

# Resiliency and Sustainability Advisory Committee Meeting

Feb 17, 2022

# Welcome and Moment of Silence

By: Mayor John Tecklenburg, Chairman

# New Compost Program

By: Katie McKain,  
Director of Sustainability

**CLIMATE ACTION PLAN**  
AN EQUITABLE STRATEGY FOR A HEALTHIER FUTURE



*Charleston*  
SOUTH CAROLINA

MAY 2021

## Implementing a 5 year action plan to reduce carbon pollution

- Create a residential compost program

### Program Advances 3 Plan Goals

Decrease tons of food waste  
going to the landfill (20 tons)

---

# COMPOST YOUR FOOD SCRAPS! SIGN UP TODAY!

City of Charleston residents can take their food scraps to designated drop sites for composting. This service is **FREE**. Drop-off locations include:

- **Ackerman Park** (West Ashley)  
Including West Ashley Farmers Market
- **Corrine Jones Park** (Peninsula)
- **Medway Park** (James Island)

To sign up for the service and to see a list of items accepted, please visit [charleston-sc.gov/compost](http://charleston-sc.gov/compost).



**Pilot Project (grant)**  
Testing logistics for 6 months.

Should the project be successful, we could then seek funding to expand it and add more drop sites.

# COMPOSTING HOME FOOD SCRAPS: HOW TO PARTICIPATE

**1** **COLLECT** food scraps in a sealed container or store in a freezer.

**2** **TAKE** your food scraps to a nearby drop-off site.

**3** **RINSE** the container.  
Repeat!

For drop site locations and more information, visit [charleston-sc.gov/compost](http://charleston-sc.gov/compost).



Food Scrap Carts are serviced at least 2x/week

# Food Scrap Drop Off

Permanent signage will be installed once locations are tested and finalized. Seeking artistic ideas for carts.



# Signage and Locks Help Prevent Contamination



Contaminated food scrap carts must be landfilled.

Carts are locked.

Sign Up & Get Trained for Lock Code

# Giveaways

## To Help Folks Get Started

### Sample of Compostable Liner Bags (BPI Certified)



### Kitchen Compost Caddy (with sticker on it)



### Magnets and Stickers

**CHARLESTON COMPOSTS**

**ITEMS ACCEPTED**

- ✓ Fruits & Vegetables
- ✓ Bread, Dough, Bakery Items, Pasta & Grain
- ✓ Coffee Grounds & Tea Filters
- ✓ Compostable Liquids (e.g., water, juices in small amounts)
- ✓ Cooked Meats, Fish, Bones & Shells\*
- ✓ Dairy Products\* (e.g., milk, cheese, yogurt)
- ✓ Food-Soiled Paper (e.g., paper bags, paper towels, napkins, waxed cardboard boxes\*)
- ✓ Processed Foods (e.g., pizza, cereal, chips, crackers, cookies, cakes, plate scrapings)

**ITEMS NOT ACCEPTED**

- ✗ Raw Meat (e.g., beef, poultry, pork, seafood)
- ✗ Plastic Items (e.g., bags, dishes, utensils, cups, Styrofoam)
- ✗ Small Items (e.g., rubber bands, twist ties)
- ✗ Chemical Cleaners
- ✗ Non-Food Items (e.g., wood, metal, glass, ceramics, pet droppings, yard debris)
- ✗ Fats, Oils, Grease or Non-Compostable Liquids (e.g., vegetable oil, lard)

\* These items are accepted in this program, but ARE NOT RECOMMENDED for backyard composting.

To learn more, visit [charleston-sc.gov/compost](http://charleston-sc.gov/compost) or [scdhec.gov/compost](http://scdhec.gov/compost).

FUNDED BY dhec DON'T WASTE FOOD PREVENT. DONATE. COMPOST. CITY OF CHARLESTON

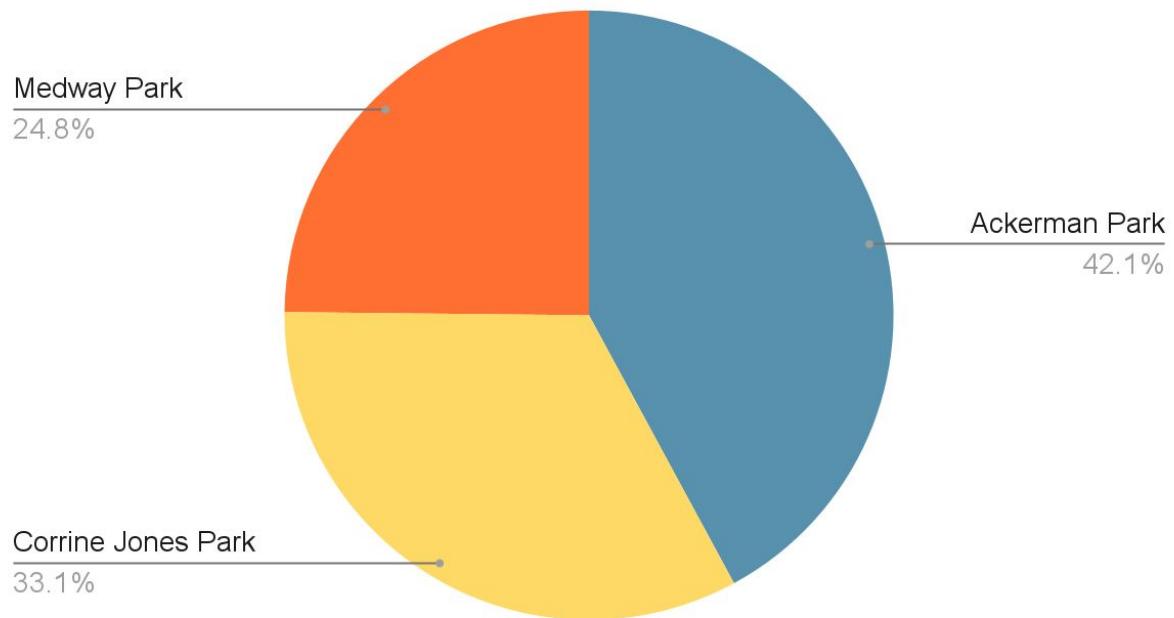


**CHARLESTON  
COMPOSTS**

[charleston-sc.gov/compost](http://charleston-sc.gov/compost)

# Data (as of Feb 16, 2022)

## Drop Site Usage



# Data (as of Feb 16, 2022)

- About 200 ppl attended compost workshop, +100 YouTube views
- **685 households** registered
- **Goal:** Divert 20 tons of food waste from the landfill.  
(Approx. 3.5 tons per month over 6 months)
  - Diverted about 2 tons in the last 3 weeks

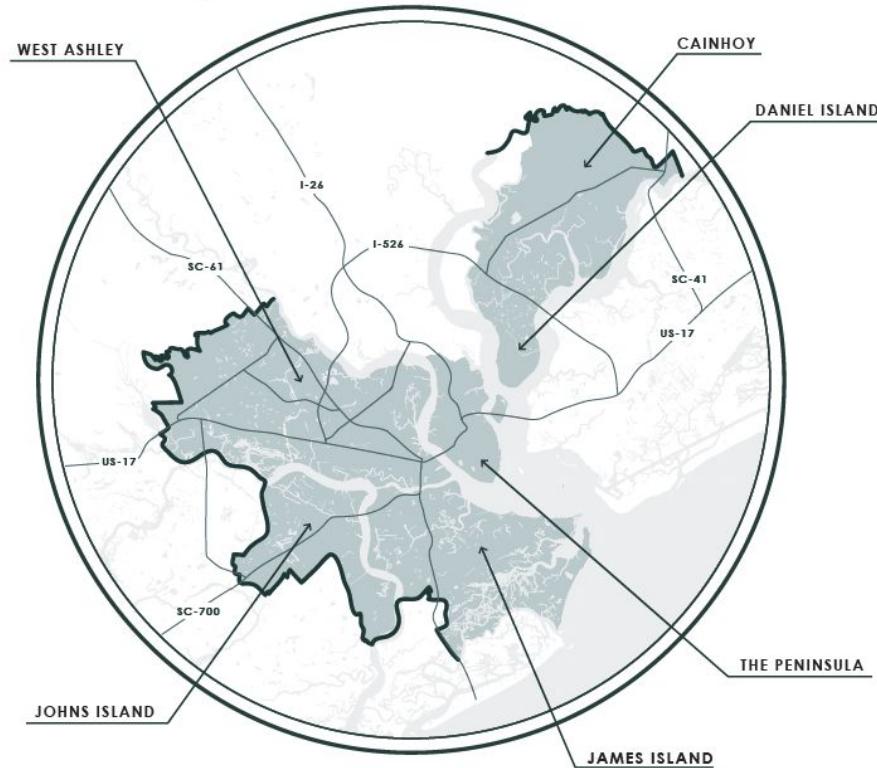


# Comprehensive Plan

By: Christopher Morgan,  
Planning Manager



# INTRODUCTION - P.14



## CHARLESTON CITY PLAN GUIDING PRINCIPLES



### WATER FIRST

*anchored in where water is and where water is going to be*



### DATA SMART

*using the best data available to understand the challenges facing the City*



### STRENGTH IN DIVERSITY

*oriented toward actions that protect our City's historic diversity*



### COMMUNITY EMPOWERED

*asking all members of the community to partner in the planning process*

These principles are exemplified by:

