SPECIAL MEETING AGENDA

Planning and Zoning Board
City of St. Augustine, Florida
Alcazar Room
Wednesday, February 19, 2025, at 1:30 pm

Agenda

1. **Roll Call**

2. **General Public Comments for Items Not on the Agenda**

3. **Discussion Regarding an Initiative to Develop more Resilient Criteria for Building for Flood Prevention**

   a. Update of Current City Resiliency Projects and Initiatives
   b. Overview of Current City Floodplain Management Codes and Policies
   c. Discussion related to developing criteria in the land development code to incorporate more resilient types of construction and site development techniques in flood prone areas
   d. Planning and Zoning Board discussion
   e. Public Comment

4. **Adjournment**

Notices: In accordance with Florida Statute 286.0105: "If any person decides to appeal any decision made by the Planning and Zoning Board with respect to any matter considered at this scheduled meeting or hearing, the person will need a record of the proceedings, and for such purpose the person may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based." In accordance with the Americans with Disabilities Act, persons needing a special accommodation to participate in this proceeding should contact the individual or agency sending notice not later than seven days prior to the proceeding at the address given on the notice. Telephone: (904) 825-1007; 1-800-955-8771 (TDD) or 1-800-955-8770 (V), via Florida Relay Service.

Please note that one or more members of the City Commission or its appointed boards or committees may attend this meeting and participate, however they may not engage in a discussion or debate amongst themselves on any issue that will likely come before their respectively elected or appointed body.

The materials prepared and presented are part of the City's ongoing Florida Public Records and Government in the Sunshine compliance and are not intended to be relied upon or to reach investors or the trading markets.

Planning and Zoning Board

Planning Division Memorandum
Planning and Building Department

TO: Planning and Zoning Board

DATE: February 19, 2025

RE: Update of Current City Resiliency Projects and Initiatives

The City Commission has directed staff to work with the city's Citizen Boards to examine concerns related to development in low-lying and/or flood prone areas. This issue has become more of a concern recently with more frequent development applications proposing significant amounts of fill, higher than minimum finished floor elevations, and building techniques or design, such as on slab construction that minimizes the options to control drainage, runoff and water for residential development.

The first item that staff would like to discuss with the PZB, and the public, is an outline of the types of impacts and flooding that the city needs to address as a coastal community.

Additionally, the city has many current, ongoing and long-term projects to try to reduce impacts from these changing conditions.

Jessica Beach, P.E., the city's Chief Resilience Officer and Deputy Director of the Public Works Department will provide the board with current information on types of impacts to be addressed and the status of the city's current resilience efforts.

Please see the attached presentation for your information.

Thank you for your attention to this matter. If you have any questions or require additional information, please do not hesitate to call me at (904) 209-4320 or email at askinner@citystaug.com or contact Jessica Beach directly at (904) 209-4227 or email at jbeach@citystaug.com .

Amy McClure Skinner, AICP
Director
Planning and Building Department

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RESILIENT STAUG

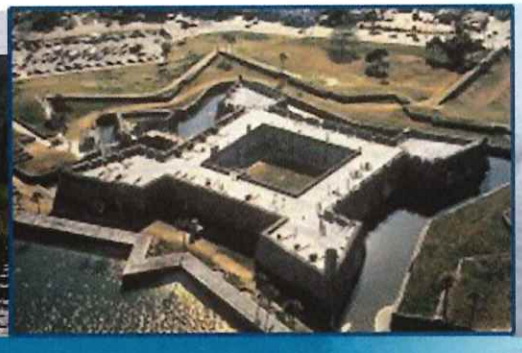
City of St. Augustine –

Resiliency and Stormwater Program Update

Planning and Zoning Board – Special Meeting
February 19, 2023

Jessica L. Beach, P.E.
Chief Resilience Officer
Public Works Department



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Presentation Outline

- Why do we flood? A look at our challenges…
- Resilience Program Update

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Why Do We Flood ?

Flooding is not new to the City

However, the frequency of "sunny day" flooding is on the rise

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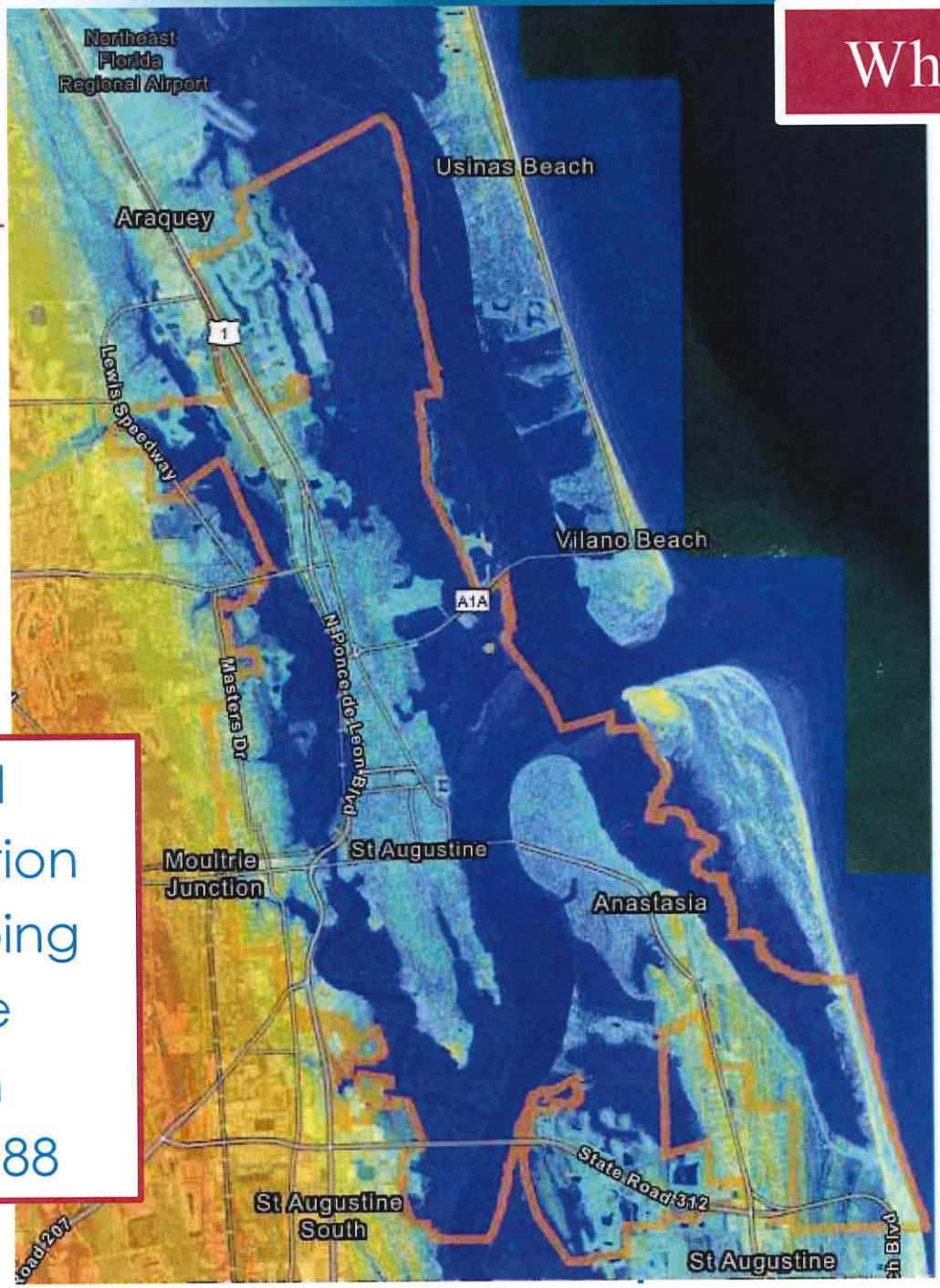
Why Do We Flood ?



Hurricane's Ian and Nicole (HWM ≈ 6.5 NAVD88)

- Digital Elevation Mapping for the City in NAVD88

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Why Do We Flood ?

Current City Challenges (stormwater):

- Aging infrastructure
- Undersized collection system
- Low-lying and coastal location
  (90% of the City is within a flood zone)
- Highly developed (high impervious area)
- **Subject to flooding – both from rainfall and tidal/coastal influence (compound flooding)**

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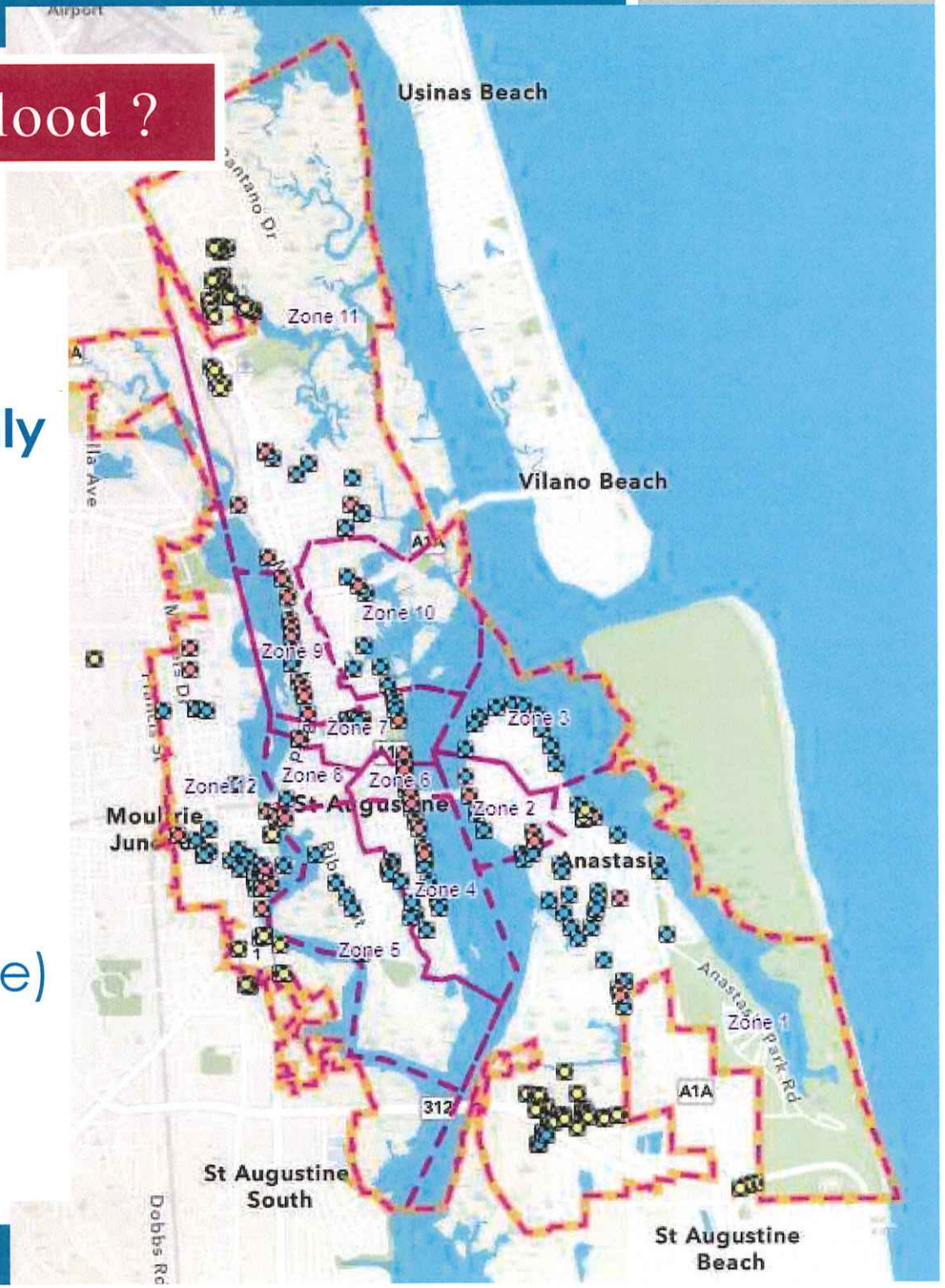
Why Do We Flood ?

