of the CARTA stations in the City of Charleston through connections with neighborhoods and expanding the street furniture and other amenities provided at stops.	TYPE OF RESILIENCE/EQUITY EQ, S
	OTHER PLANS, STUDIES, REPORTS CTP, HIAP
Promote policies and creative incentives to encourage wider, multi-use paths where new pathways are being considered, or widening when feasible for existing pathways; and promote design guidelines that adhere to best practices in bike and pedestrian safety (i.e. separation from vehicular traffic and dedicated lanes for cyclists and pedestrians when feasible).	TYPE OF RESILIENCE/EQUITY S
	OTHER PLANS, STUDIES, REPORTS CTP, HIAP
Connect more schools and job centers to neighborhoods with pedestrian pathways and multi-use pathways; and expand opportunities for bike share systems.	TYPE OF RESILIENCE/EQUITY S, C, E
	OTHER PLANS, STUDIES, REPORTS CTP, CAP, HIAP
Create a permanent funding stream for construction and maintenance of sidewalks and other pedestrian and cyclist infrastructure citywide	TYPE OF RESILIENCE/EQUITY S, C, E
	OTHER PLANS, STUDIES, REPORTS CTP, CAP, HIAP
Work with CARTA to support increased ridership and consequently improved transit options, including encouraging employer-sponsored transit programs and increased mobility options for seniors and individuals with disabilities	TYPE OF RESILIENCE/EQUITY EQ, S, E, C
	OTHER PLANS, STUDIES, REPORTS CTP, CAP, HIAP

TRANSPORTATION (CONT.)	
Continue to promote complete streets in new or redesigned roadways, providing for safe and alternative means of transportation; especially in areas designated as Neighborhood Edge.	TYPE OF RESILIENCE/EQUITY EQ, S, C
	OTHER PLANS, STUDIES, REPORTS CTP, CAP, HIAP
Advocate for additional rapid transit routes along Sam Rittenberg Corridor, Savannah Highway, Glenn McConnell Parkway, Folly Road, and Clements Ferry Road.	TYPE OF RESILIENCE/EQUITY S, E, C
	OTHER PLANS, STUDIES, REPORTS CTP, CAP, HIAP
Coordinate with Charleston County, Berkeley County and the SC Department of Transportation to retrofit existing and design new public rights-of-ways to increase mobility during flooding events and maximize opportunities to intercept, infiltrate, store and drain water.	
	OTHER PLANS, STUDIES, REPORTS CTP, DD, LWA
Expand publicly accessible electric vehicle (EV) charging infrastructure, especially at ride share, mobility hubs, on-street peninsula access and City parking facilities and explore the creation of requirements for EV charging infrastructure in new development.	
	OTHER PLANS, STUDIES, REPORTS CTP, CAP, HIAP

GLOSSARY OF KEY TERMS

Words can often have multiple meanings and planning language can be full of confusing jargon. Key terms defined throughout the plan and in the City Plan Glossary are intended to bring clarity and inform readers of the specific definition being used in the context of the City Plan. The sources for the key terms are cited at the end of the glossary. If they are not sourced, the definition was created by City staff or adapted from a dictionary definition.

100 YEAR FLOODPLAIN refers to areas with a 1% or greater chance of shallow flooding each year, with an average depth ranging from 1 to 3 feet.ⁱ

AFFORDABILITY GAP refers to the total deficit of housing stock that is affordable to households earning within a specific income range.

AFFORDABLE HOUSING is used in a variety of contexts with various definitions. Affordability is a relative term dependent on income. For the purposes of this analysis, the blanket term “affordable housing” refers to all housing affordable (priced at or under 30% pre-tax household income) to households making from 0% to 120% of the Area Median Income. This includes housing across the spectrum of affordability, from low-income to workforce housing.

AREA MEDIAN INCOME is the number determined by the U.S. Department of Housing and Urban Development (HUD) that represents the median household income for a specific region. The City Plan will use the AMI for the Greater Charleston Region because HUD does not provide an AMI for the City of Charleston itself. That figure is \$81,000 per year for a family of four.