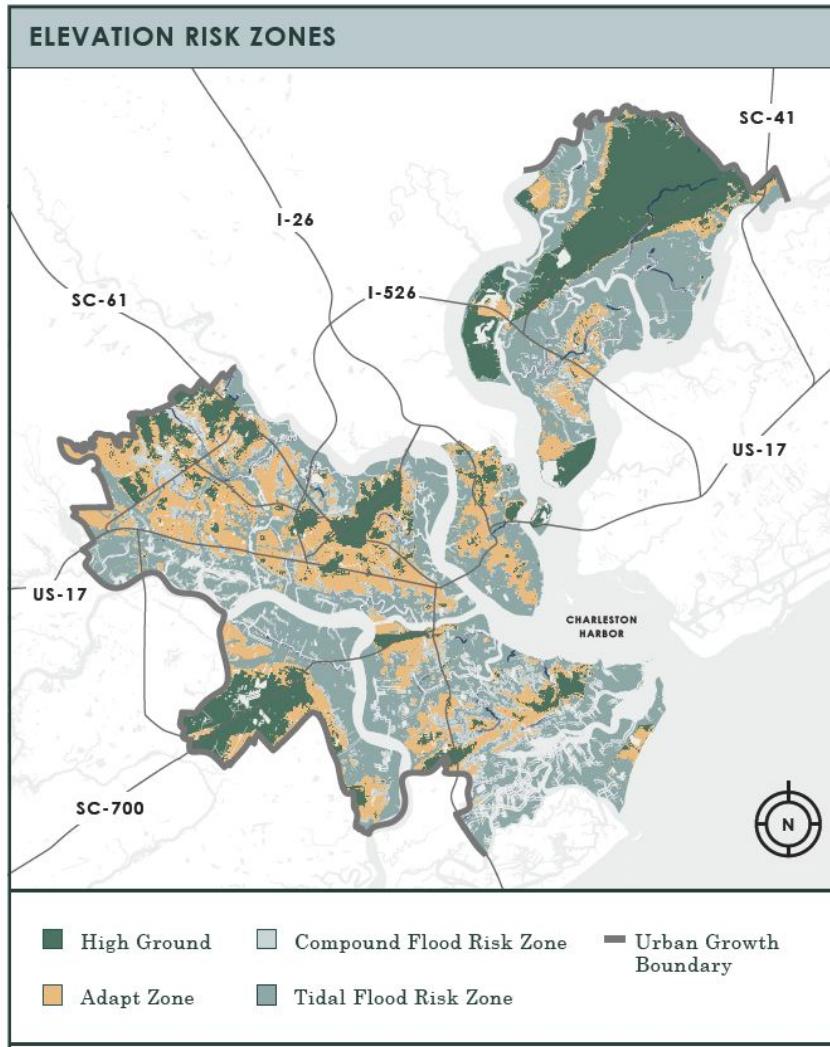
*The emphasis given to **flooding** and **housing** challenges and a **robust community engagement** campaign throughout the plan process.*

*The same team of consultants that produced the Dutch Dialogues Report were hired to complete a citywide **Land and Water Analysis** to guide how the city can better manage water and prepare for sea level rise.*

*Community Data Platforms was contracted to provide the **best data available on the city's housing stock** and highlight the areas of greatest need in terms of housing costs – one of the lead factors contributing to gentrification and displacement.*

*A third team of consultants assisted the staff team to facilitate the **most robust and inclusive community engagement campaign** than any previous comprehensive planning process.*

*Engagement activities included **community meetings specific to housing** and water to provide additional insight and potential strategies to address the city's greatest challenges.*



**HIGH GROUND** High ground is defined as land outside of the FEMA 100 year floodplain and above the NOAA max category 3 storm surge. High ground has the lowest flood risk and stormwater detention here has the greatest watershed benefit.

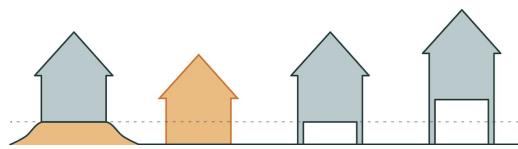
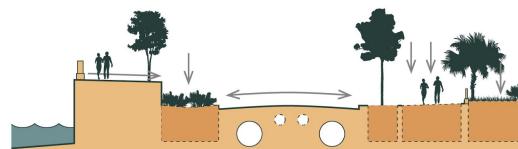
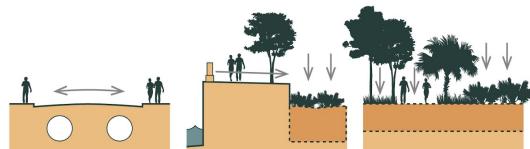
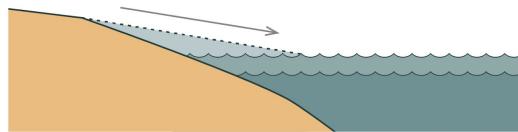
**ADAPT ZONE** The adapt zone consists of land outside of the FEMA 100 year floodplain that is still within the NOAA maximum storm surge of a category 3 hurricane. Rain and storm surge flooding in this zone is infrequent but not impossible.

**COMPOUND FLOOD RISK ZONE** This zone encompasses areas within the floodplain above the tidal flood risk zone where flood risk comes from a mixture of rainfall, runoff and tidal conditions.

**TIDAL FLOOD RISK ZONE** This zone encompasses the lowest land in Charleston. Nearly 100% of this zone is in the 100 year floodplain. Flooding is frequent and can come solely from tidal events independent of precipitation. Sea level rise driven marsh migration occurs in this dynamic zone.

## BEYOND ELEVATION

Though low-lying areas are certainly more vulnerable to tidal flooding and storm surge; other site-specific conditions can contribute to the intensity, frequency and impact of flooding.



### WATERSHED TYPES

determine how far water needs to travel to drain and how much tidal influence. The city is composed of 94 unique watersheds and 197 subwatersheds and each handles water differently.

### SOILS & VEGETATION

determine how well the landscape can absorb water.

### INFRASTRUCTURE

determines the capacity and efficiency of drainage systems and protective structures.

### VULNERABILITY

signifies the amount of buildings and structures in harm's way.

## SEA LEVEL RISE

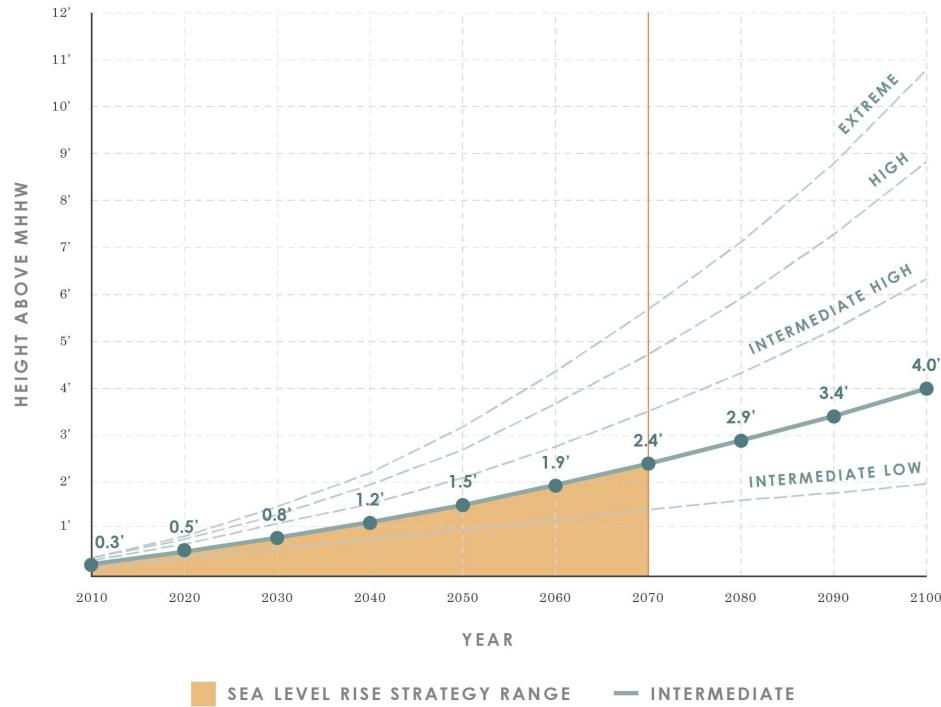
The timeline of this analysis is based on a 50-year (2020-2070) intermediate sea level rise scenario: **1.9 feet by 2070, and 3.6 inches in the next 10 years.**

A tide above 7 feet in Charleston causes tidal flooding. In this scenario, **7-foot tides will become the average daily high tide by 2040.**

## SEA LEVEL RISE SCENARIOS (NOAA)

Charleston, South Carolina

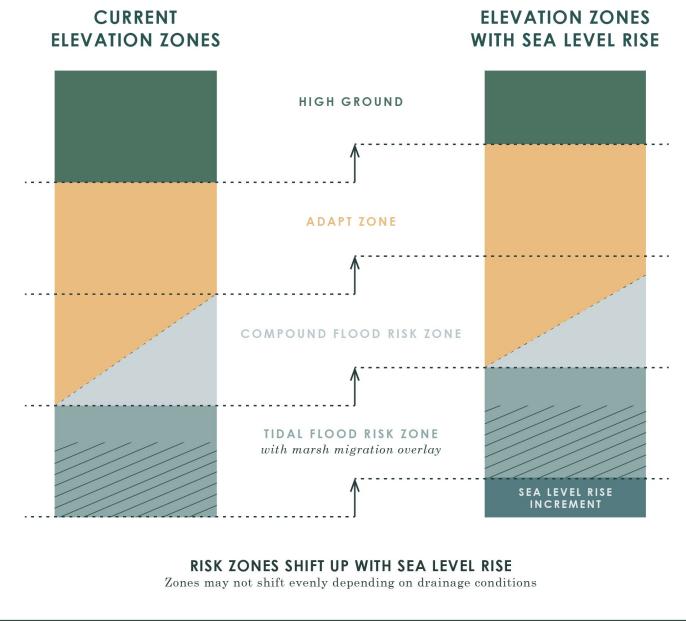
2010 - 2100



# SEA LEVEL RISE & MARSH MIGRATION

## ELEVATION ZONES & SEA LEVEL RISE

The elevation zones shift upwards with sea level rise. By defining risk in terms of elevation, risk mitigation strategies can be adapted to future sea level rise scenarios.