Stormwater Infrastructure:

- 140 Outfalls – many are **Tidally Influenced** (includes **FDOT**)
- **110 City Outfalls** (we've installed 48 one-way tide check valves)
- 1,155 Storm Inlets
- 116,760 feet (22 miles of pipe)
- Twelve (12) maintenance zones



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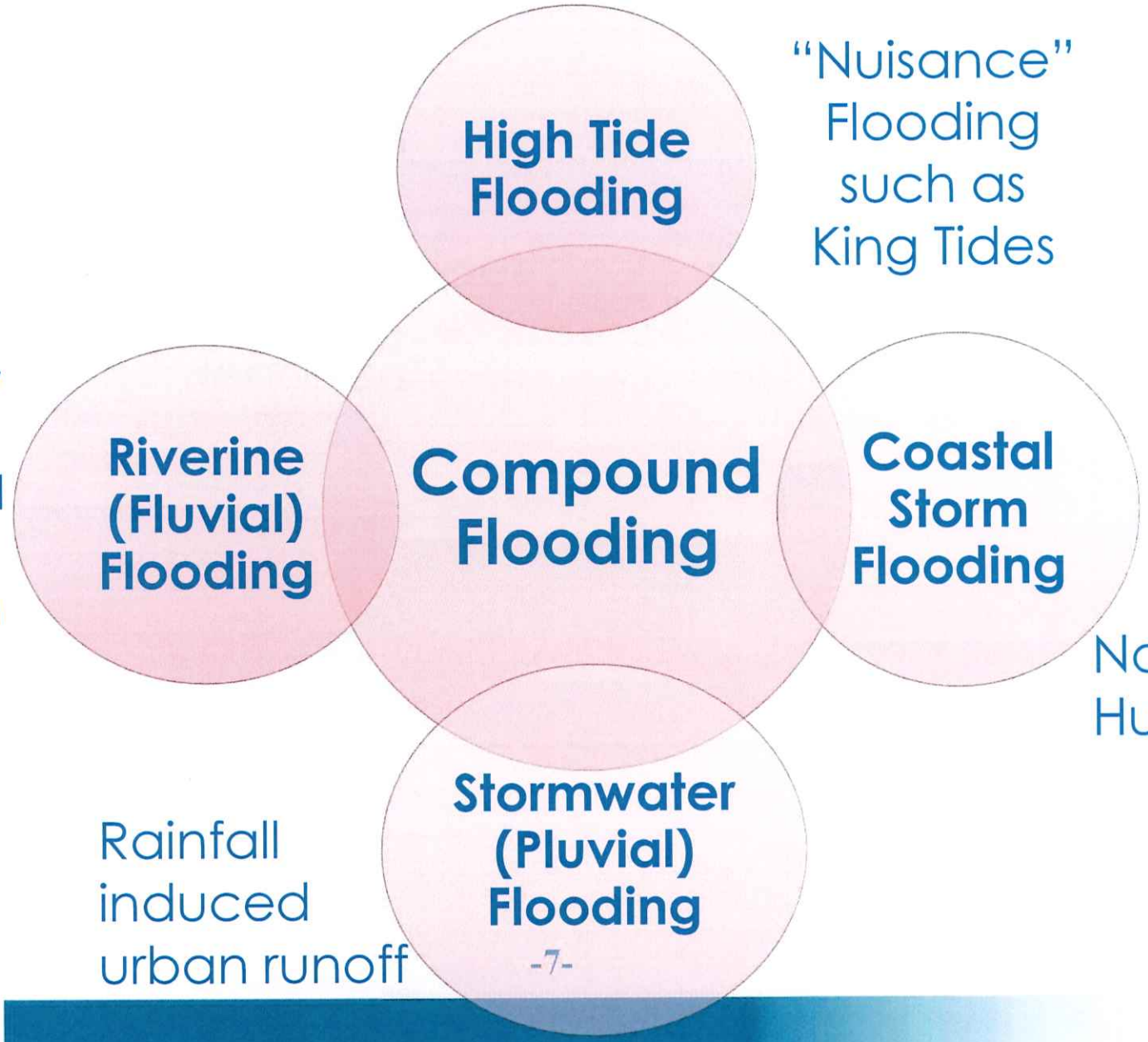
Types of Flooding



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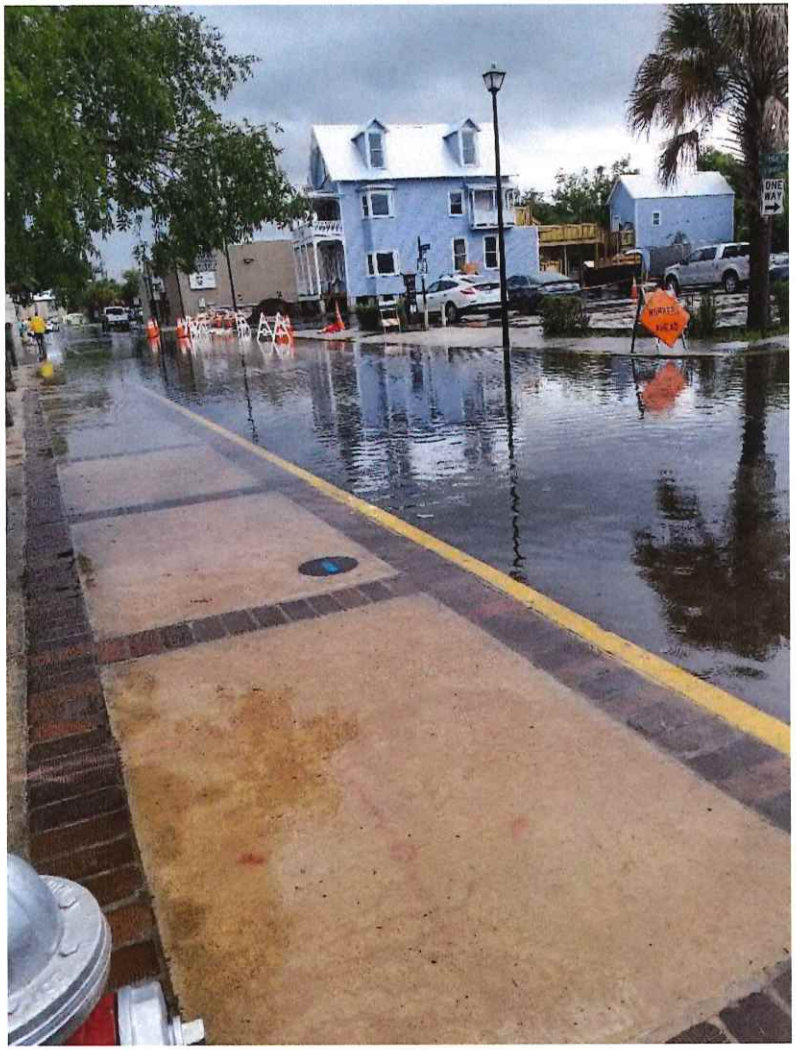
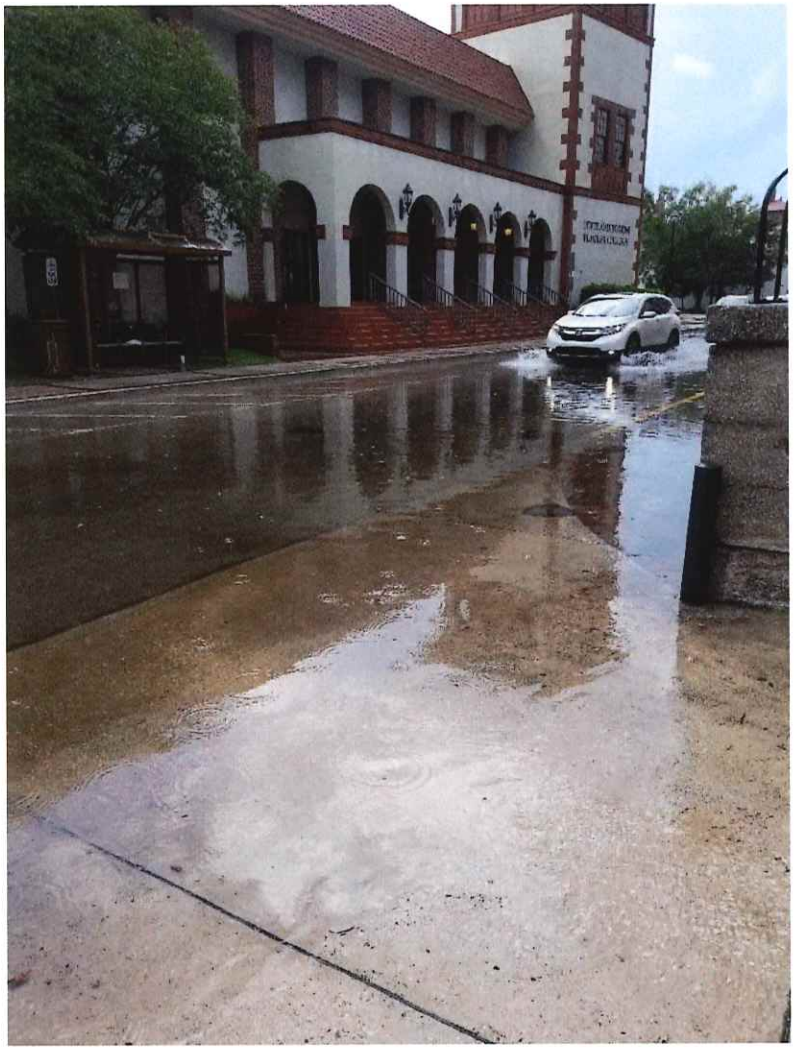
Types of Flooding

❖ Rainfall Flooding



➢ Granada Street, facing S



➢ Granada Street, facing N

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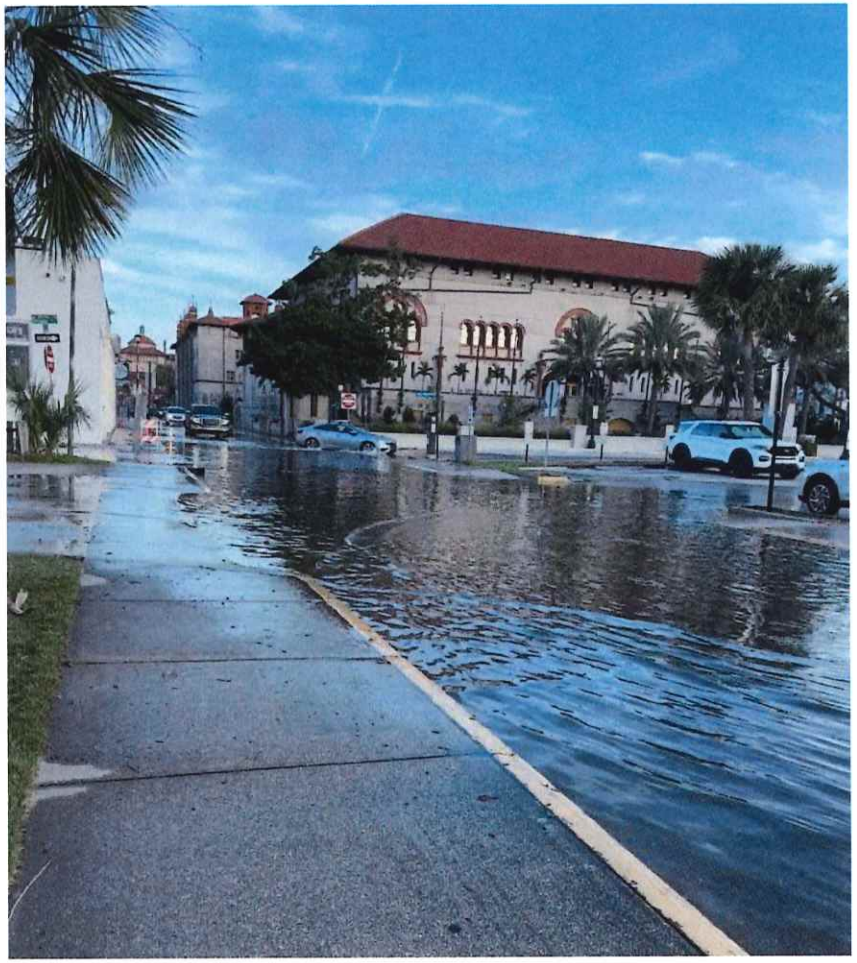
Types of Flooding

- **Nuisance Flooding – primarily High Tide Flooding (HTF) or King Tides**

- Lake Maria Sanchez, facing E



- Granada Street, facing N

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Types of Flooding

❖ Nuisance Flooding - High Tide with a Nor'easter

➢ South Street, facing E

➢ St. Francis Street, facing E

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Types of Flooding

❖ Hurricane Irma – High Water Marks

➢ Cordova and St. Francis Street, near Lake Maria

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Types of Flooding

September 2020 - Flood Event (Compound Flooding)

"King Tides"

+

Nor'easter
> 20 mph (3 days)
10-15 mph (1 day)

+

Rainfall 2-3 inches

+

Multiple Flood Advisories Issued

= CITY WIDE FLOODING

Where Do We Flood ?