BIORETENTION BASINS, BIOSWALES AND RAIN GARDENS are planted depressions of varying sizes and degrees designed to retain or detain stormwater before it is infiltrated or discharged downstream.

CAPITAL IMPROVEMENTS include construction of new City facilities or infrastructure; or updates to existing City facilities or infrastructure.

CARBON FOOTPRINT refers to the amount of carbon dioxide and other carbon compounds that a particular person or group emits due to consumption of fossil fuels.

CLIMATE CHANGE refers to the changes in climate patterns that are primarily attributed to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.

CLIMATE GENTRIFICATION is a relatively new term that has emerged as climate change has begun to have impacts on the real estate market. It describes the process of wealthier, often whiter populations moving to areas less exposed to the effects of climate change that were previously occupied by lower-income residents and communities of color, thus exacerbating displacement and disparities.ⁱⁱ

COMMUNITY ENGAGEMENT (also known as Civic Engagement) is the collaboration between the city and its community members around specific opportunities to shape policies, plans and programs.

COMMUNITY FACILITIES are facilities and infrastructure that provide for the health and recreational needs of a community's residents.

COMMUNITY INTEGRATION is when systems and processes support regular opportunities for feedback and ongoing partnership between city staff, city leadership and community in the creation of policies, plans and programs.

COMMUNITY MEMBERS refers to all individuals that are a part of the greater Charleston community, including areas outside of the plan area, whether that be as a permanent resident, a business or property owner, student or visitor.

COMPATIBLE USES are uses that are complimentary to each other when in close proximity, as opposed to incompatible uses which present environmental or other problems such as noise, odor, safety and pollution.

COMPLETE STREETS provide supports and amenities for all modes of transportation, including walking, cycling, and vehicles. They are designed to be public spaces that meet mobility needs and promote equitable access.

CONNECTIVITY refers to street connections that provide travelers, whether by car, bicycle or by foot, safe and efficient opportunities for trip-making by multiple options.

CONSERVATION DESIGN refers to innovative site planning techniques that restrict buildings, structures, and impervious surfaces within specific areas of a development to preserve the most valuable natural features of a site and increase the amount of common open space.

COST OF LIVING includes the amount of money a household needs to cover basic expenses such as housing, utilities, transportation, healthcare, food and other necessities.

COST-BURDENED HOUSEHOLDS are households that spend more than 30% of their annual gross income on housing costs.

DEED-RESTRICTED in this context means that the housing costs are subsidized through federal, state, and/or local (private or public) funding sources and residents must meet income eligibility requirements to purchase or rent.

DEMOGRAPHICS refers to the socioeconomic profile of a population according to factors such as employment, education, income, race, ethnicity, age, gender, household size and more.

DENSITY (POPULATION DENSITY) is an indicator of how crowded, or spread-out, a population is. In land use planning the most common expression is the number of dwelling units per acre (ex. 1.5 du/ac is a low density area and 26.4 du/ac is a high density area).

DISPARITY is a difference in area of life (such as education, wealth, home and business ownership, education and health) that results in one group having a disproportionate burden of negative life outcomes.

DISPLACEMENT is when long-term residents are no longer able to stay in their communities because of rising housing costs, disasters and/or other factors.

DIVERSITY refers to psychological, physical, and social differences that occur among any and all individuals; including but not limited to race, ethnicity, nationality, religion, socioeconomic status, education, marital status, language, age, gender, sexual orientation, mental or physical ability and learning styles.ⁱⁱⁱ

DWELLING UNIT is a legal term often used in land use to describe any room or group of rooms located within a structure and forming a single habitable unit with facilities that are used, or are intended to be used, for living, sleeping, cooking and eating.

ECONOMIC EQUITY or inclusive growth, is the full inclusion of all groups in an area's economic growth and prosperity, regardless of socioeconomic status; which requires addressing economic injustices at the root causes and creating opportunities for all.

ECOSYSTEM refers to the interrelationships and interaction among plants, animals and other organisms, as well as weather and landscape within a particular geographic area.

ENVIRONMENTAL JUSTICE is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.^{iv}

ENVIRONMENTAL JUSTICE COMMUNITIES are defined by the US Environmental Protection Agency (EPA) as communities with disproportionate exposure to environmental hazards and increased vulnerability to said hazards.