## MARSH MIGRATION: WHAT TO EXPECT

EXISTING MARSH



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

MARSH MIGRATION AND GROUNDWATER SURFACING



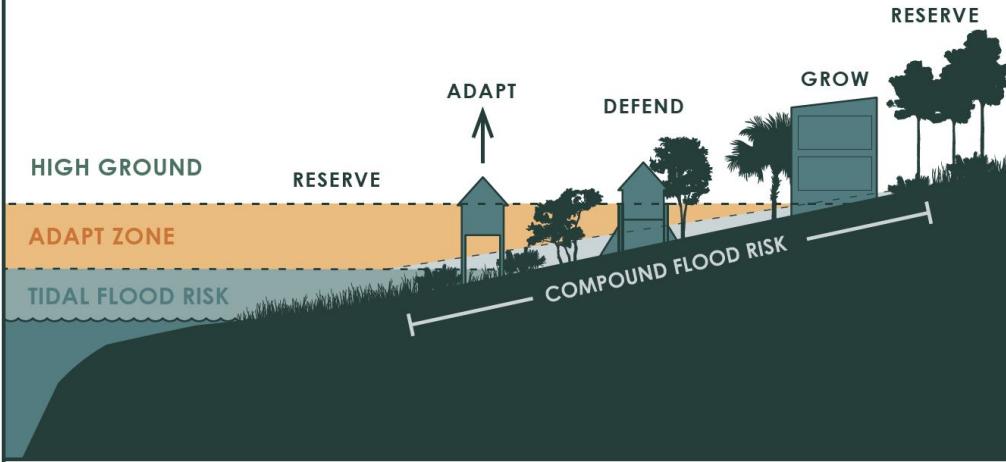
RESERVE strategies give marshes room to migrate.

SEA WALL AND MARSH EXTINCTION



DEFEND strategies can cut marshes off from the new wetland zone created by sea level rise.

## PLANNING STRATEGIES



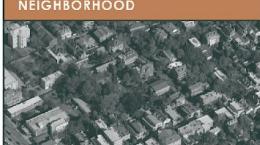
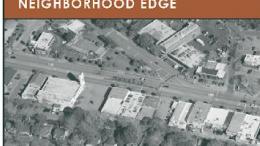
**ADAPT** Retrofit vulnerable existing infrastructure to be resilient to water risks. Raising structures reduces risk with limited to no increase in watershed sensitivity. However, adaptive capacity is limited by building typology.

**RESERVE** Restore and preserve natural ecosystems. Reserve is applicable to all zones and should factor future change. Ecosystems providing stormwater benefits and essential wildlife habitats exist throughout Charleston and should be preserved.

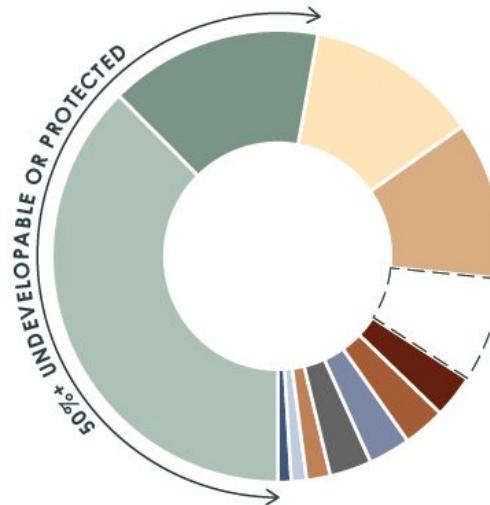
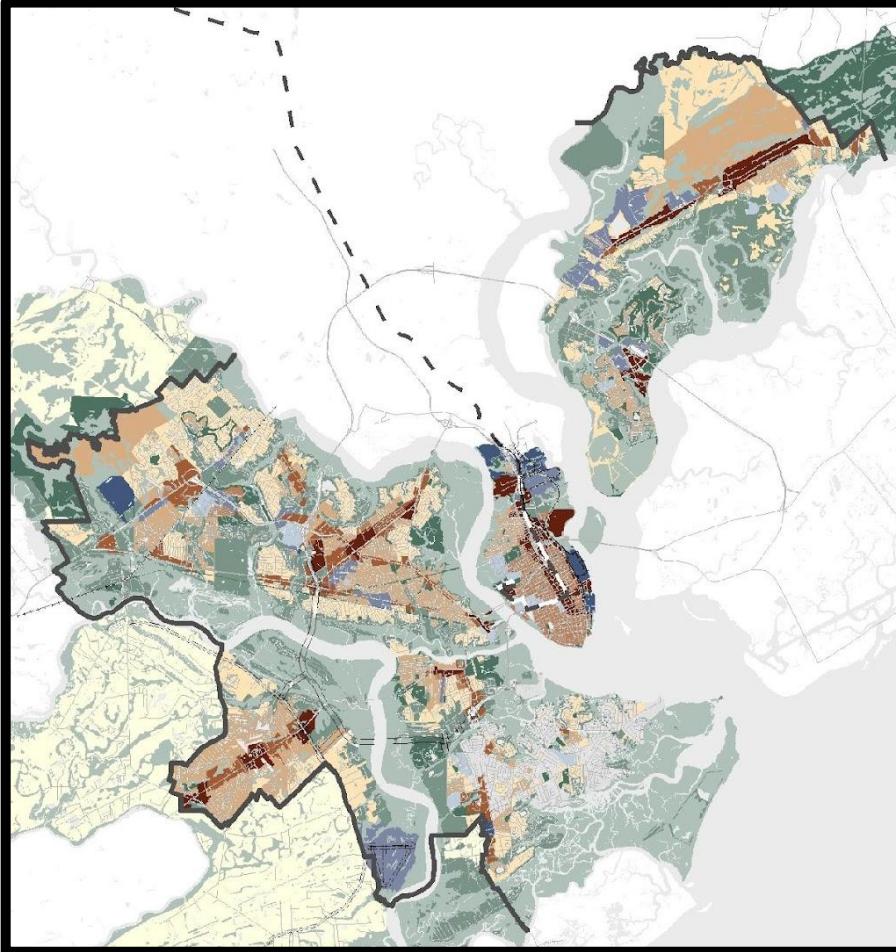
**GROW** Responsibly increase development and population density. Growth makes the most sense in areas with low sensitivity and low risk. Growth must occur in tandem with water management.

**DEFEND** Protect buildings and infrastructure with engineered measures such as berms, flood walls and pumps. Defensive measures should be reserved for areas with the highest risk and lowest sensitivity (e.g. where the displacement of floodwater will not exacerbate risk elsewhere).