September 2020 - Flood Event (Compound Flooding)

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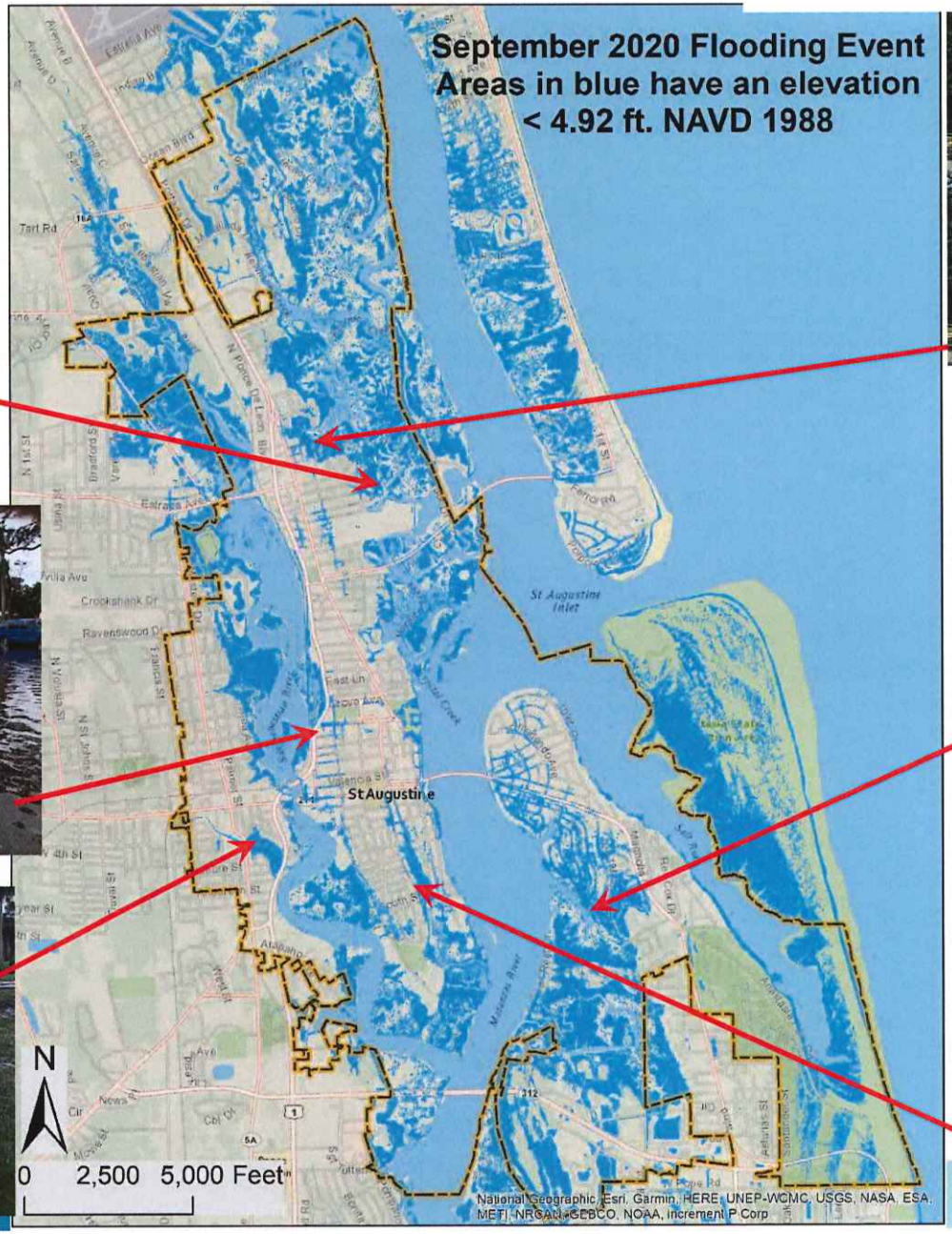

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Overview of the Resilience Program and Strategy

www.citystaug.com/resiliency

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Overview of the Resilience Program and Strategy

PROJECTS

Completed

- ✓ Avenida Menendez Seawall
- ✓ Fullerwood Watermain Replacement
- ✓ North City Watermain Improvements
- ✓ San Marco Watermain Replacement
- ✓ Lincolnville Utility and Drainage Improvements
- ✓ South Dixie Highway Box Culvert Replacement
- ✓ FEMA 13 Lift Station Hardening and Rehabilitation
- ✓ WWTP Flood Proofing
- ✓ Bayfront Park (Harbormaster Park)

Current

- ✓ Avenida Menendez Floodwall
- ✓ South Whitney West King Street Flood Mitigation and Drainage Improvements
- ✓ Court Theophelia Drainage Improvement Project
- ✓ Inlet Drive Shoreline Stabilization Project
- ✓ South Davis Shores Drainage Improvements Project
- ✓ City-wide Tide Check Valve Retrofitting
- ✓ Lake Maria Sanchez Flood Mitigation and Drainage Improvements
- ✓ King Street Streetscape
- ✓ MLK Streetscape

Partnerships

- ✓ FDOT Bayfront Seawall
- ✓ NPS Castillo de San Marco Seawall
- ✓ FDOT King Street Bridge Replacement
- ✓ FDOT –Bridge of Lions Intersection Improvements
- ✓ SMART St. Augustine
- ✓ University of Florida - Thin Layer Placement Feasibility Project
- ✓ GTMNERR – various research related projects

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Overview of the Resilience Program and Strategy

PLANNING/STUDIES

Completed

- ✓ Stormwater Master Plan (2013)
- ✓ Planning for Sea Level Rise in the Matanzas Basin (2015)
- ✓ Community Resilience Initiative – Pilot Project (2016-2017)
  - ➢ Coastal Vulnerability Assessment
  - ➢ Strategic Adaptation Plan
- ✓ Resilient Heritage in the Nation's Oldest City (2021)
- ✓ South Davis Shores Resiliency Study (2021)
- ✓ Septic Tank Vulnerability Assessment (2022)
- ✓ Stormwater Outfall Resiliency Retrofit Masterplan (2022)

Current

- ✓ Vulnerability Assessment
- ✓ Adaptation Plan
- ✓ USACE Back Bay Feasibility Study
- ✓ Fullerwood Drainage Study

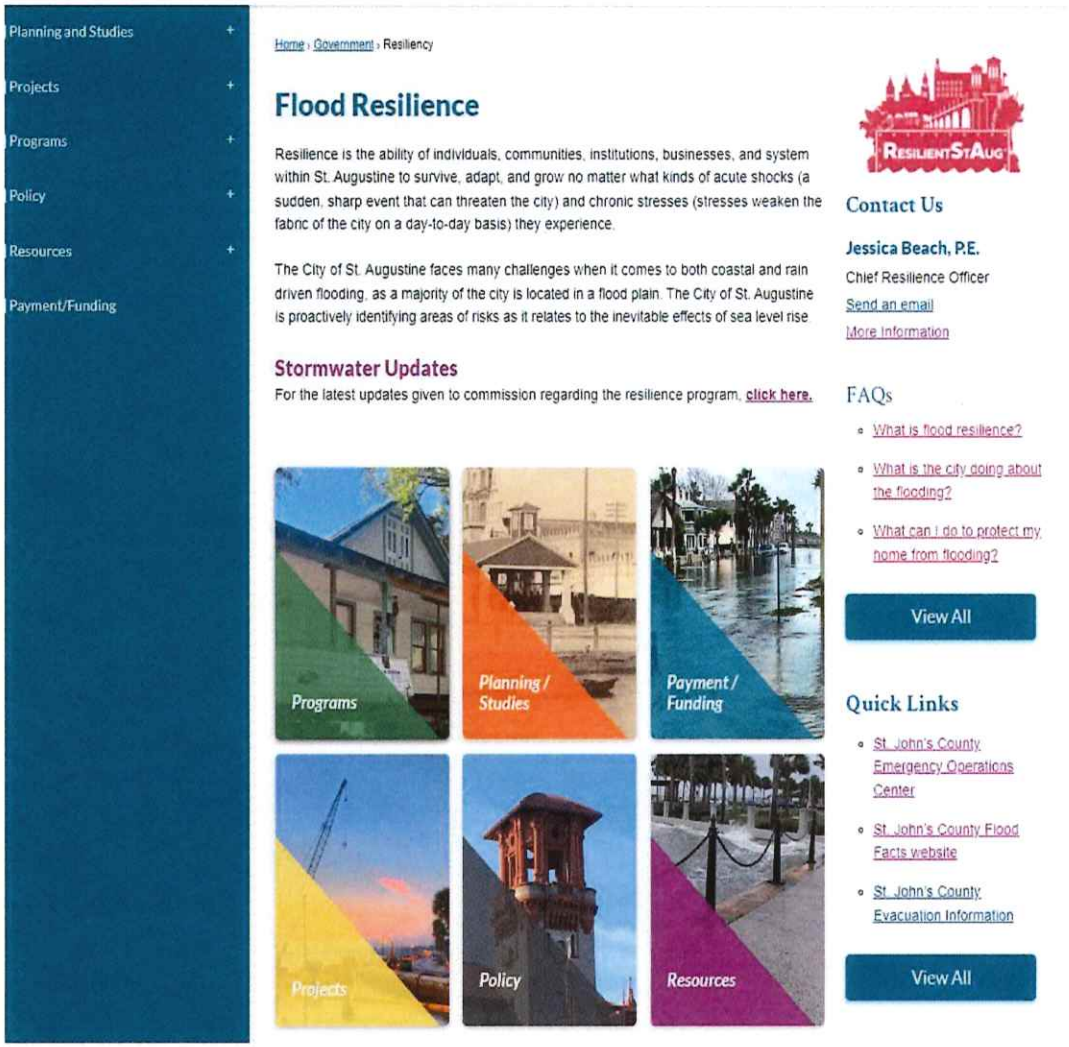
Partnerships

- ✓ Northeast Florida Regional Council – Resilient First Coast Collaborative Regional Resilience Action Plan
- ✓ South Atlantic Salt Marsh Initiative – Florida State Implementation Team