EQUITABLE ACCESS means that public spaces and amenities, and opportunities for participation, are designed in such a way that responds to the needs of all community members and ensures fair access regardless of race or socioeconomic status.

EQUITY (VS. EQUALITY) involves understanding and giving people what they need to enjoy full, healthy lives. Equality, in contrast, aims to ensure that everyone gets the same things in order to enjoy full, healthy lives. The principle of equity acknowledges that there are historically underserved and underrepresented populations, and that fairness regarding these unbalanced conditions is needed to assist equality in the provision of effective opportunities to all groups.^v

EQUITY LENS is the process of paying disciplined attention to race, ethnicity and other socioeconomic characteristics that are predictors of disparate outcomes, while analyzing problems, looking for solutions, and defining success. Application of an equity lens illuminates disparate outcomes,

patterns of disadvantages and root causes.^{vi}

EXCLUSIONARY ZONING includes zoning regulations that prevent the location of housing that is affordable to lower- and moderate-income communities out of certain neighborhoods through land use and building code requirements. Though exclusionary zoning is almost never explicitly discriminatory, it results in the perpetuation of racial and socioeconomic segregation.

FAMILY refers to the householder and all (one or more) other people living in the same household who are related to the householder by blood, marriage, or adoption (according to the US Census Bureau).

FOOD DESERTS are defined by the US Department of Agriculture (USDA) as areas in which a substantial number or share of residents have low levels of access to retail outlets selling healthy and affordable foods.

FUTURE LAND USE MAP is a major component of the City Plan which brings together various aspects of the plan into a visual guide for land use and development in the city. The map is an articulation of the community’s vision of how the city develops, where it is appropriate to expand, where we should scale back and, while not a zoning map, it helps the community make land use and growth management decisions now and into the future. Intended as a general guide rather than a regulatory tool, the map is not parcel-specific and boundaries not exact.

GENTRIFICATION was defined as “the loss of neighborhood diversity through the displacement and exclusion of schools, churches, affordable housing and traditional neighborhood-based businesses” in the 2001 City of Charleston Gentrification Task Force Report to City Council.^{vii} The Avery Institute defines gentrification as “the process of dismantling existing urban neighborhoods and displacing poor people

of color to make way for new residents who are mostly white and wealthier.”^{viii}

GREENHOUSE GAS EMISSIONS refers to the production of any gaseous compound that traps and holds heat in the atmosphere, or creates the “greenhouse effect.”

GREEN INFRASTRUCTURE is defined in the City of Charleston Zoning Ordinance as an adaptable term used to describe an array of materials, technologies, and practices that use natural systems or engineered systems that mimic natural processes to enhance overall environmental quality and provide utility services. As a general principal, green infrastructure techniques use soils and vegetation to infiltrate, evapotranspire, and/or recycle stormwater runoff.

GREEN SPACE is an area of grass, trees, or other vegetation set apart for recreational or aesthetic purposes in an otherwise urban environment.

GULLAH GEECHEE people are descendants of Africans who were enslaved on the rice, indigo and Sea Island cotton plantations of the lower Atlantic coast. The nature of their enslavement on isolated island and coastal plantations created a unique culture with deep African retentions that are clearly visible in the Gullah Geechee people’s distinctive arts, crafts, foodways, music, and language.^{ix} Many Gullah Geechee people of the Lowcountry also maintain that some ancestors of Gullah Geechee people arrived prior to European colonists and were never enslaved.^x

HAZMAT is the abbreviation for hazardous materials, which is defined by the National Oceanic and Atmospheric Administration (NOAA) as the substances that pose a reasonable risk to health, property or the

environment such as toxic chemicals, fuels, nuclear waste products, and biological, chemical and radiological agents.

HEIRS PROPERTY refers to land that has been passed down without a will and is still titled in the name of someone who died more than ten years ago. Owning land “in common” – as heirs – is unstable and puts family land at high risk for loss. Also, owners of heirs property cannot obtain a mortgage or loan or qualify for assistance programs to renovate homes, recover after disasters or improve the family land.^{xi}

HISTORICALLY UNDERREPRESENTED refers to when a group has been inadequately represented in important research, as well as in planning and policy decisions, as a result of historical institutional discrimination and other factors that have denied or limited access to those groups.