# LAND USE - P.112

FUTURE LAND USE MATRIX	
<b>RURAL</b> 	Areas outside of the designated Urban Growth Boundary, where densities would not exceed one unit per acre, and in general would be much lower. Development in these areas include low density residential (less than 1 dwelling unit per acre), agricultural areas, forestry areas, and recreational areas. Blocks do not follow a pattern and lots vary widely in size.
<b>SUBURBAN EDGE</b> 	Generally suburban in character, but lower densities than typical suburban residential areas. Suburban Edge occurs mainly inside and next to the Urban Growth Boundary and often adjacent to neighborhoods in low-lying areas. Uses are almost exclusively residential and densities range from one to four dwelling units per acre (1 du/a to 4 du/a). Examples include: Sandhurst, Shadowmoss, and Stiles Point neighborhoods.
<b>SUBURBAN</b> 	Low intensity, suburban-style areas, adjacent to higher-intensity areas that include a mix of uses. Limited mixed-use occurs at key cross roads. Densities range from four to eight dwelling units per acre (4 du/a to 8 du/a). Examples include: Wagener Terrace, Riverland Terrace, Avondale, and St. Johns Woods neighborhoods.
<b>NEIGHBORHOOD</b> 	These areas include a mix of uses, but primarily residential areas with regular block patterns and a wide range of building types and setbacks. Often next to more urban areas, uses can include a variety of neighborhood compatible services and densities range from six to twelve dwelling units per acre (6 du/a to 12 du/a). Examples include: Ansonborough, and Hampton Park Terrace neighborhoods.
<b>NEIGHBORHOOD EDGE</b> 	These areas are found on the periphery of existing neighborhoods and future neighborhoods. Uses vary widely but are mainly those things that residents need such as offices, stores and restaurants that are typically found along roads and transit routes forming the edges of neighborhoods rather than the centers. While traditionally threaded along major roads, over time, these areas could transition to more urban compact design patterns and contain more residential uses, especially along major transit routes. Residential densities can range from 6-20 units per acre. Examples include: many portions of Folly Road and some portions of Savannah Highway, Sam Rittenberg Boulevard and Bees Ferry Road.
<b>CITY CENTERS</b> 	City Centers consist of the most dense and mixed-use portions of the city. The tallest buildings would occur here along with the most buildings of regional significance. Blocks may be smaller, streets have steady street tree planting, and buildings are set close to wide sidewalks. These areas occur on the highest ground elevations in the city allowing for best opportunities for new or infill development. Densities range from 10 dwelling units per acre and up. Development in City Centers is dependent on the surrounding context. Examples: The Central Business District of Charleston (portions of King, Calhoun, Meeting and East Bay Streets) and Daniel Island Town Center.
<b>CAMPUS</b> 	The Campus areas primarily encompass significant education, medical or office uses that do not conform to traditional urban block patterns. No residential uses occur here other than those associated with a school or large senior living campus. Examples include: College of Charleston, Charleston area high schools and the Peninsula medical district.
<b>JOB CENTER</b> 	The Job Center areas primarily contain light manufacturing, warehousing, office and some commercial uses that cannot conform to traditional urban block patterns. These areas serve as incubators for small and entrepreneurial businesses. Residential are very limited in order to help reserve these areas for business expansion and job generation. Examples include: areas along Clements Ferry Road, around the Dupont-Wappo area, the Fort Johnson research area, and around the Charleston Executive Airport on Johns Island.
<b>INDUSTRIAL</b> 	The Industrial areas primarily include more intensive manufacturing, warehousing and distribution uses involving heavy truck traffic and potential emissions not found with lighter manufacturing operations. Residential uses are not typically allowed in an effort to preserve these areas for job generation and reduce conflicts from industrial traffic, emissions, and noise. Examples include: the eastern side of the Charleston Neck area and the Columbus Street Terminal.
<b>PARK</b> 	Publicly or privately owned lands open to the general population for all types of recreational purposes, active or passive, or designated for future such uses.
<b>LOW IMPACT / CONSERVED</b> 	This designation encompasses two types of land area. 1) Low-elevation lands in potential tidal flood-risk areas and future marsh migration areas. Some of these areas may see limited development, but structures are likely to be elevated so as not to impair natural intertidal systems. Uses are limited and residential densities limited to less than one unit per acre. 2) Lands preserved via public ownership (not necessarily open to the general population) or private ownership with preservation or conservation easements that significantly restrict development.
<b>NATURAL / WETLAND</b> 	Marsh, wetlands, small water bodies or other lands that cannot be developed due to their geography or topography.

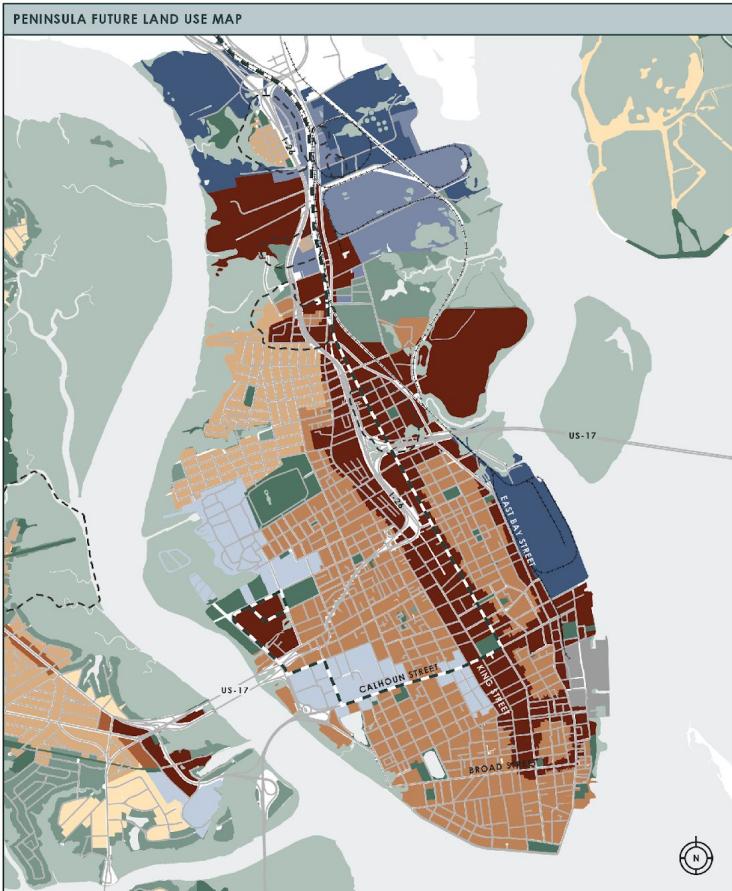
## CITYWIDE FUTURE LAND USE BY PERCENTAGE WITHIN THE UGB



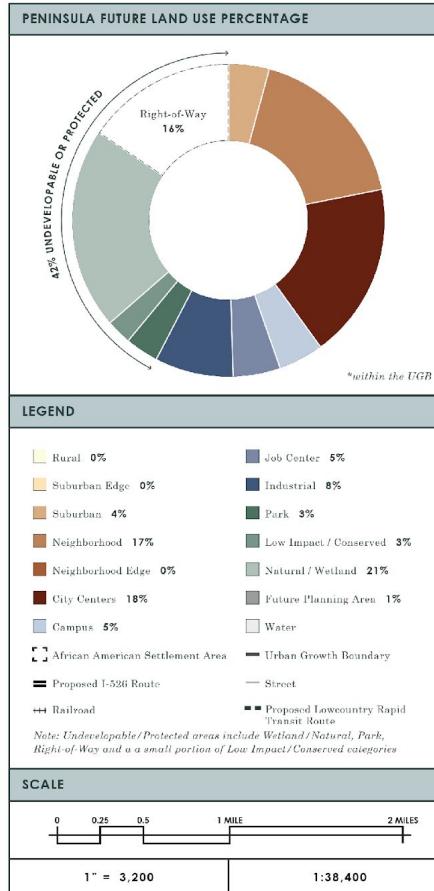
LAND USE	%	LAND USE	%
RURAL	0%	JOB CENTER	3%
SUBURBAN EDGE	12%	INDUSTRIAL	1%
SUBURBAN	11%	PARK	3%
NEIGHBORHOOD	2%	LOW IMPACT/CONSERVED	15%
NEIGHBORHOOD EDGE	3%	WETLAND/NATURAL	38%
CITY CENTERS	3%	RIGHT-OF-WAY	8%
CAMPUS	1%		

# LAND USE MAPS

## LAND USE



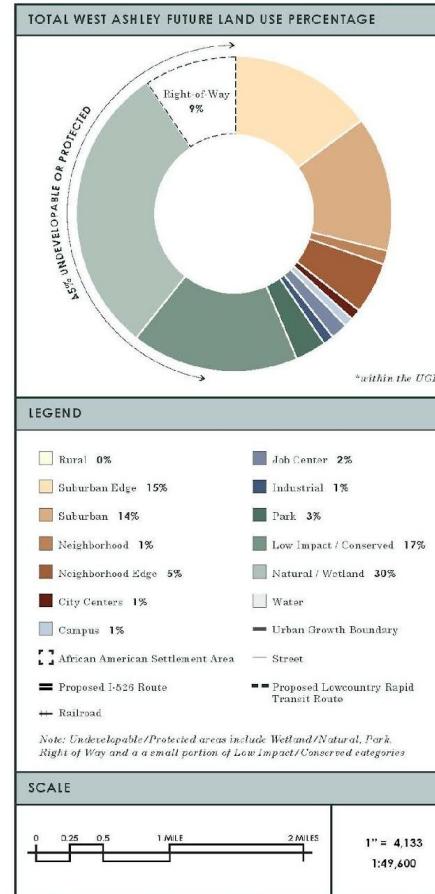
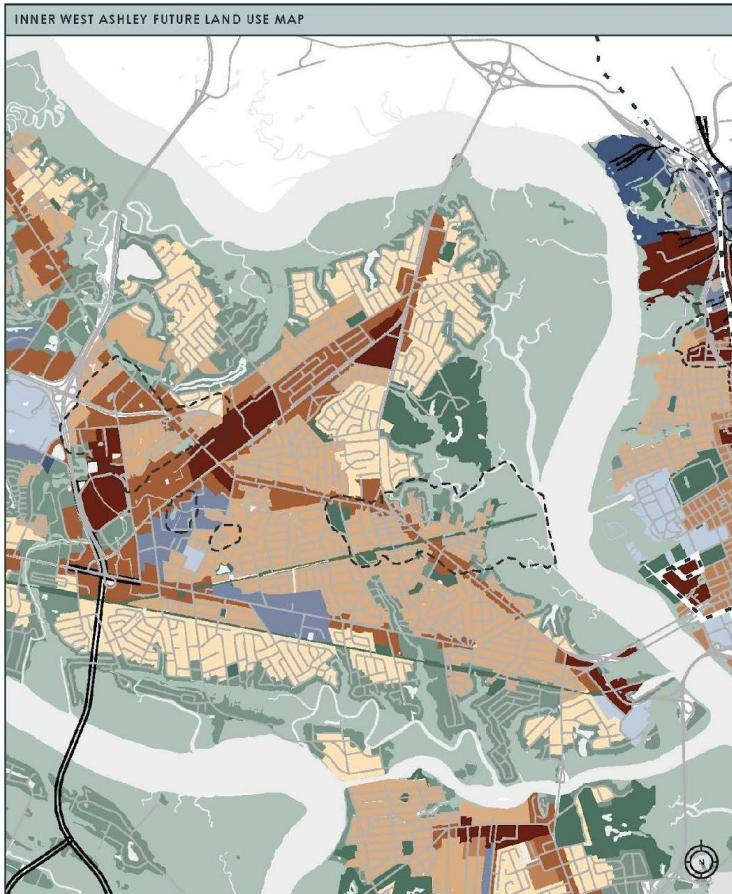
114 CHARLESTON CITY PLAN