Overview of the Resilience Program and Strategy

- **Outreach and Education**
- **"One Stop Shop":**
  - ✓ Programs
  - ✓ Projects
  - ✓ Planning / Studies
  - ✓ Payment / Funding
  - ✓ Policy
  - ✓ Resources for Residents

www.CityStAug.com/Resiliency



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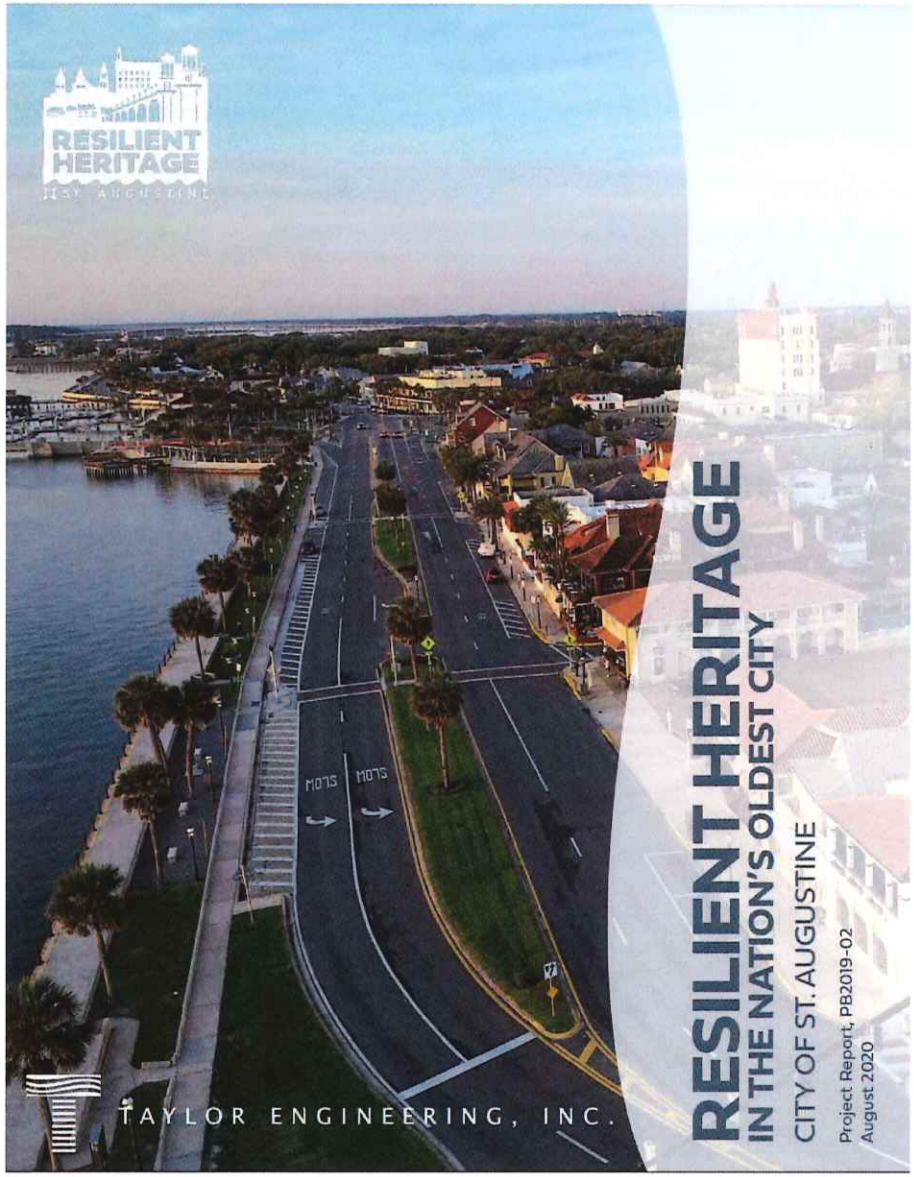
Overview of the Resilience Program and Strategy

- Resources Available for Historic Properties
- Flood Mitigation Guidance for Historic Properties
- Resilient Heritage in the Nation's Oldest City



https://www.citystaug.com/905/Flooding-and-Historic-Properties

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RESILIENT STAUG

www.citystaug.com/FMA
for more info

❖ Flood Mitigation Assistance (FMA) Program

- ✓ Cost share program with FEMA to elevate and/or reconstruct flood prone, at-risk structures
- ✓ FY21 – Application Cycle Completed (25 applications), but not selected
- ✓ FY 22 – Application Cycle:
  - Over 80 properties interested in the program, 62 properties had complete applications that met the program requirements
  - City submitted its applications to the State November 14th and is currently under State review, eligible applications will then be submitted to FEMA
  - Total funding request of $12,353,474 submitted that would be cost shared with FEMA if selected
  - Late August – estimated timeframe to know if selected

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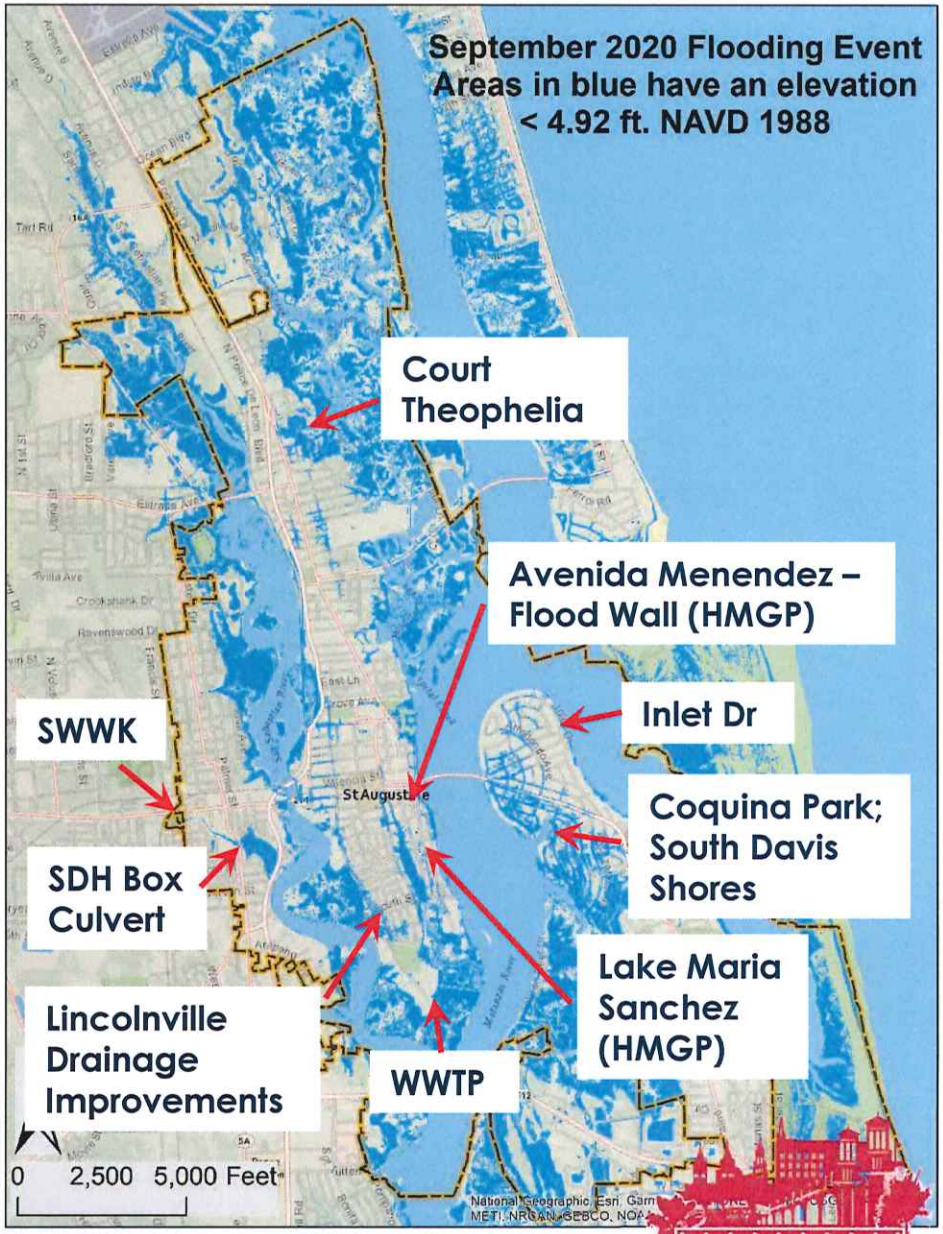
In Summary

*Denotes Federally Funded Project (FEMA –PA, HMGP; HUD/DEO-CDBG-NR)

Denotes State Funded Project (SJRWMD, **FDEP)

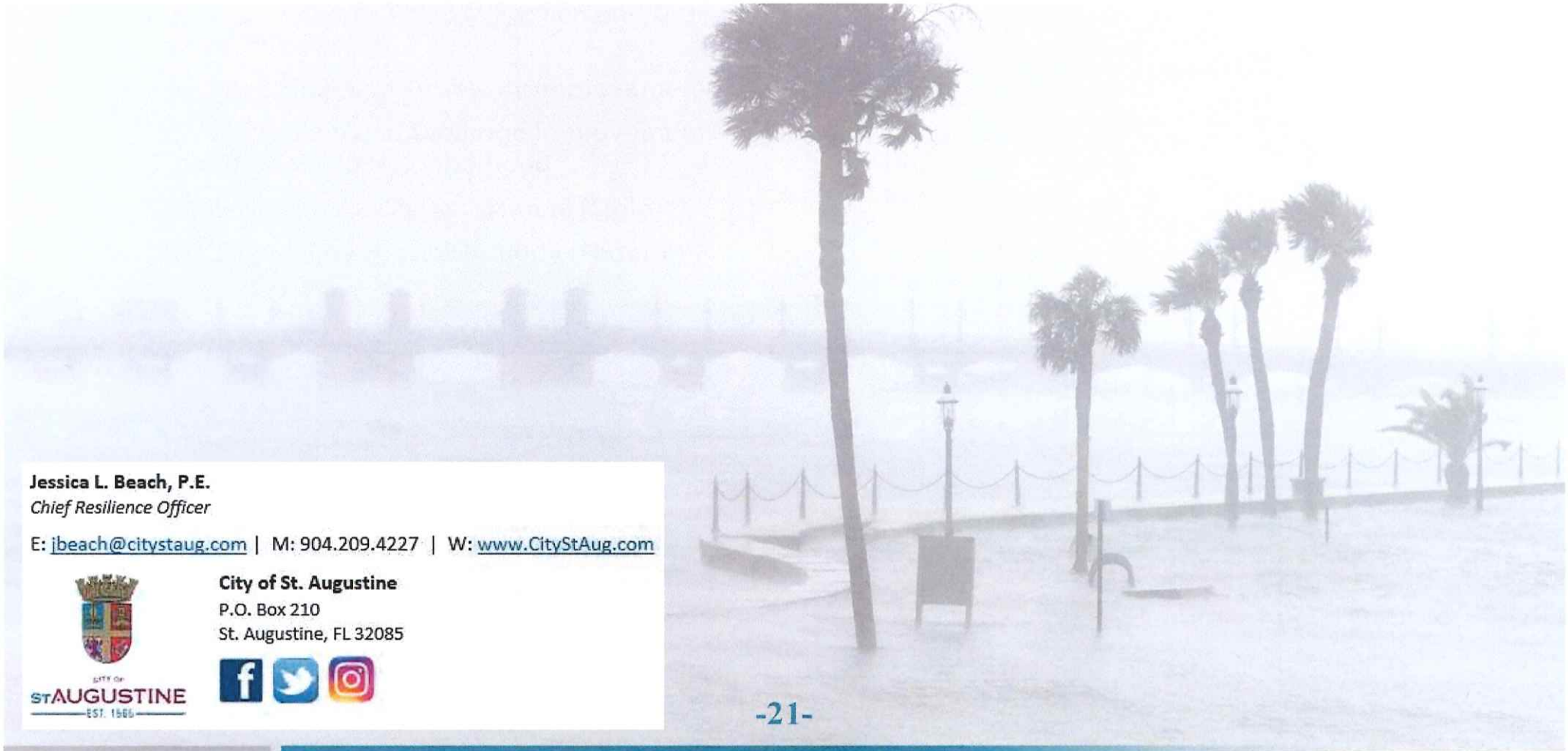
❖ Current Flood Mitigation Investments ≈ $69,741,833 ($58,218,292, grant funded, 83%):

- ❑ **Lake Maria Sanchez*, ****
- ❑ FEMA 13 Lift Station Hardening and Flood Proofing*
- ❑ Wastewater Treatment Plant (WWTP) Flood Proofing
- ❑ **South Whitney/West King (SWWK) Flood Mitigation*, ****
- ❑ **Avenida Menendez Flood Wall***
- ❑ **City-wide tide check valves (43 installed, 20 future)****
- ❑ Coquina Park
- ❑ South Dixie Highway Culvert Replacement**
- ❑ Lincolnville Utility and Drainage Improvements*, **
- ❑ **South Davis Shores Flood Mitigation and Drainage Improvements *, ****
- ❑ **Inlet Drive Shoreline Resiliency Improvements *, ****
- ❑ **Flood Mitigation and Drainage Improvements for the Court Theophelia Neighborhood *, ****
- ❑ **Updated Vulnerability Assessment (State)****
- ❑ **USACE Back Bay Feasibility Study (Federal)****



Thank you for your time!

www.CityStAug.com/Resiliency



Jessica L. Beach, P.E.
Chief Resilience Officer

E: jbeach@citystaug.com | M: 904.209.4227 | W: www.CityStAug.com

City of St. Augustine
P.O. Box 210
St. Augustine, FL 32085

Planning and Zoning Board

Planning Division Memorandum
Planning and Building Department

TO: Planning and Zoning Board

DATE: February 19, 2025

RE: Overview of Current City Floodplain Management Codes and Policies

The City Commission has directed staff to work with the city's Citizen Boards to examine concerns related to development in low-lying and/or flood prone areas. This issue has become more of a concern recently with more frequent development applications proposing significant amounts of fill, higher than minimum finished floor elevations, and building techniques or design, such as on slab construction that minimizes the options to control drainage, runoff and water for residential development.