HOUSEHOLD refers to all of the people who occupy the same housing unit. This includes families with children, married and unmarried couples, roommates living together, or individuals living alone.

HOUSEHOLD INCOME is the combined gross cash income of all members of a household, defined as a group of people living together, who are 15 years or older.

HOUSING UNIT means a house, apartment, group of rooms, or a single room intended for occupancy as separate living quarters.

IMPERVIOUS SURFACE in the City of Charleston Zoning Ordinance is defined as a surface which is compacted or covered with material that is resistant to infiltration by water, including, but not limited to, most conventional surfaced streets, roofs, sidewalks, parking lots, and other similar structures.

INCLUSIVE OUTREACH AND PUBLIC ENGAGEMENT is when outreach and engagement processes are inclusive of people of diverse races, cultures, gender identities, sexual orientations and socioeconomic status.^{xiii}

INDIGENOUS PEOPLES refers to those peoples with pre-existing sovereignty who were living together as a community prior to contact with settler populations.^{xiii}

INFILL DEVELOPMENT refers to the development of vacant or under-developed parcels within existing urban and suburban areas that are already largely developed.

INFRASTRUCTURE describes the basic physical structures and systems that support the basic needs of a community, such as transportation systems, communication networks, sewage, water and electric.

JOB CENTERS are areas that are primarily commercial, with a specific focus on industries that generate a wide variety of jobs, such as manufacturing, warehousing, office, and some commercial. Job centers can also serve as incubators for small and entrepreneurial businesses.

LAND USE is the term used to describe the human use of land. It represents the economic and cultural activities (e.g. agricultural, residential, industrial, recreational, etc.) that are practiced at a given place.^{xiv}

LAST MILE refers not to a specific distance, but the connection between a transportation hub and the traveler’s ultimate destination (and vice versa).

LGBTQIA stands for Lesbian, Gay, Bisexual, Transgender, Queer, Intersex and Asexual and is often used as an umbrella term to refer to the community of individuals identifying with one or more of

these adjectives/experiences.

LISTENING SESSION refers to a meeting with community members where there is minimal communication from city staff or other leadership and where the primary goal is for participants to have an opportunity to share their stories and be heard.

LIVING WAGE is the hourly rate that an individual in a household must earn to support his/her/theirself and their family, assuming the sole provider is working full-time (2,080 hours per year).

MARSH MIGRATION is when the existing marsh gradually shifts inland onto previously dry land as a result of sea level rise.

MEANINGFUL INVOLVEMENT is when:
1) potentially affected community residents and communities most affected by inequities have appropriate and culturally responsive opportunities to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public’s contribution can influence the agency’s or jurisdiction’s decision; (3) the concerns of all participants involved will be considered in the decision-making process (and measures will be taken to document how they were or were not considered).^{xv}

MEDIAN HOUSEHOLD INCOME is the household income for the median or middle-household in a region. If you were to line up each household in the area in order from lowest to highest income, the household in the middle of the line would be the median household. The amount of money that household earns would be the median household income.

MEDIAN WAGE is the middle wage (what someone is paid for work) in a region, based on annual wage reports. If you were to line up each wage earned in order from lowest to highest, the wage amount in the middle of the line would be the median wage.

MIGRATION is when an individual or household move their place of residence from one area to another.

“MISSING MIDDLE” HOUSING refers to the various housing options between the two extremes of single-family (detached) housing and mid-rise apartments, including housing such as duplexes, triplexes, condominiums and townhomes – how Americans used to build and live before the automobile and other financing structures favored constant construction and suburban sprawl.

MITIGATION is the action of reducing the severity, seriousness or painfulness of something; to reduce its effects.

MIXED-USE CENTERS is an area where there is a mix of residential and commercial uses, and sometimes cultural, institutional and entertainment uses as well.

MOBILITY is defined as the potential for movement and the ability to get from one place to another using one or more modes of transport to meet daily needs.

MULTI-MODAL refers to having access to multiple ways (modes) to move around an area – including by personal vehicle, bike, transit, walking and other modes.