115

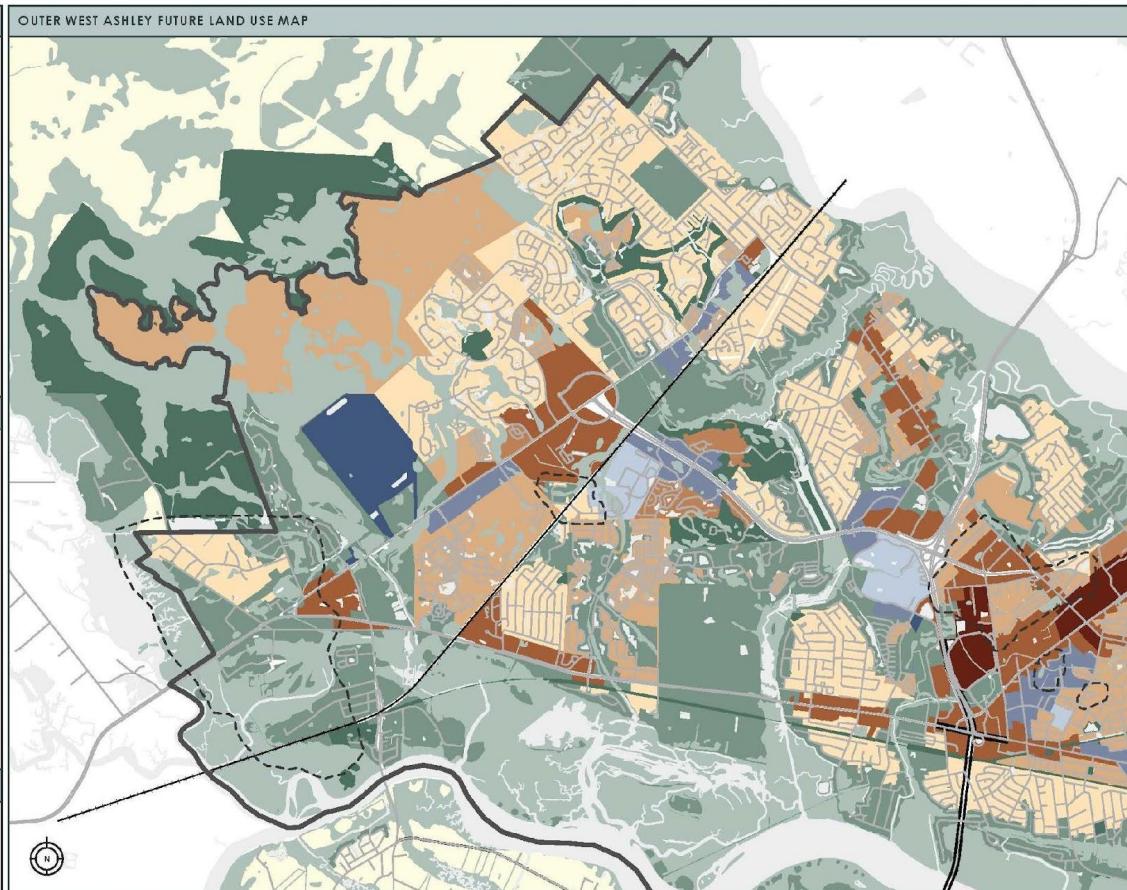
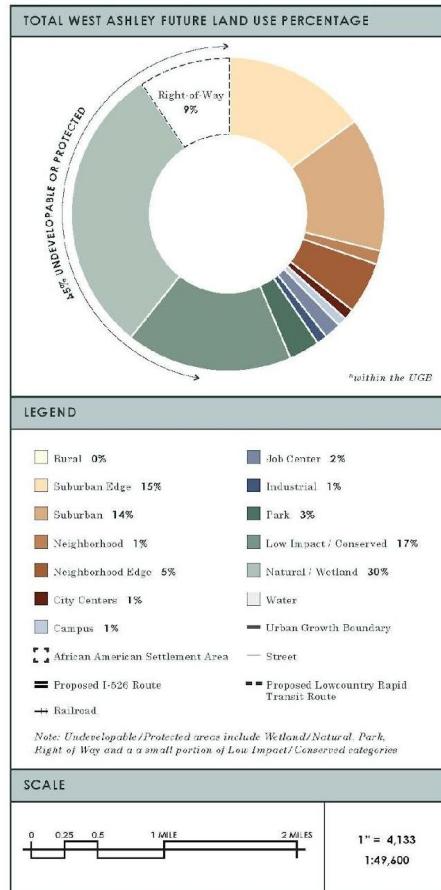
# LAND USE MAPS