The second item that staff would like to discuss with the PZB, and the public, is an overview of the current city Floodplain Management Codes and Policies. Through this discussion staff would also like to clarify previously discussed items pertaining to the application of the existing code.

The city's Building Official and Certified Floodplain Manager, Buddy Schauland will lead this discussion.

Please see the attached for your review and information.

Thank you for your attention to this matter. If you have any questions or require additional information, please do not hesitate to call me at (904) 209-4320 or email at askinner@citystaug.com or contact Buddy Schauland directly at (904) 209-4327 or email at rschauland@citystaug.com .

Amy McClure Skinner, AICP
Director
Planning and Building Department

CITY OF ST AUGUSTINE EST. 1565

February 12, 2025

RE: Planning and Zoning Board Special Meeting

In December of 2017, the City Commission adopted the current version of our Floodplain Management Ordinance. This adoption revamped the ordinance to ensure that the city followed FEMA's requirements. Any time that the city wishes to change anything in this ordinance, the change must first go to the Florida Division of Emergency Management (FDEM). FDEM will verify that what is being changed complies with FEMA's requirements.

We added three higher regulatory standards to the ordinance in 2017. The standards that were added were:

1. **Freeboard** - a one-foot freeboard for all residential structures (which has since been removed from the ordinance since it is a state requirement in the building codes),
2. **Foundation protection** - requires construction documents to be prepared and sealed by a registered design professional that the design and methods of construction resist flood loads,
3. **Local drainage protection** – for new construction that is outside of the Special Flood Hazard Area (Zone X), the lowest habitable floor is elevated at least 12" above the crown of the road.

It had been mentioned in a previous meeting that the Floodplain Management Ordinance may have a section that could address limiting the amount of fill placed on properties. The section in question is Sec. 8-435(4), which states:

> *Where the placement of fill is proposed, the amount, type, and source of fill material; compaction specifications; a description of the intended purpose of the fill areas; and evidence that the proposed fill areas are the minimum necessary to achieve the intended purpose.*

The focus of this possibility is on the last part, "*evidence that the proposed fill areas are the minimum necessary to achieve the intended purpose*." The entire section is about what is required for construction documents that are submitted for a permit. The applicant is required to identify the intended purpose of the fill.

An example: the applicant states that the intended purpose of the fill is to ensure that they can construct a slab-on-grade house with the finished floor elevation at 9' NAVD 1988. The minimum amount of fill necessary would be up to approximately 8.5' NAVD 1988. **This section does not allow the city to deny the application as this is the minimum for their stated purpose.**

The city participates in the Community Rating System (CRS). The purpose of the CRS is to lower the cost of flood insurance for property owners within that community. The CRS gives points to communities for different activities that they engage in that help with reducing flood claims.

For example, points are given for community outreach. One of the activities that the city of St. Augustine participates in is outreach, by sending several different letters multiple times a year. Some are targeted at a specific audience; others are sent to everyone in the Special Flood Hazard Area. These letters give the recipient information about flooding and each letter contains specific information for that audience. The higher regulatory standards that were mentioned earlier, earn the city points.

The more points that a community can achieve, the more of a discount the property owners can get on their flood insurance. As the community earns more points, they are elevated in Classes. There are ten classes with Class 1 being the highest. Every 500 points that are awarded, the community moves up a class.

Currently the city of St. Augustine has earned 3,025 points. Having over 3,000 points would put the city in Class 4, but there are also certain required prerequisites for each Class. The city has not met all of these technical prerequisites, which keeps us at a Class 5.

One of the major prerequisites not yet met is a watershed management plan. City staff are currently looking into the possibility of applying for a grant from the state to contract out the research and development of one of these plans. **However, even the city's current CRS Class 5 rating gives property owners a 25% discount on their flood insurance for compliant structures.**

The CRS gives points to communities that prohibit fill. Different points are given for the different ways of prohibiting fill, such as:

1. Prohibiting fill for all new construction,
2. Prohibiting fill for only residential structures,
3. Requiring compensatory storage,
4. Prohibiting fill but allowing for fill within stem walls.

Another area that was mentioned in a previous meeting was the development of a Flood Adaptation Committee which could give points through the CRS system. **The CRS Coordinator's Manual gives points in two activities that have committees for specific purposes.**

The first committee is under the Flood Insurance Promotion activity. This activity has a three-step process:

1. **Flood insurance coverage assessment**. This credit is provided for assessing the community's current level of coverage and identifying shortcomings.

2. **Coverage improvement plan**. The plan is prepared by a committee that has representation from local insurance agents.
3. **Implementation of the coverage improvement plan**. The plan's projects are implemented.

Step two of this activity is where a committee is formed. This committee must be from both inside and outside of the government, at least five people, a representative from the community's floodplain management office, a representative from the community's public information office, at least half the members from the public, and a representative from a local insurance agency. The committee must prepare and recommend a coverage improvement plan.

One of the reasons that staff have not investigated this activity is that the maximum number of points awarded for it is 110 points. Step one is required before any points are awarded for any part. The amount of work, effort and administration costs associated with maintaining a city committee makes it difficult to justify the point benefit (110 points) since **we already exceed the required 3,000 points for the Class 4 designation** (just not the required prerequisites). Additionally, this activity is about promoting flood insurance. **All the hurricanes that we have had since 2016 have already promoted the need for flood insurance.**

The second activity that requires a committee is the Floodplain Management Planning aspect. This is a community wide floodplain management plan that is prepared by following a ten-step standard planning process. All ten steps must be completed to receive points. An exception to this is, if the plan is approved by FEMA as a multi-hazard mitigation plan, then one step is allowed to be missing.

The ten steps are broken into four phases:

- Phase I – Planning process
- Phase II – Risk assessment
- Phase III – Mitigation strategy
- Phase IV – Plan maintenance

50% of the maximum credit in the CRS system for the planning step is a prerequisite for a Class 4 or better community. **The city of St. Augustine may already meet this requirement through the St. Johns County Local Mitigation Strategy Working Group.** Staff is in the process of evaluating this qualification.

Both committees consist of city staff members and members of the public. All members are of equal value to the committee, with a staff member heading the committee.

Other items that were mentioned in a previous meeting about a Flood Adaptation Committee require for city staff to conduct. They cannot be led by a citizen group.

For example, organizing pre-flood preparation, communication tasks, and organizing post-flood response tasks and responsible parties are tasks that require city staff to prepare, initiate and complete for every flooding event. **FEMA and the state hold the city and city designated staff responsible for all pre and post event tasks.**

The item previously discussed related to helping notify property owners that their home was substantially damaged after an event is a requirement for the city's Building Official. Additionally, the federal privacy act protects the identity of the properties that are substantially damaged from Freedom of Information Act (FOIA) requests.

The CRS system awards up to 280 points for prohibiting fill. This is the main issue that relates to potential CRS class points that the city of St. Augustine currently does not capture in our efforts.

If the final recommendation of the board does not prohibit fill that is recognized by the CRS system, the change to the city's codes would need to be in other land development regulations such as the city's zoning or conservation ordinances.

R. "Buddy" Schauland, CBO, CFM
Building Official

ARTICLE V. - FLOODPLAIN MANAGEMENT

Footnotes:

--- (3) ---

Editor's note— *Ord. No. 17-08, § 2, adopted May 22, 2017, repealed the former Art. V, §§ 8-401—8-437, and § 3 enacted a new Art. V as set out herein. The former Art. V pertained to similar subject matter. See Code Comparative Table for complete derivation.*

DIVISION 1. - GENERAL

Sec. 8-401. - Title.

These regulations shall be known as the Floodplain Management Ordinance of City of St. Augustine, hereinafter referred to as "this article."

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-402. - Scope.

The provisions of this article shall apply to all development that is wholly within or partially within any flood hazard area, unless otherwise specified, including but not limited to the subdivision of land; filling, grading, and other site improvements and utility installations; construction, alteration, remodeling, enlargement, improvement, replacement, repair, relocation or demolition of buildings, structures, and facilities that are exempt from the Florida Building Code; placement, installation, or replacement of manufactured homes and manufactured buildings; installation or replacement of tanks; placement of recreational vehicles; installation of swimming pools; and any other development.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 17-09, § 3, 12-11-17)

Sec. 8-403. - Intent.

The purposes of this article and the flood load and flood resistant construction requirements of the Florida Building Code are to establish minimum requirements to safeguard the public health, safety, and general welfare and to minimize public and private losses due to flooding through regulation of development in flood hazard areas to:

(1) Minimize unnecessary disruption of commerce, access and public service during times of flooding;

(2) Require the use of appropriate construction practices in order to prevent or minimize future flood damage;

(3) Manage filling, grading, dredging, mining, paving, excavation, drilling operations, storage of equipment or materials, and other development which may increase flood damage or erosion potential;

(4) Manage the alteration of flood hazard areas, watercourses, and shorelines to minimize the impact of development on the natural and beneficial functions of the floodplain;

(5) Minimize damage to public and private facilities and utilities;

(6) Help maintain a stable tax base by providing for the sound use and development of flood hazard areas;

(7) Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events; and

(8) Meet the requirements of the National Flood Insurance Program for city participation as set forth in the Title 44 Code of Federal Regulations, Section 59.22.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-404. - Coordination with the Florida Building Code.

This article is intended to be administered and enforced in conjunction with the Florida Building Code. Where cited, ASCE 24 refers to the edition of the standard that is referenced by the Florida Building Code.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-405. - Warning.

The degree of flood protection required by this article and the Florida Building Code, as amended by this city, is considered the minimum reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur. Flood heights may be increased by man-made or natural causes. This article does not imply that land outside of mapped special flood hazard areas, or that uses permitted within such flood hazard areas, will be free from flooding or flood damage. The flood hazard areas and base flood elevations contained in the flood insurance study and shown on flood insurance rate maps and the requirements of Title 44 Code of Federal Regulations, Sections 59 and 60 may be revised by the Federal Emergency Management Agency, requiring this city to revise these regulations to remain eligible for participation in the National Flood Insurance Program. No guaranty of vested use, existing use, or future use is implied or expressed by compliance with this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-406. - Disclaimer of liability.

This article shall not create liability on the part of City Commission of the City of St. Augustine or by any officer or employee thereof for any flood damage that results from reliance on this article or any administrative decision lawfully made thereunder.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-407. - Reserved.

DIVISION 2. - APPLICABILITY

Sec. 8-408. - General.

Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-409. - Areas to which this article applies.

This article shall apply to all flood hazard areas within the City of St. Augustine, as established in section 8-410 of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-410. - Basis for establishing flood hazard areas.

The Flood Insurance Study for St. Johns County, Florida and Incorporated Areas dated December 7, 2018, and all subsequent amendments and revisions, and the accompanying flood insurance rate maps (FIRM), and all subsequent amendments and revisions to such maps, are adopted by reference as a part of this article and shall serve as the minimum basis for establishing flood hazard areas. Studies and maps that establish flood hazard areas are on file at the Planning and Building Department, 75 King Street.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 21-10, § 3, 6-14-21)

Sec. 8-411. - Submission of additional data to establish flood hazard areas.

To establish flood hazard areas and base flood elevations, pursuant to division 5 of this article the floodplain administrator may require submission of additional data. Where field surveyed topography prepared by a Florida licensed professional surveyor or digital topography accepted by the city indicates that ground elevations:

(1) Are below the closest applicable base flood elevation, even in areas not delineated as a special flood hazard area on a FIRM, the area shall be considered as flood hazard area and subject to the requirements of this article and, as applicable, the requirements of the Florida Building Code.

(2) Are above the closest applicable base flood elevation, the area shall be regulated as special flood hazard area unless the applicant obtains a Letter of Map Change that removes the area from the special flood hazard area.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-412. - Other laws.

The provisions of this article shall not be deemed to nullify any provisions of local, state or federal law.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-413. - Abrogation and greater restrictions.

This article supersedes any ordinance in effect for management of development in flood hazard areas. However, it is not intended to repeal or abrogate any existing ordinances including but not limited to land development regulations, zoning ordinances, stormwater management regulations, or the Florida Building Code. In the event of a conflict between this article and any other ordinance, the more restrictive shall govern. This article shall not impair any deed restriction, covenant or easement, but any land that is subject to such interests shall also be governed by this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-414. - Interpretation.