NATURALLY OCCURRING AFFORDABLE HOUSING (NOAH) refers to housing that is affordable without a subsidy to households earning up to 120% of the AMI.

NET ZERO refers to achieving an overall balance between emissions produced and emissions taken out of the atmosphere.

NON-BINARY in the context of this text is referring to all other gender identities not included in the Census-provided gender categories of male and female.

PARTICIPATION is the act of joining or taking part in an event or activity.

PRIORITY INVESTMENT informs funding for facilities and infrastructure to meet the city’s existing needs and future demands.

PUBLIC RIGHT-OF-WAY (ROW) refers to the area on, below or above a public roadway, bicycle lane, sidewalk or other structure that is set aside expressly for the provision and maintenance of transportation infrastructure.

RACIAL EQUITY is the condition where one’s race identity has no influence on how one fares in society. Race equity is one part of race justice and must be addressed at the root causes and not just the manifestations. This includes the elimination of policies, practices, attitudes, and cultural messages that reinforce differential outcomes by race.^{xvi}

RECONSTRUCTION refers to the period after the Civil War, 1865-1877, during which formerly enslaved African-Americans made considerable economic and political gains. It ended after years of political unrest and voter intimidation spearheaded by the Ku Klux Klan restored political power to a white supremacist political majority in Southern States.^{xvii}

REDLINING refers to the practice by the Federal Housing Administration in the 1930’s which refused to insure mortgages in and

near African-American neighborhoods, while at the same time subsidizing construction of subdivisions with racial covenants that excluded any non-white household.^{xviii}

RENEWABLE ENERGY is energy created from source that is not depleted when used, such as wind or solar power.

RESIDENT refers to any individual who resides in the plan area, including those who are currently unhoused.

RESILIENCE can be defined as the ability for a community to overcome challenges confronting it and to survive through periods of hardship.^{xix}

SEA LEVEL RISE is an increase in the level of the world’s oceans due to effects of global warming.

SETTLEMENT COMMUNITIES were established during the Reconstruction years (1865-1877) and through the early 20th Century by freed Gullah Geechee people and their descendants, defined by their ancestral connections to the land and their shared history, identity, and cultural institutions such as schools, churches, and businesses.

SOCIOECONOMIC refers to the social class of an individual or group based on a combination of education, income and occupation.

STAKEHOLDERS includes all individuals or organizations that have an interest or concern in decisions being made, including those that may not be a current resident.

STORM SURGE is the abnormal rise in seawater level caused solely by a storm’s winds pushing water onshore, measured as the height of the water above the normal predicted tide.

STORMWATER is water that accumulates as a result of rain or other precipitation and Runoff is created when stormwater flows over ground surfaces that do not allow the water to soak into the ground.

STREET TREES are trees that are planted within the public right of way.

SUSTAINABLE DEVELOPMENT is a concept that describes development that meets the needs of a community while simultaneously sustaining the natural resources and ecosystems on which the economy and society depend.

TIDAL FLOODING refers to flooding caused in low-lying areas as a result of the natural ebb and flow of tides. Tidal flooding can happen independently of rain or storm events.

TRADITIONAL BLOCK PATTERNS refers to the traditional (historic) patterns in which city blocks are shaped and arranged, including size, shape and surrounding street patterns.

TRANSIT-ORIENTED DEVELOPMENT is a style of development that emphasizes mass transportation as its main design feature. The developments tend to be higher intensity and density with lower personal vehicle parking counts. They are located along fixed mass transit routes such as bus rapid transit, rail lines, or water transit. Their size and types of uses can vary, though they usually focus on higher density living or high intensity of job center.

TRANSPARENCY is achieved when residents and other community members can access important information about how public business is being conducted and how public funds are being spent in a way that is readily available and easily understood.

TREE CANOPY COVER is defined by the US Department of Agriculture (USDA) as the layer of leaves, branches and stems that provide tree coverage of the ground when viewed from above.

URBAN AGRICULTURE includes production (beyond that which is strictly for home consumption or educational purposes), distribution and marketing of food and other products within the cores of metropolitan areas and at their edges.^{xx}

URBAN GROWTH BOUNDARY (UGB) is a boundary line that surrounds the City of Charleston, discouraging suburban or urban growth in rural areas outside the UGB.