## LAND USE



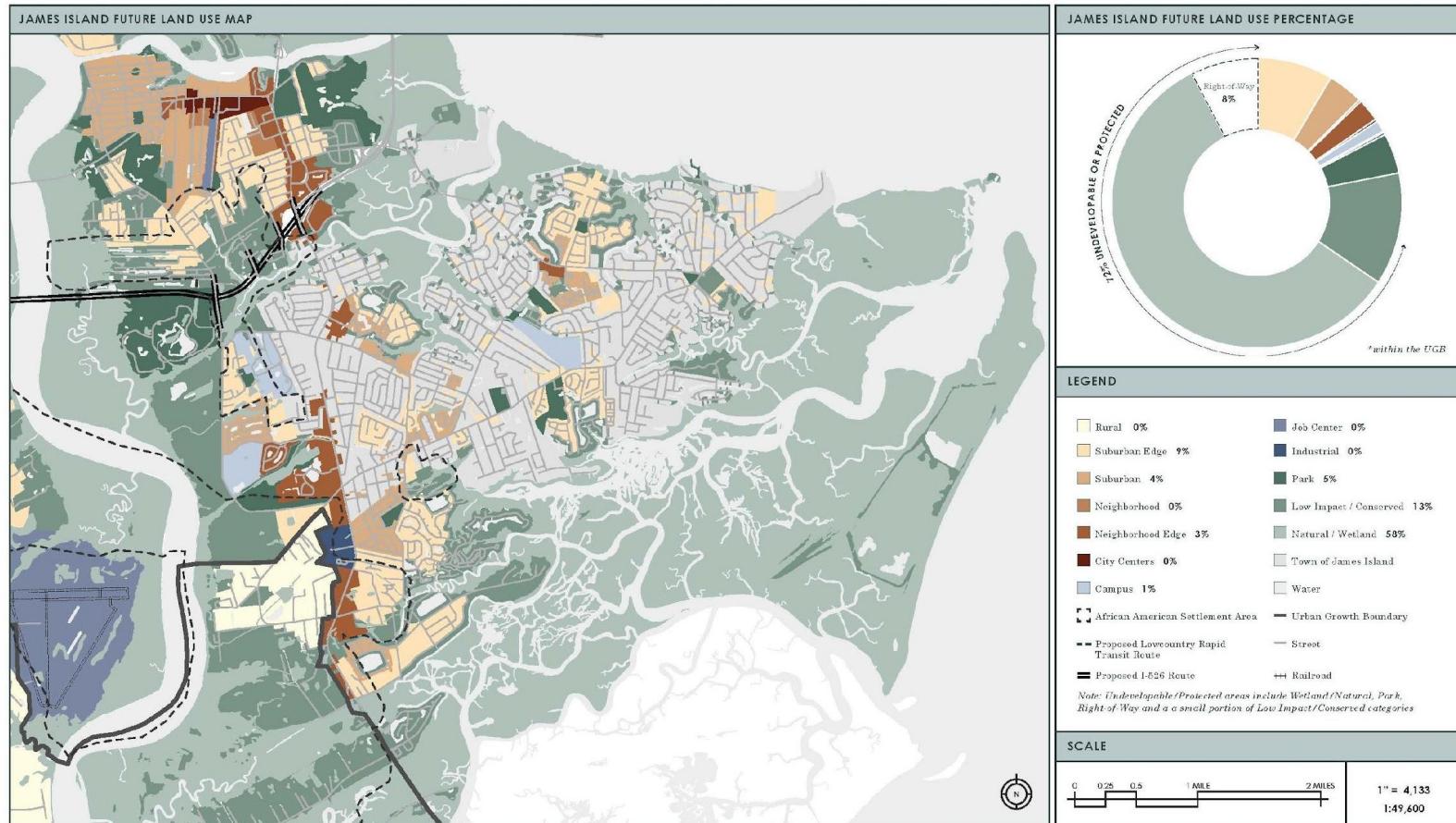
# LAND USE MAPS

## LAND USE



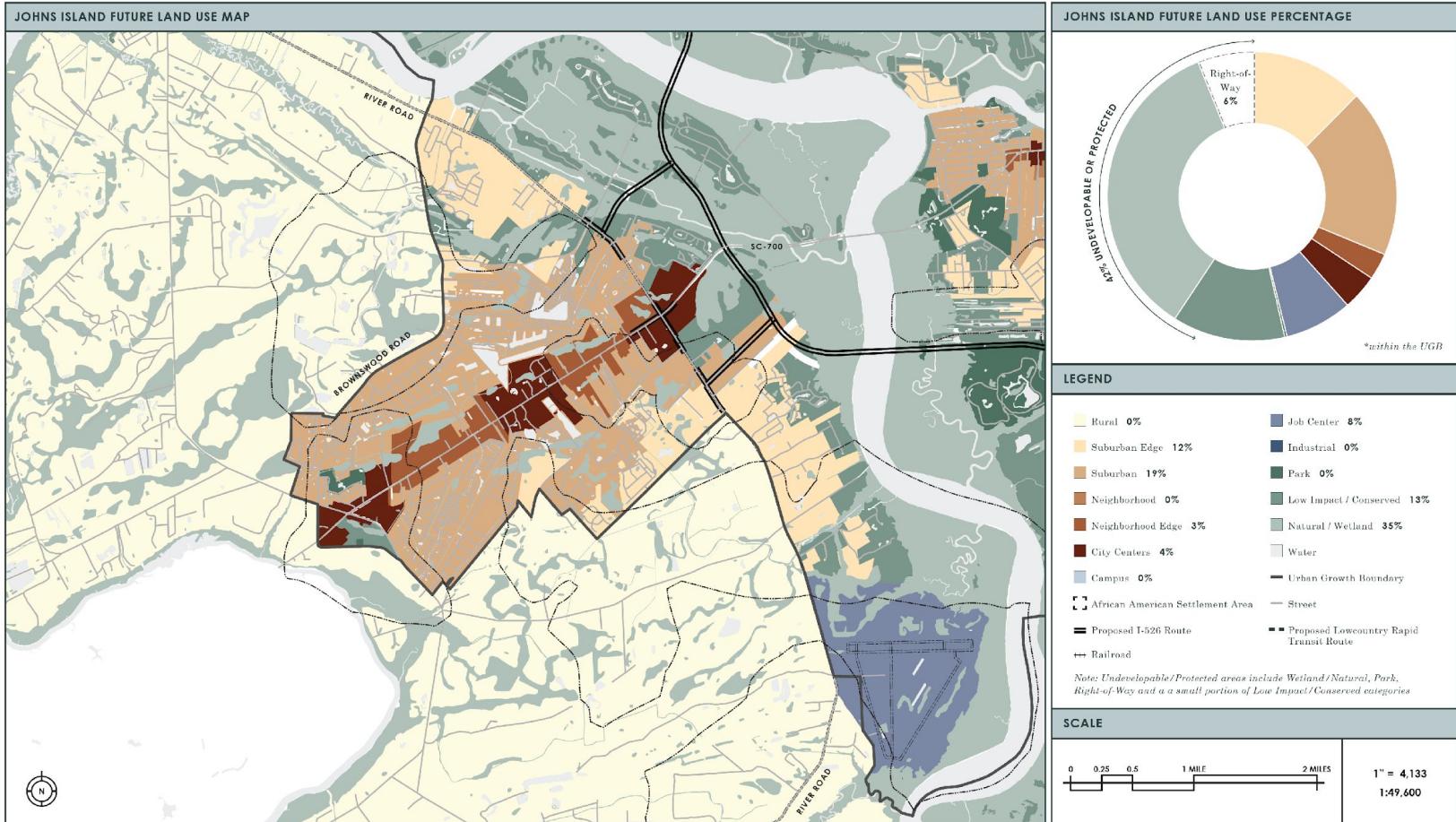
# LAND USE MAPS

## LAND USE



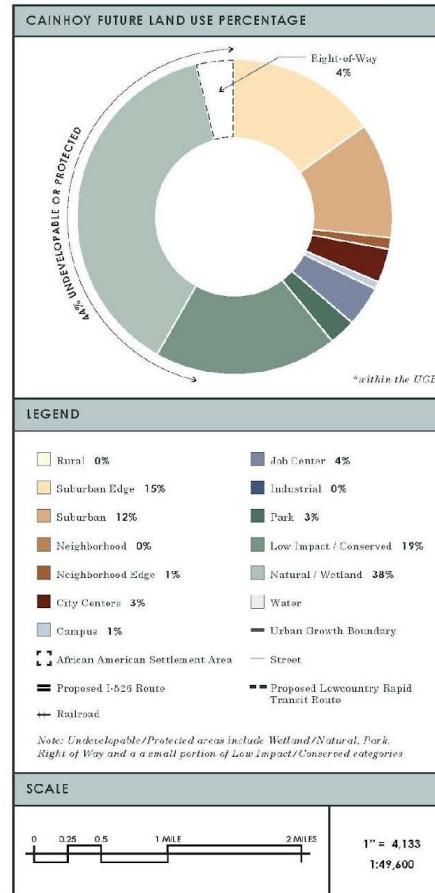
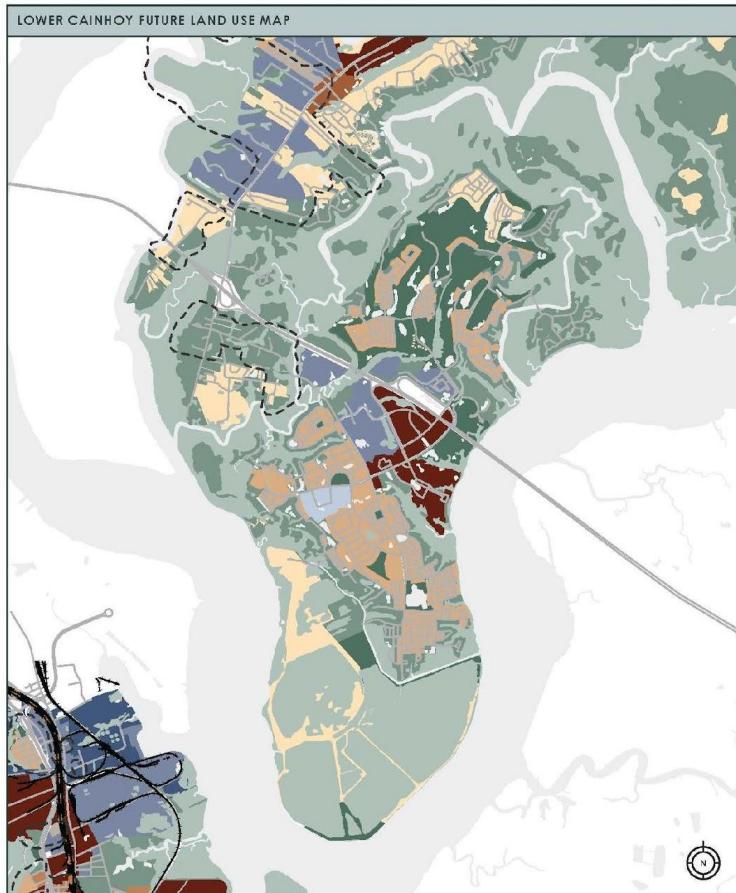
# LAND USE MAPS