In the interpretation and application of this article, all provisions shall be:

(1) Considered as minimum requirements;

(2) Liberally construed in favor of the governing body; and

(3) Deemed neither to limit nor repeal any other powers granted under state statutes.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-415. - Reserved.

DIVISION 3. - DUTIES AND POWERS OF THE FLOODPLAIN ADMINISTRATOR

Sec. 8-416. - Designation.

The building official is designated as the floodplain administrator. The floodplain administrator may delegate performance of certain duties to other employees.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-417. - General.

The floodplain administrator is authorized and directed to administer and enforce the provisions of this article. The floodplain administrator shall have the authority to render interpretations of this article consistent with the intent and purpose of this article and may establish policies and procedures in order to clarify the application of its provisions. Such interpretations, policies, and procedures shall not have the effect of waiving requirements specifically provided in this article without the granting of a variance pursuant to division 7 of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-418. - Applications and permits.

The floodplain administrator, in coordination with other pertinent offices of the city, shall:

(1) Review applications and plans to determine whether proposed new development will be located in flood hazard areas;

(2) Review applications for modification of any existing development in flood hazard areas for compliance with the requirements of this article;

(3) Interpret flood hazard area boundaries where such interpretation is necessary to determine the exact location of boundaries; a person contesting the determination shall have the opportunity to appeal the interpretation;

(4) Provide available flood elevation and flood hazard information;

(5) Determine whether additional flood hazard data shall be obtained from other sources or shall be developed by an applicant;

(6) Review applications to determine whether proposed development will be reasonably safe from flooding;

(7) Issue floodplain development permits or approvals for development other than buildings and structures that are subject to the Florida Building Code, including buildings, structures and facilities exempt from the Florida Building Code, when compliance with this article is demonstrated, or disapprove the same in the event of noncompliance; and

(8) Coordinate with and provide comments to the building official to assure that applications, plan reviews, and inspections for buildings and structures in flood hazard areas comply with the applicable provisions of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-419. - Substantial improvement and substantial damage determinations.

For applications for building permits to improve buildings and structures, including alterations, movement, enlargement, replacement, repair, change of occupancy, additions, rehabilitations, renovations, substantial improvements, repairs of substantial damage, and any other improvement of or work on such buildings and structures, the floodplain administrator, in coordination with the building official, shall:

(1) Estimate the market value, or require the applicant to obtain an appraisal of the market value prepared by a qualified independent appraiser, of the building or structure before the start of construction of the proposed work; in the case of repair, the market value of the building or structure shall be the market value before the damage occurred and before any repairs are made;

(2) Compare the cost to perform the improvement, the cost to repair a damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, if applicable, to the market value of the building or structure;

(3) Determine and document whether the proposed work constitutes substantial improvement or repair of substantial damage; the determination requires evaluation of previous permits issued for improvements and repairs as specified in the definition of "substantial improvement"; and

(4) Notify the applicant if it is determined that the work constitutes substantial improvement or repair of substantial damage and that compliance with the flood resistant construction requirements of the Florida Building Code and this article is required.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-420. - Modifications of the strict application of the requirements of the Florida Building Code.

The floodplain administrator shall review requests submitted to the building official that seek approval to modify the strict application of the flood load and flood resistant construction requirements of the Florida Building Code to determine whether such requests require the granting of a variance pursuant to division 7 of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-421. - Notices and orders.

The floodplain administrator shall coordinate with appropriate local agencies for the issuance of all necessary notices or orders to ensure compliance with this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-422. - Inspections.

The floodplain administrator shall make the required inspections as specified in division 6 of this article for development that is not subject to the Florida Building Code, including buildings, structures and facilities exempt from the Florida Building Code. The floodplain administrator shall inspect flood hazard areas to determine if development is undertaken without issuance of a permit.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-423. - Other duties of the floodplain administrator.

The floodplain administrator shall have other duties, including but not limited to:

(1) Establish, in coordination with the building official, procedures for administering and documenting determinations of substantial improvement and substantial damage made pursuant to section 8-419 of this article;

(2) Require that applicants proposing alteration of a watercourse notify adjacent communities and the Florida Division of Emergency Management, State Floodplain Management Office, and submit copies of such notifications to the Federal Emergency Management Agency (FEMA);

(3) Require applicants who submit hydrologic and hydraulic engineering analyses to support permit applications to submit to FEMA the data and information necessary to maintain the flood insurance rate maps if the analyses propose to change base flood elevations, flood hazard area boundaries, or floodway designations; such submissions shall be made within 6 months of such data becoming available;

(4) Review required design certifications and documentation of elevations specified by this article and the Florida Building Code to determine that such certifications and documentations are complete;

(5) Notify the Federal Emergency Management Agency when the corporate boundaries of City of St. Augustine are modified; and

(6) Advise applicants for new buildings and structures, including substantial improvements, that are located in any unit of the Coastal Barrier Resources System established by the Coastal Barrier Resources Act (Pub. L. 97-348) and the Coastal Barrier Improvement Act of 1990 (Pub. L. 101-591) that federal flood insurance is not available on such construction; areas subject to this limitation are identified on flood insurance rate maps as "coastal barrier resource system areas" and "otherwise protected areas."

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-424. - Floodplain management records.

Regardless of any limitation on the period required for retention of public records, the floodplain administrator shall maintain and permanently keep and make available for public inspection all records that are necessary for the administration of this article and the flood resistant construction requirements of the Florida Building Code, including flood insurance rate maps; letters of map change; records of issuance of permits and denial of permits; determinations of whether proposed work constitutes substantial improvement or repair of substantial damage; required design certifications and documentation of elevations specified by the Florida Building Code and this article; notifications to adjacent communities, FEMA, and the state related to alterations of watercourses; assurances that the flood carrying capacity of altered watercourses will be maintained; documentation related to appeals and variances, including justification for issuance or denial; and records of enforcement actions taken pursuant to this article and the flood resistant construction requirements of the Florida Building Code. These records shall be available for public inspection at the City Clerk of the City of St. Augustine.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-425. - Reserved.

DIVISION 4. - PERMITS

Sec. 8-426. - Permits required.

Any owner or owner's authorized agent (hereinafter "applicant") who intends to undertake any development activity within the scope of this article, including buildings, structures and facilities exempt from the Florida Building Code, which is wholly within or partially within any flood hazard area shall first make application to the floodplain administrator, and the building official if applicable, and shall obtain the required permit(s) and approval(s). No such permit or approval shall be issued until compliance with the requirements of this article and all other applicable codes and regulations has been satisfied.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-427. - Floodplain development permits or approvals.

Floodplain development permits or approvals shall be issued pursuant to this article for any development activities not subject to the requirements of the Florida Building Code, including buildings, structures and facilities exempt from the Florida Building Code. Depending on the nature and extent of proposed development that includes a building or structure, the floodplain administrator may determine that a floodplain development permit or approval is required in addition to a building permit.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-428. - Buildings, structures and facilities exempt from the Florida Building Code.

Pursuant to the requirements of federal regulation for participation in the National Flood Insurance Program (44 C.F.R. Sections 59 and 60), floodplain development permits or approvals shall be required for the following buildings, structures and facilities that are exempt from the Florida Building Code and any further exemptions provided by law, which are subject to the requirements of this article:

(1) Railroads and ancillary facilities associated with the railroad.

(2) Nonresidential farm buildings on farms, as provided in F.S. § 604.50.

(3) Temporary buildings or sheds used exclusively for construction purposes.

(4) Mobile or modular structures used as temporary offices.

(5) Those structures or facilities of electric utilities, as defined in F.S. § 366.02, which are directly involved in the generation, transmission, or distribution of electricity.

(6) Chickees constructed by the Miccosukee Tribe of Indians of Florida or the Seminole Tribe of Florida. As used in this paragraph, the term "chickee" means an open-sided wooden hut that has a thatched roof of palm or palmetto or other traditional materials, and that does not incorporate any electrical, plumbing, or other non-wood features.

(7) Family mausoleums not exceeding two hundred fifty (250) square feet in area which are prefabricated and assembled on site or preassembled and delivered on site and have walls, roofs, and a floor constructed of granite, marble, or reinforced concrete.

(8) Temporary housing provided by the department of corrections to any prisoner in the state correctional system.

(9) Structures identified in F.S. § 553.73(10)(k), are not exempt from the Florida Building Code if such structures are located in flood hazard areas established on Flood Insurance Rate Maps.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-429. - Application for a permit or approval.

To obtain a floodplain development permit or approval the applicant shall first file an application in writing on a form furnished by the city. The information provided shall:

(1) Identify and describe the development to be covered by the permit or approval.

(2) Describe the land on which the proposed development is to be conducted by legal description, street address or similar description that will readily identify and definitively locate the site.

(3) Indicate the use and occupancy for which the proposed development is intended.

(4) Be accompanied by a site plan or construction documents as specified in division 5 of this article.

(5) State the valuation of the proposed work.

(6) Be signed by the applicant or the applicant's authorized agent.

(7) Give such other data and information as required by the floodplain administrator.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-430. - Validity of permit or approval.

The issuance of a floodplain development permit or approval pursuant to this article shall not be construed to be a permit for, or approval of, any violation of this article, the Florida Building Codes, or any other ordinance of this city. The issuance of permits based on submitted applications, construction documents, and information shall not prevent the floodplain administrator from requiring the correction of errors and omissions.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-431. - Expiration.

A floodplain development permit or approval shall become invalid unless the work authorized by such permit is commenced within one hundred eighty (180) days after its issuance, or if the work authorized is suspended or abandoned for a period of one hundred eighty (180) days after the work commences. Extensions for periods of not more than one hundred eighty (180) days each shall be requested in writing and justifiable cause shall be demonstrated.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-432. - Suspension or revocation.

The floodplain administrator is authorized to suspend or revoke a floodplain development permit or approval if the permit was issued in error, on the basis of incorrect, inaccurate or incomplete information, or in violation of this article or any other ordinance, regulation or requirement of this city.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-433. - Other permits required.

Floodplain development permits and building permits shall include a condition that all other applicable state or federal permits be obtained before commencement of the permitted development, including but not limited to the following:

(1) The St. Johns River Water Management District; F.S. § 373.036.

(2) Florida Department of Health for onsite sewage treatment and disposal systems; F.S. § 381.0065 and Chapter 64E-6, F.A.C.

(3) Florida Department of Environmental Protection for construction, reconstruction, changes, or physical activities for shore protection or other activities seaward of the coastal construction control line; F.S. § 161.141.

(4) Florida Department of Environmental Protection for activities subject to the Joint Coastal Permit; F.S. § 161.055.

(5) Florida Department of Environmental Protection for activities that affect wetlands and alter surface water flows, in conjunction with the U.S. Army Corps of Engineers; Section 404 of the Clean Water Act.

(6) Federal permits and approvals.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-434. - Reserved.

DIVISION 5. - SITE PLANS AND CONSTRUCTION DOCUMENTS

Sec. 8-435. - Information for development in flood hazard areas.

The site plan or construction documents for any development subject to the requirements of this article shall be drawn to scale and shall include, as applicable to the proposed development:

(1) Delineation of flood hazard areas, floodway boundaries and flood zone(s), base flood elevation(s), and ground elevations if necessary for review of the proposed development.

(2) Location of the proposed activity and proposed structures, and locations of existing buildings and structures; in coastal high hazard areas, new buildings shall be located landward of the reach of mean high tide.

(3) Location, extent, amount, and proposed final grades of any filling, grading, or excavation.

(4) Where the placement of fill is proposed, the amount, type, and source of fill material; compaction specifications; a description of the intended purpose of the fill areas; and evidence that the proposed fill areas are the minimum necessary to achieve the intended purpose.

(5) Delineation of the coastal construction control line or notation that the site is seaward of the coastal construction control line, if applicable.

(6) Extent of any proposed alteration of sand dunes or mangrove stands, provided such alteration is approved by the Florida Department of Environmental Protection.

(7) Existing and proposed alignment of any proposed alteration of a watercourse.

The floodplain administrator is authorized to waive the submission of site plans, construction documents, and other data that are required by this article but that are not required to be prepared by a registered design professional if it is found that the nature of the proposed development is such that the review of such submissions is not necessary to ascertain compliance with this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-436. - Additional analyses and certifications.