VEGETATED BUFFERS are planted sections of land situated between development and area of protection.

WALKABILITY is a measure for how friendly an area is to walking. Factors influencing walkability can include sidewalks, traffic conditions and crosswalks, among others.

WATERSHED is a land area that channels rainfall to creeks, streams and rivers, and eventually to outflow points such as reservoirs, bays and the ocean.^{xi}

WETLANDS are classified by the U.S. Army Corps of Engineers as an area with hydrophytic (water-loving) plants, soils that support the growth of hydrophytic plants, and water (wetlands can sometimes be absent of standing water).

WETLAND BUFFER wetland buffer is a concentration of trees, shrubs, and other native plants and gradually sloping bank adjacent to a wetland.

ZONING refers to local government regulations that enforce standards for use and design of individual parcels.

ⁱ FEMA Flood Zone Designations. Federal Emergency Management Agency (FEMA). Accessed May 2021. https://efotg.sc.gov.usda.gov/references/public/NM/FEMA_FLD_HAZ_guide.pdf

ⁱⁱ Beeman, Anna. 2019. "Climate Gentrification and Resilience Planning: What is at stake for at-risk communities?" Vibrant Environment Blog, Environmental Law Institute, September 18. <https://www.eli.org/vibrant-environment-blog/climate-gentrification-and-resilience-planning-what-stake-risk-communities#:~:text=In%20some%20cases%2C%20such%20as,by%20lower%2Dincome%20residents%20and>

ⁱⁱⁱ College of Charleston Community Assistance Program. Racial Equity Framework Glossary.

^{iv} "Environmental Justice." EPA. May 03, 2021. Accessed May 12, 2021. <https://www.epa.gov/environmentaljustice>.

^v The Final Report of the Special Commission on Equity, Inclusion and Racial Conciliation and the "Racial Equity Framework Glossary" provided by the College of Charleston Community Assistance Program.

^{vi} Ibid.

^{vii} City of Charleston. 2001. "City of Charleston Gentrification Task Force Report to City Council." Charleston, SC.

^{viii} Patton, Stacey. 2017. The State of Racial Disparities in Charleston County, South Carolina, 2000-2015. Charleston, SC: Avery Research Center for African American History and Culture, The College of Charleston.

^{ix} "The Gullah Geechee People." Gullah Geechee Cultural Heritage Corridor Commission. Access May 2021. <https://gullah-geecheecorridor.org/thegullahgeechee/>

^x Interview with J. Martin-Carrington, Board Member of the Gullah Society.

^{xi} Adapted definition from the Center for Heirs Property.

^{xii} College of Charleston Community Assistance Program. Racial Equity Framework Glossary.

^{xiii} "Native American and Indigenous Peoples FAQs." UCLA Equity, Diversity and Inclusion. Accessed May 2021. <https://equity.ucla.edu/know/resources-on-native-american-and-indigenous-affairs/native-american-and-indigenous-peoples-faqs/#whoareind>

^{xiv} Land Use. US Environmental Protection Agency (EPA). Accessed May 2021. <https://www.epa.gov/report-environment/land-use>

^{xv} College of Charleston Community Assistance Program. Racial Equity Framework Glossary.

^{xvi} Definitions were either directly copied or incorporated language from the "Racial Equity Framework Glossary" provided by the College of Charleston Community Assistance Program.

^{xvii} Foner, E.. "Reconstruction." Encyclopedia Britannica, September 10, 2020. <https://www.britannica.com/event/Reconstruction-United-States-history>.

^{xviii} Silver, Christopher (1997). The Racial Origins of Zoning in American Cities. Thousand Oaks: Sage Publications. p. 23.

^{xix} Cox, R.W. and Miller, D.Y. 2014. Governing the metropolitan region: America's new frontier. New York: M.E. Sharpe.

^{xx} Adapted from the American Planning Association, 2011.

^{xxi} What is a watershed? National Oceanic and Atmospheric Administration (NOAA). Accessed May 2021. <https://oceanservice.noaa.gov/facts/watershed.html>