## LAND USE



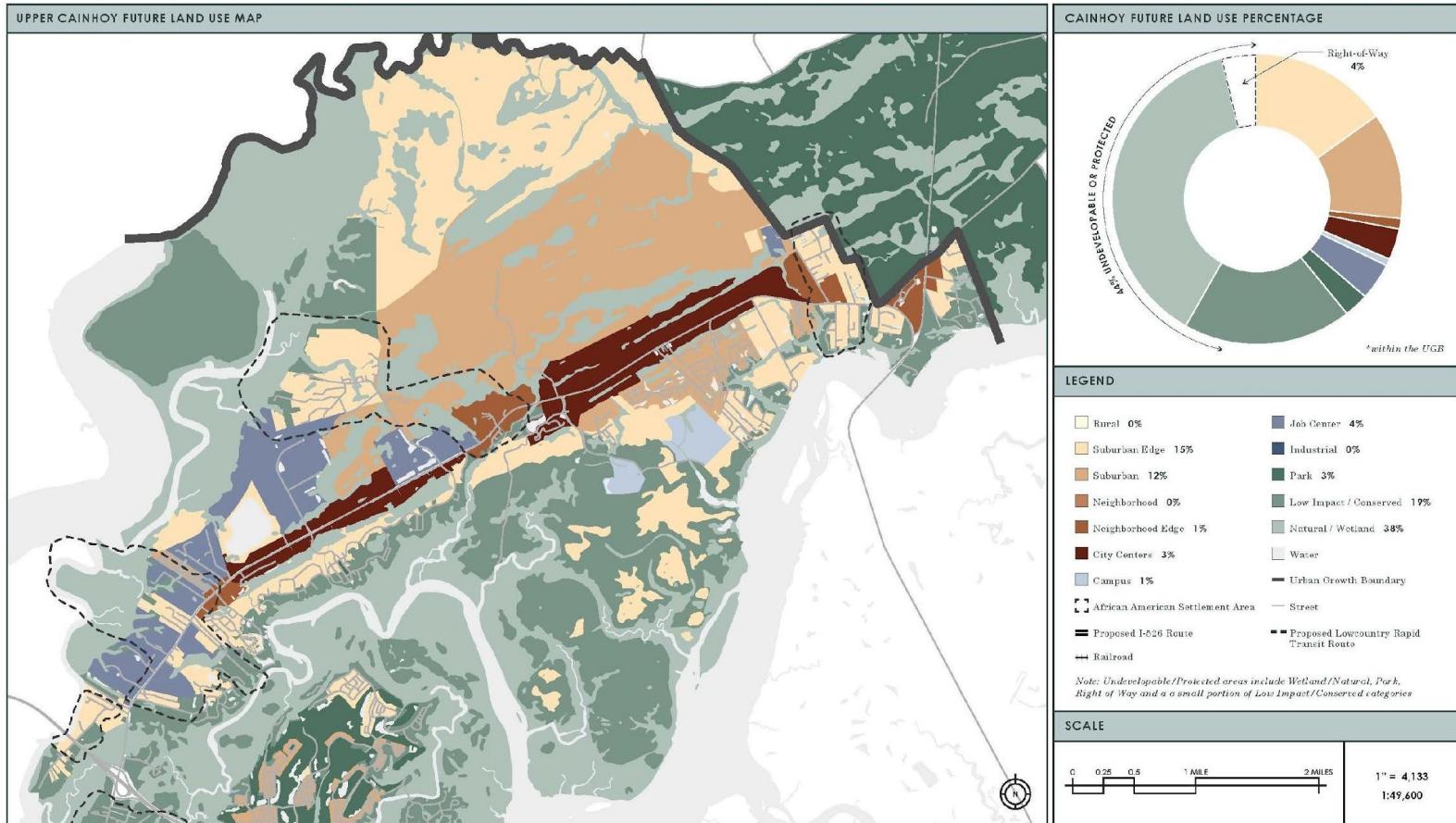
# LAND USE MAPS

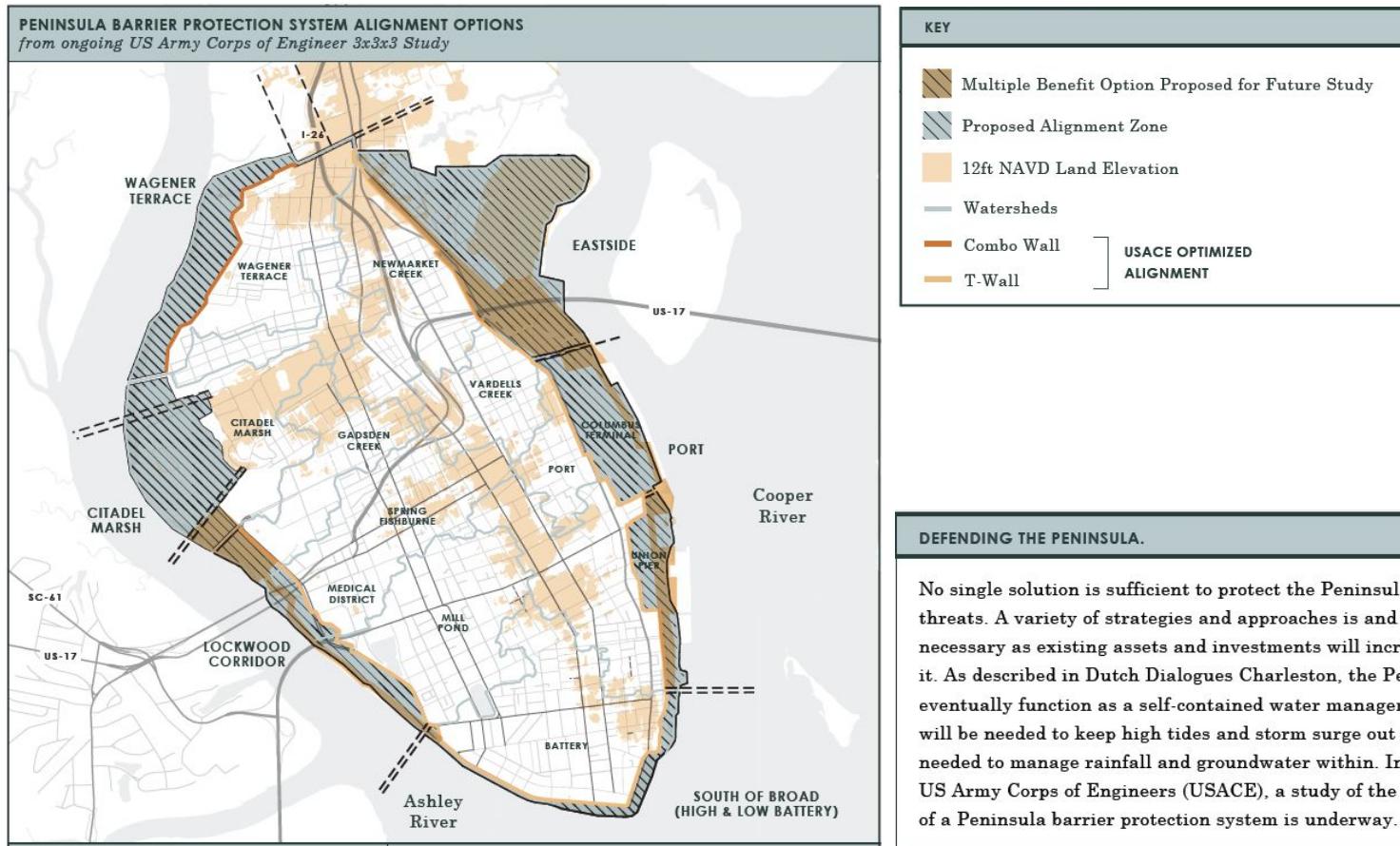
## LAND USE



## LAND USE MAPS

### LAND USE



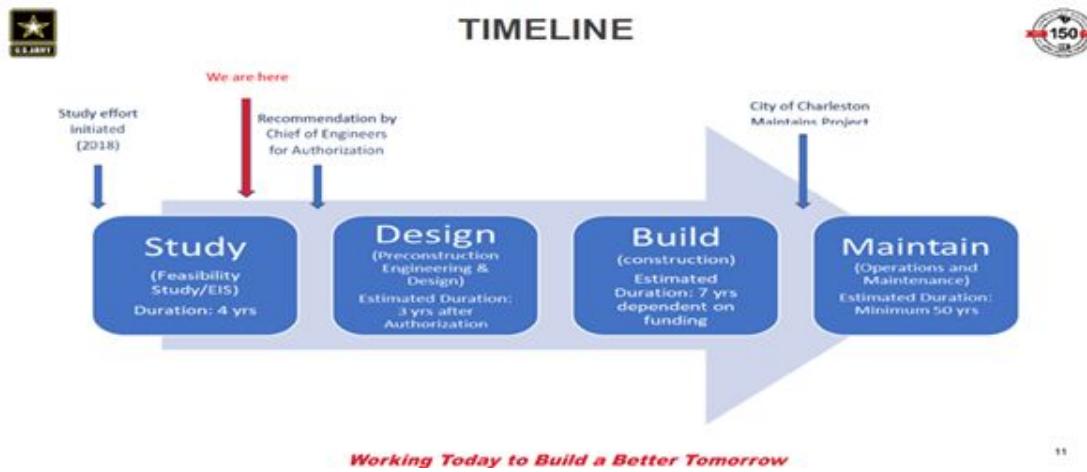


**END OF PRESENTATION**

# USACE Project, Rosemont Resilience Plan, Water Plan

By: Dale Morris,  
Chief Resilience Officer

# Simple USACE Coastal Storm Risk Management Process



11

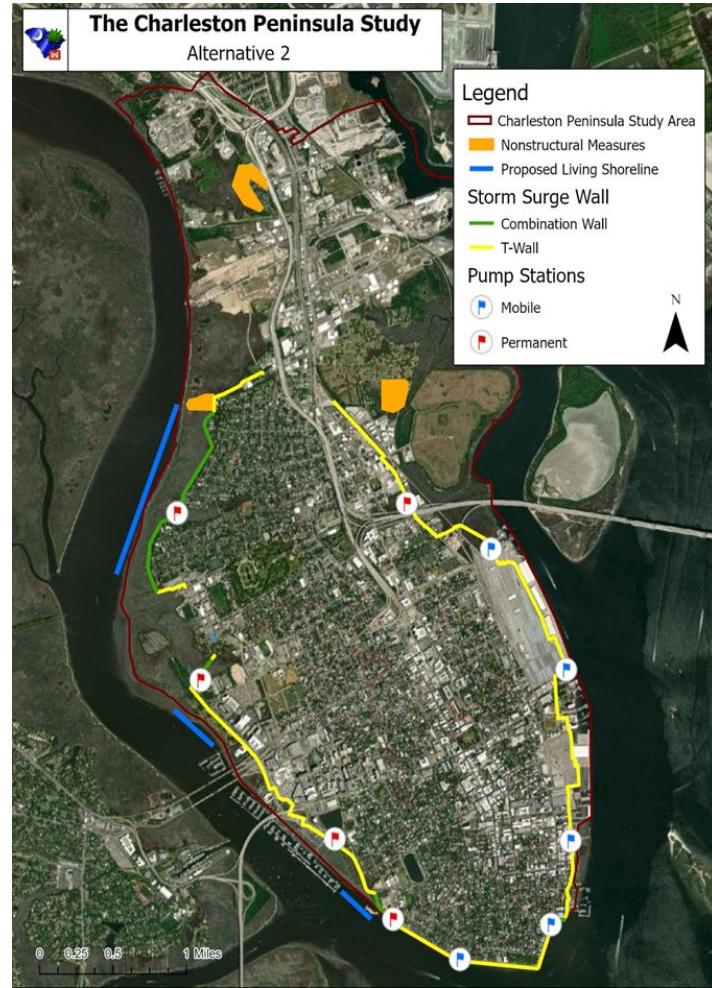
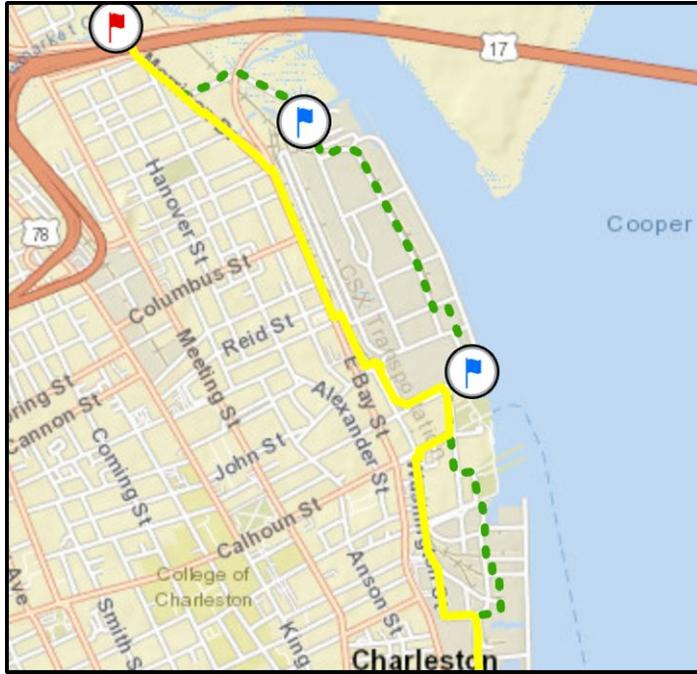
# Milestones: past, present

- ✓ 10/1/2018: CSRM Kickoff
- ✓ 4/20/2020: USACE Release of Tentatively Selected Plan (TSP)
- ✓ 1/1/2021: Environmental Impact Statement (EIS) begins
- ✓ 2/18/2021: City Council CSRM and Discovery Analysis Workshop
- ✓ 2/23/2021: Army Corps 3x3 Advisory Committee established
- ✓ 9/10/2021: USACE Release of Optimized TSP and draft EIS
- ✓ 11/23/2021: 3x3 Advisory Committee Recommendations for PED
- 1/21/2022: Preview of USACE Recommended Plan, including updated map and exec summary
- 2/15/2022: City Council Workshop on CSRM
- 2/23/2022: Deadline for non-binding LOS, Certification, MOU and PA, from City to USACE

# Milestones, future / estimated

- **2/24/2022:** USACE Charleston District submits Final Report to Division
- **March/April 2022:** USACE Division and HQ review
- **May 2022:** Chief of Engineers Final Report
- **Fall 2022:** WRDA Authorization and Appropriation
- **January 2023:** PED Design Agreement (DA) negotiation
- **February 2023:** DA review by City Council
- **March 2023:** PED start?
- **Q2 2023:** PED Kickoff Workshop on Nature and Natural-Based Features with USACE Engineering with Nature program

# Improved TSP: Union Pier Terminal and Columbus Terminal Realignment, 11.3 BCR



# Steps to finishing the feasibility study

- A non-binding Letter of Support from non-federal (City) sponsor expressing support to finish the study.
- A non-binding self-certification from CFO that it would and could meet its financial obligations in the Pre Construction Engineering and Design (PED) phase, if that phase would be initiated.
- Mayor signature's signature on the Memorandum of Understanding concerning visual impact assessment procedures in PED.