As applicable to the location and nature of the proposed development activity, and in addition to the requirements of this section, the applicant shall have the following analyses signed and sealed by a Florida licensed engineer for submission with the site plan and construction documents:

(1) For development activities proposed to be located in a regulatory floodway, a floodway encroachment analysis that demonstrates that the encroachment of the proposed development will not cause any increase in base flood elevations; where the applicant proposes to undertake development activities that do increase base flood elevations, the applicant shall submit such analysis to FEMA as specified in section 8-437 of this article and shall submit the conditional letter of map revision, if issued by FEMA, with the site plan and construction documents.

(2) For alteration of a watercourse, an engineering analysis prepared in accordance with standard engineering practices which demonstrates that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased, and certification that the altered watercourse shall be maintained in a manner which preserves the channel's flood-carrying capacity; the applicant shall submit the analysis to FEMA as specified in section 8-437 of this article.

(3) For activities that propose to alter sand dunes or mangrove stands in coastal high hazard areas (zone V), an engineering analysis that demonstrates that the proposed alteration will not increase the potential for flood damage.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-437. - Submission of additional data.

When additional hydrologic, hydraulic or other engineering data, studies, and additional analyses are submitted to support an application, the applicant has the right to seek a letter of map change from FEMA to change the base flood elevations, change floodway boundaries, or change boundaries of flood hazard

areas shown on FIRMs, and to submit such data to FEMA for such purposes. The analyses shall be prepared by a Florida licensed engineer in a format required by FEMA. Submittal requirements and processing fees shall be the responsibility of the applicant.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-438. - Reserved.

DIVISION 6. - INSPECTIONS

Sec. 8-439. - General.

Development for which a floodplain development permit or approval is required shall be subject to inspection.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-440. - Development other than buildings and structures.

The floodplain administrator shall inspect all development to determine compliance with the requirements of this article and the conditions of issued floodplain development permits or approvals.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-441. - Buildings, structures and facilities exempt from the Florida Building Code.

The floodplain administrator shall inspect buildings, structures and facilities exempt from the Florida Building Code to determine compliance with the requirements of this article and the conditions of issued floodplain development permits or approvals.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-442. - Buildings, structures and facilities exempt from the Florida Building Code, lowest floor inspection.

Upon placement of the lowest floor, including basement, and prior to further vertical construction, the owner of a building, structure or facility exempt from the Florida Building Code, or the owner's authorized agent, shall submit to the floodplain administrator the certification of elevation of the lowest floor prepared and sealed by a Florida licensed professional surveyor.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-443. - Buildings, structures and facilities exempt from the Florida Building Code, final inspection.

As part of the final inspection, the owner or owner's authorized agent shall submit to the floodplain administrator a final certification of elevation of the lowest floor or final documentation of the height of the lowest floor above the highest adjacent grade; such certifications and documentations shall be prepared as specified in section 8-442 of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-444. - Manufactured homes.

The floodplain administrator shall inspect manufactured homes that are installed or replaced in flood hazard areas to determine compliance with the requirements of this article and the conditions of the issued permit. Upon placement of a manufactured home, certification of the elevation of the lowest floor shall be submitted to the floodplain administrator.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-445. - Reserved.

DIVISION 7. - VARIANCES AND APPEALS

Sec. 8-446. - General.

The nuisance, appeals and adjustment board shall hear and decide on requests for appeals and requests for variances from the strict application of this article. The board's written decision on variance requests shall be made within ten (10) days after the public hearing required by section 8-4. Pursuant to F.S. § 553.73(5), the board shall hear and decide on requests for appeals and requests for variances from the strict application of the flood resistant construction requirements of the Florida Building Code. This section does not apply to Section 3109 of the Florida Building Code, Building.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 24-07, § 3, 4-8-24)

Sec. 8-447. - Appeals.

The nuisance, appeals and adjustment board shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the floodplain administrator in the administration and enforcement of this article. Any person aggrieved by the decision may appeal such decision to the Circuit Court, as provided by Florida Statutes.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 24-07, § 3, 4-8-24)

Sec. 8-448. - Limitations on authority to grant variances.

The nuisance, appeals and adjustment board shall base its decisions on variances on technical justifications submitted by applicants, the considerations for issuance in section 8-452 of this article, the conditions of issuance set forth in section 8-453 of this article, and the comments and recommendations of the floodplain administrator and the building official. The board has the right to attach such conditions as it deems necessary to further the purposes and objectives of this article.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 24-07, § 3, 4-8-24)

Sec. 8-449. - Restrictions in floodways.

A variance shall not be issued for any proposed development in a floodway if any increase in base flood elevations would result, as evidenced by the applicable analyses and certifications required in section 8-436 of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-450. - Historic buildings.

A variance is authorized to be issued for the repair, improvement, or rehabilitation of a historic building that is determined eligible for the exception to the flood resistant construction requirements of the Florida Building Code, Existing Building, Chapter 12 Historic Buildings, upon a determination that the proposed repair, improvement, or rehabilitation will not preclude the building's continued designation as a historic building and the variance is the minimum necessary to preserve the historic character and design of the building. If the proposed work precludes the building's continued designation as a historic building, a variance shall not be granted and the building and any repair, improvement, and rehabilitation shall be subject to the requirements of the Florida Building Code.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-451. - Functionally dependent uses.

A variance is authorized to be issued for the construction or substantial improvement necessary for the conduct of a functionally dependent use, as defined in this article, provided the variance meets the requirements of section 8-447, is the minimum necessary considering the flood hazard, and all due consideration has been given to use of methods and materials that minimize flood damage during occurrence of the base flood.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-452. - Considerations for issuance of variances.

In reviewing requests for variances, the nuisance, appeals and adjustment board shall consider all technical evaluations, all relevant factors, all other applicable provisions of the Florida Building Code, this article, and the following:

(1) The danger that materials and debris may be swept onto other lands resulting in further injury or damage;

(2) The danger to life and property due to flooding or erosion damage;

(3) The susceptibility of the proposed development, including contents, to flood damage and the effect of such damage on current and future owners;

(4) The importance of the services provided by the proposed development to the city;

(5) The availability of alternate locations for the proposed development that are subject to lower risk of flooding or erosion;

(6) The compatibility of the proposed development with existing and anticipated development;

(7) The relationship of the proposed development to the comprehensive plan and floodplain management program for the area;

(8) The safety of access to the property in times of flooding for ordinary and emergency vehicles;

(9) The expected heights, velocity, duration, rate of rise and debris and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; and

(10) The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, streets and bridges.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 24-07, § 4, 4-8-24)

Sec. 8-453. - Conditions for issuance of variances.

Variances shall be issued only upon:

(1) Submission by the applicant, of a showing of good and sufficient cause that the unique characteristics of the size, configuration, or topography of the site limit compliance with any provision of this article or the required elevation standards;

(2) Determination by the nuisance, appeals and adjustment board that:

a. Failure to grant the variance would result in exceptional hardship due to the physical characteristics of the land that render the lot undevelopable; increased costs to satisfy the requirements or inconvenience do not constitute hardship;

b.

The granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, nor create nuisances, cause fraud on or victimization of the public or conflict with existing local laws and ordinances; and

c. The variance is the minimum necessary, considering the flood hazard, to afford relief;

(3) Receipt of a signed statement by the applicant that the variance, if granted, shall be recorded in the office of the clerk of the court in such a manner that it appears in the chain of title of the affected parcel of land; and

(4) If the request is for a variance to allow construction of the lowest floor of a new building, or substantial improvement of a building, below the required elevation, a copy in the record of a written notice from the floodplain administrator to the applicant for the variance, specifying the difference between the base flood elevation and the proposed elevation of the lowest floor, stating that the cost of federal flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation (up to amounts as high as twenty-five dollars ($25.00) for one hundred dollars ($100.00) of insurance coverage), and stating that construction below the base flood elevation increases risks to life and property.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 24-07, § 4, 4-8-24)

Sec. 8-454. - Reserved.

DIVISION 8. - VIOLATIONS

Sec. 8-455. - Violations.

Any development that is not within the scope of the Florida Building Code but that is regulated by this article that is performed without an issued permit, that is in conflict with an issued permit, or that does not fully comply with this article, shall be deemed a violation of this article. A building or structure without the documentation of elevation of the lowest floor, other required design certifications, or other evidence of compliance required by this article or the Florida Building Code is presumed to be a violation until such time as that documentation is provided.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-456. - Authority.

For development that is not within the scope of the Florida Building Code but that is regulated by this article and that is determined to be a violation, the floodplain administrator is authorized to serve notices of violation or stop work orders to owners of the property involved, to the owner's agent, or to the person or persons performing the work.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-457. - Unlawful continuance.

Any person who shall continue any work after having been served with a notice of violation or a stop work order, except such work as that person is directed to perform to remove or remedy a violation or unsafe condition, shall be subject to penalties as prescribed by law.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-458. - Fines.

Violation of the provisions of this chapter or failure to comply with any of its requirements, including violation of conditions and safeguards established in connection with grants of variance or special exceptions, shall be punishable as a noncriminal code enforcement violation under procedures established by F.S. ch. 162, and this Code. Any person who violates the provisions of this chapter or fails to comply with any of its requirements upon adjudication by CEAAB may be fined not more than two hundred fifty dollars ($250.00) for the first offense and five hundred dollars ($500.00) thereafter for a repeat offense. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the floodplain coordinator from taking such other lawful actions as is necessary to prevent or remedy any violation.

(Ord. No. 17-08, § 3, 5-22-17)

DIVISION 9. - GENERAL

Sec. 8-459. - Scope.

Unless otherwise expressly stated, the following words and terms shall, for the purposes of this article, have the meanings shown in this section. Where terms are not defined in this article and are defined in the Florida Building Code, such terms shall have the meanings ascribed to them in that code. Where terms are not defined in this article or the Florida Building Code, such terms shall have ordinarily accepted meanings such as the context implies.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-460. - Definitions.

Accessory structure. A structure on the same parcel of property as a principal structure and the use of which is incidental to the use of the principal structure. For floodplain management purposes, the term includes only accessory structures used for parking and storage.

Alteration of a watercourse. A dam, impoundment, channel relocation, change in channel alignment, channelization, or change in cross-sectional area of the channel or the channel capacity, or any other form of modification which may alter, impede, retard or change the direction and/or velocity of the riverine flow of water during conditions of the base flood.

Appeal. A request for a review of the floodplain administrator's interpretation of any provision of this article.

ASCE 24. A standard titled flood resistant design and construction that is referenced by the Florida Building Code. ASCE 24 is developed and published by the American Society of Civil Engineers, Reston, VA.

Base flood. A flood having a 1-percent chance of being equaled or exceeded in any given year. [Also defined in Florida Building Code, Building, Section 202.] The base flood is commonly referred to as the "100-year flood" or the "1-percent-annual chance flood."

Base flood elevation. The elevation of the base flood, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other datum specified on the flood insurance rate map (FIRM). [Also defined in Florida Building Code, Building, Section 202.]

Basement. The portion of a building having its floor subgrade (below ground level) on all sides. [Also defined in Florida Building Code, Building, Section 202; see "Basement (for flood loads)".]

Coastal construction control line. The line established by the State of Florida pursuant to F.S. § 161.053, and recorded in the official records of the city, which defines that portion of the beach-dune system subject to severe fluctuations based on a 100-year storm surge, storm waves or other predictable weather conditions.

Coastal high hazard area. A special flood hazard area extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. Coastal high hazard areas are also referred to as "high hazard areas subject to high velocity wave action" or "V Zones" and are designated on flood insurance rate maps (FIRM) as zone V1-V30, VE, or V.

Crown of street. The elevation of the highest surface of street pavement within the right-of-way abutting the property or the elevation approved by the city engineer.

Design flood. The flood associated with the greater of the following two (2) areas: [Also defined in Florida Building Code, Building, Section 202.]

(1) Area with a floodplain subject to a 1-percent or greater chance of flooding in any year; or

(2) Area designated as a flood hazard area on the city's flood hazard map, or otherwise legally designated.

Design flood elevation. The elevation of the "design flood," including wave height, relative to the datum specified on the city's legally designated flood hazard map. In areas designated as zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as zone AO where the depth number is not specified on the map, the depth number shall be taken as being equal to two (2) feet. [Also defined in Florida Building Code, Building, Section 202.]