- Mayor's signature on the Programmatic Agreement concerning national and historic features procedures in PED.

What happens then?

- Policy and technical review at Division and HQ
- USACE Chief of Engineer's signature on Final Report
- Authorization and Appropriation for PED by US Congress
- Negotiated Design Agreement needed to initiate PED, subject to City Council approval
- Without non-binding LOS, Certification, MOU and PA, study could be terminated. If so, we will have lost much the City time and federal investment in this project.

# Concerns, Modifications, Improvements

- NNBFs
- Alignment: Lockwood Blvd, Johnson Street, Concord Street, Yacht Club, Marina
- Non-structural: Rosemont and Bridgeview
- Aesthetics / Viewsheds
- Multiple benefits
- Impoundment / Overtopping
- Groundwater
- Mitigations, Features, Betterments



**City of Charleston**

**JOHN J. TECKLENBURG**

**MAYOR**

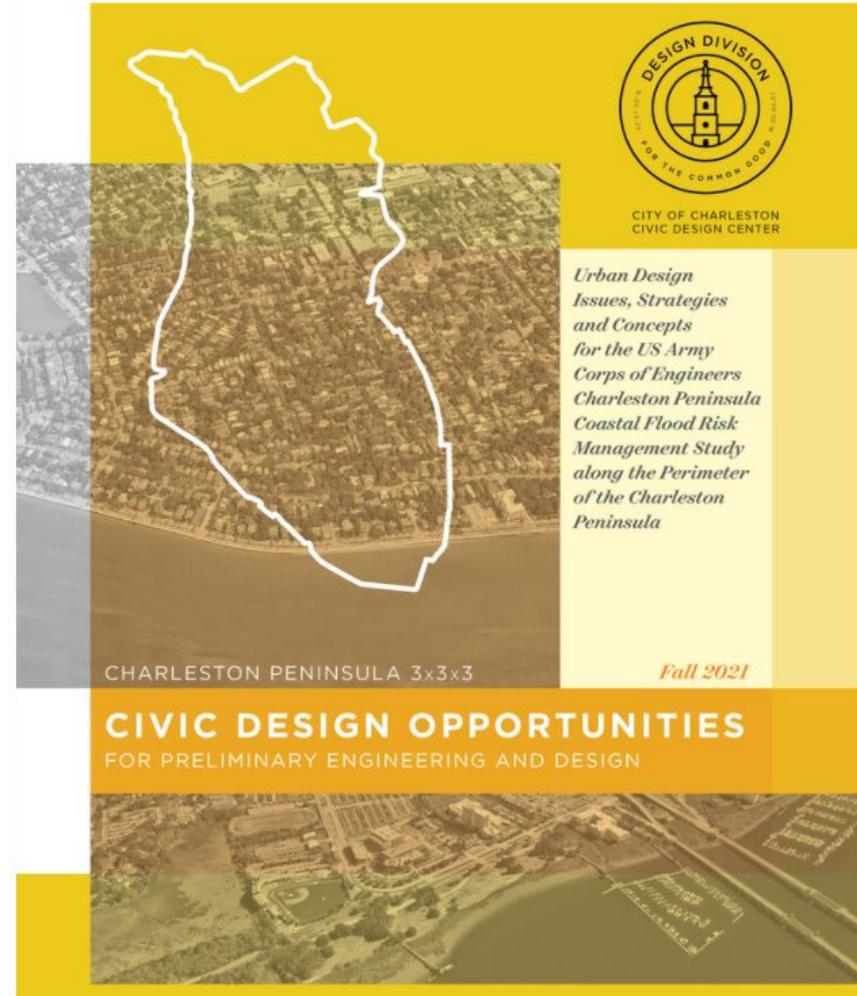
February 7, 2022

**Lt. Col. Andrew Johannes**  
Commander and District Engineer  
U.S. Army Corps of Engineers, Charleston District  
69A Hagood Avenue  
Charleston, SC 29412

Dear Lt. Col Johannes:

Thank you and the U.S. Army Corps of Engineers (USACE) Charleston District staff for your ongoing collaboration during the Charleston Peninsula Coastal Storm Risk Management (CSR) study. I and my staff are grateful for the recurring discussions with General Kelly, the project team and you on (a) the development of the Recommended Plan and (b) improvements thereto that we will pursue in the Pre-Construction Engineering and Design (PED) project phase. Summarized below is a non-exhaustive list of improvements, key features and analyses the City will anchor in the Design Agreement (DA) and pursue in PED.

# City of Charleston Design Division Report



## Comprehensive, Integrated Water Plan, City-wide

- Water Plan: Comprehensive: all water risks, entire City, options per basin / area. Timing: 12-18 months.
- SOW, under development.
- Have Water Plan (team) inform / prep for PED. Owner's Agent?

- Rosemont Resilience Plan

No designated budget authority. "Pay for" out of Water Plan.

Looking for grant and other \$ to do justice to this important planning effort.



# Thank You.

# Public Comment Period