Development. Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, tanks, temporary structures, temporary or permanent storage of equipment or materials, mining, dredging, filling, grading, paving, excavations, drilling operations or any other land disturbing activities.

Exceptional hardship. The exceptional or unreasonable hardship associated with the land that would result from a failure to grant the requested variance. Mere economic or financial hardship alone is not unreasonable or exceptional. Inconvenience, aesthetic considerations, physical handicaps, personal preferences or the disapproval of one's neighbors likewise cannot, as a rule, qualify as an unreasonable or exceptional hardship. All of these problems can be resolved through other means without granting a variance, even if the alternative is more expensive, or requires the property owner to build elsewhere or put the parcel to a different use than originally intended.

Encroachment. The placement of fill, excavation, buildings, permanent structures or other development into a flood hazard area which may impede or alter the flow capacity of riverine flood hazard areas.

Existing building and existing structure. Any buildings and structures for which the "start of construction" commenced before October 6, 1972. [Also defined in Florida Building Code, Building, Section 202.]

Federal Emergency Management Agency (FEMA). The federal agency that, in addition to carrying out other functions, administers the National Flood Insurance Program.

Flood or *flooding.* A general and temporary condition of partial or complete inundation of normally dry land from: [Also defined in Florida Building Code, Building, Section 202.]

(1) The overflow of inland or tidal waters.

(2) The unusual and rapid accumulation or runoff of surface waters from any source.

Flood damage-resistant materials. Any construction material capable of withstanding direct and prolonged contact with floodwaters without sustaining any damage that requires more than cosmetic repair. [Also defined in Florida Building Code, Building, Section 202.]

Flood hazard area. The greater of the following two areas: [Also defined in Florida Building Code, Building, Section 202.]

(1) The area within a floodplain subject to a 1-percent or greater chance of flooding in any year.

(2) The area designated as a flood hazard area on the city's flood hazard map, or otherwise legally designated.

Flood insurance rate map (FIRM). The official map of the city on which the Federal Emergency Management Agency has delineated both special flood hazard areas and the risk premium zones applicable to the city. [Also defined in Florida Building Code, Building, Section 202.]

Flood insurance study (FIS). The official report provided by the Federal Emergency Management Agency that contains the flood insurance rate map, the flood boundary and floodway map (if applicable), the water surface elevations of the base flood, and supporting technical data. [Also defined in Florida Building Code, Building, Section 202.]

Floodplain administrator. The office or position designated and charged with the administration and enforcement of this article (may be referred to as the floodplain manager).

Floodplain development permit or approval. An official document or certificate issued by the city, or other evidence of approval or concurrence, which authorizes performance of specific development activities that are located in flood hazard areas and that are determined to be compliant with this article.

Floodway. The channel of a river or other riverine watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot. [Also defined in Florida Building Code, Building, Section 202.]

Floodway encroachment analysis. An engineering analysis of the impact that a proposed encroachment into a floodway is expected to have on the floodway boundaries and base flood elevations; the evaluation shall be prepared by a qualified Florida licensed engineer using standard engineering methods and models.

Florida Building Code. The family of codes adopted by the Florida Building Commission, including: Florida Building Code, Building; Florida Building Code, Residential; Florida Building Code, Existing Building; Florida Building Code, Mechanical; Florida Building Code, Plumbing; Florida Building Code, Fuel Gas.

Functionally dependent use. A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water, including only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities; the term does not include long-term storage or related manufacturing facilities.

Highest adjacent grade. The highest natural elevation of the ground surface prior to construction next to the proposed walls or foundation of a structure.

Historic structure. Any structure that is determined eligible for the exception to the flood hazard area requirements of the Florida Building Code, Existing Building, Chapter 12 Historic Buildings.

Letter of map change (LOMC). An official determination issued by FEMA that amends or revises an effective flood insurance rate map or flood insurance study. Letters of map change include:

Letter of map amendment (LOMA): An amendment based on technical data showing that a property was incorrectly included in a designated special flood hazard area. A LOMA amends the current effective flood insurance rate map and establishes that a specific property, portion of a property, or structure is not located in a special flood hazard area.

Letter of map revision (LOMR): A revision based on technical data that may show changes to flood zones, flood elevations, special flood hazard area boundaries and floodway delineations, and other planimetric features.

Letter of map revision based on fill (LOMR-F): A determination that a structure or parcel of land has been elevated by fill above the base flood elevation and is, therefore, no longer located within the special flood hazard area. In order to qualify for this determination, the fill must have been permitted and placed in accordance with the city's floodplain management regulations.

Conditional letter of map revision (CLOMR): A formal review and comment as to whether a proposed flood protection project or other project complies with the minimum NFIP requirements for such projects with respect to delineation of special flood hazard areas. A CLOMR does not revise the effective flood insurance rate map or flood insurance study; upon submission and approval of certified as-built documentation, a letter of map revision may be issued by FEMA to revise the effective FIRM.

Light-duty truck. As defined in 40 C.F.R. 86.082-2, any motor vehicle rated at eight thousand five hundred (8,500) pounds gross vehicular weight rating or less which has a vehicular curb weight of six thousand (6,000) pounds or less and which has a basic vehicle frontal area of forty-five (45) square feet or less, which is:

(1) Designed primarily for purposes of transportation of property or is a derivation of such a vehicle; or

(2) Designed primarily for transportation of persons and has a capacity of more than twelve (12) persons; or

(3) Available with special features enabling off-street or off-highway operation and use.

Lowest floor. The lowest floor of the lowest enclosed area of a building or structure, including basement, but excluding any unfinished or flood-resistant enclosure, other than a basement, usable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the structure in violation of the non-elevation requirements of the Florida Building Code or ASCE 24. [Also defined in Florida Building Code, Building, Section 202.]

Manufactured home. A structure, transportable in one or more sections, which is eight (8) feet or more in width and greater than four hundred (400) square feet, and which is built on a permanent, integral chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle" or "park trailer." [Also defined in 15C-1.0101, F.A.C.]

Manufactured home park or subdivision. A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Market value. The value of buildings and structures, excluding the land and other improvements on the parcel. Market value is the actual cash value (like-kind replacement cost depreciated for age, wear and tear, neglect, and quality of construction) determined by a qualified independent appraiser, or tax assessment value established by the St. Johns County Property Appraiser plus ten (10) percent. Appraisals by qualified independent appraisers shall not use the "income capitalization approach," which based value on the use of the property and not on the structure.

New construction. For the purposes of administration of this article and the flood resistant construction requirements of the Florida Building Code, structures for which the "start of construction" commenced on or after October 6, 1972 and includes any subsequent improvements to such structures.

Park trailer. A transportable unit which has a body width not exceeding fourteen (14) feet and which is built on a single chassis and is designed to provide seasonal or temporary living quarters when connected to utilities necessary for operation of installed fixtures and appliances. [Defined in F.S. § 320.01]

Recreational vehicle. A vehicle, including a park trailer, which is: [See F.S. § 320.01)

(1) Built on a single chassis;

(2) Four hundred (400) square feet or less when measured at the largest horizontal projection;

(3) Designed to be self-propelled or permanently towable by a light-duty truck; and

(4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Sand dunes. Naturally occurring accumulations of sand in ridges or mounds landward of the beach.

Special flood hazard area. An area in the floodplain subject to a 1 percent or greater chance of flooding in any given year. Special flood hazard areas are shown on FIRMs as zone A, AO, A1-A30, AE, A99, AH, V1-V30, VE or V. [Also defined in Florida Building Code, Building Section 202.]

Start of construction. The date of issuance of permits for new construction and substantial improvements, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement is within one hundred eighty (180) days of the date of the issuance. The actual start of construction means either the first placement of permanent construction of a building (including a manufactured home) on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns.

Permanent construction does not include land preparation (such as clearing, grading, or filling), the installation of streets or walkways, excavation for a basement, footings, piers, or foundations, the erection of temporary forms or the installation of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main buildings. For a substantial improvement, the actual "start of

construction" means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not that alteration affects the external dimensions of the building. [Also defined in Florida Building Code, Building Section 202.]

Substantial damage. Damage of any origin sustained by a building or structure whereby the cost of restoring the building or structure to its before-damaged condition would equal or exceed fifty (50) percent of the market value of the building or structure before the damage occurred. [Also defined in Florida Building Code, Building Section 202.]

Substantial improvement. Any repair, reconstruction, rehabilitation, alteration, addition, or other improvement of a building or structure, the cost of which equals or exceeds fifty (50) percent of the market value of the building or structure before the improvement or repair is started. If the structure has incurred "substantial damage," any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either: [Also defined in Florida Building Code, Building, Section 202.]

(1) Any project for improvement of a building required to correct existing health, sanitary, or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions.

(2) Any alteration of a historic structure provided the alteration will not preclude the structure's continued designation as a historic structure.

Variance. A grant of relief from the requirements of this article, or the flood resistant construction requirements of the Florida Building Code, which permits construction in a manner that would not otherwise be permitted by this article or the Florida Building Code.

Watercourse. A river, creek, stream, channel or other topographic feature in, on, through, or over which water flows at least periodically.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 17-09, § 3, 12-11-17; Ord. No. 21-10, § 4, 6-14-21)

DIVISION 10. - BUILDINGS AND STRUCTURES

Sec. 8-461. - Design and construction of buildings, structures and facilities exempt from the Florida Building Code.

Pursuant to section 8-428 of this article, buildings, structures, and facilities that are exempt from the Florida Building Code, including substantial improvement or repair of substantial damage of such buildings, structures and facilities, shall be designed and constructed in accordance with the flood load and flood resistant construction requirements of ASCE 24. Structures exempt from the Florida Building Code that are not walled and roofed buildings shall comply with the requirements of division 16 of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-462. - Buildings and structures seaward of the coastal construction control line.

If extending, in whole or in part, seaward of the coastal construction control line and also located, in whole or in part, in a flood hazard area:

(1) Buildings and structures shall be designed and constructed to comply with the more restrictive applicable requirements of the Florida Building Code, Building Section 3109 and Section 1612 or Florida Building Code, Residential Section R322.

(2) Minor structures and non-habitable major structures as defined in F.S. § 161.54, shall be designed and constructed to comply with the intent and applicable provisions of this article and ASCE 24.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-463. - Elevation requirement for areas outside of flood hazard areas.

In areas outside of flood hazard areas established in accordance with section 8-410 (Zone X), new buildings and structures shall have the lowest habitable floor elevated at least twelve (12) inches above the crown of road.

(Ord. No. 17-09, § 4, 12-11-17)

DIVISION 11. - SUBDIVISIONS

Sec. 8-464. - Minimum requirements.

Subdivision proposals, including proposals for manufactured home parks and subdivisions, shall be reviewed to determine that:

(1) Such proposals are consistent with the need to minimize flood damage and will be reasonably safe from flooding;

(2) All public utilities and facilities such as sewer, gas, electric, communications, and water systems are located and constructed to minimize or eliminate flood damage; and

(3) Adequate drainage is provided to reduce exposure to flood hazards; in zones AH and AO, adequate drainage paths shall be provided to guide floodwaters around and away from proposed structures.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-465. - Subdivision plats.

Where any portion of proposed subdivisions, including manufactured home parks and subdivisions, lies within a flood hazard area, the following shall be required:

(1) Delineation of flood hazard areas, floodway boundaries and flood zones, and design flood elevations, as appropriate, shall be shown on preliminary plats; and

(2) Compliance with the site improvement and utilities requirements of division 12 of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-466. - Reserved.

DIVISION 12. - SITE IMPROVEMENTS, UTILITIES AND LIMITATIONS

Sec. 8-467. - Minimum requirements.

All proposed new development shall be reviewed to determine that:

(1) Such proposals are consistent with the need to minimize flood damage and will be reasonably safe from flooding;

(2) All public utilities and facilities such as sewer, gas, electric, communications, and water systems are located and constructed to minimize or eliminate flood damage; and

(3) Adequate drainage is provided to reduce exposure to flood hazards; in zones AH and AO, adequate drainage paths shall be provided to guide floodwaters around and away from proposed structures.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-468. - Sanitary sewage facilities.

All new and replacement sanitary sewage facilities, private sewage treatment plants (including all pumping stations and collector systems), and on-site waste disposal systems shall be designed in accordance with the standards for onsite sewage treatment and disposal systems in Chapter 64E-6, F.A.C. and ASCE 24 Chapter 7 to minimize or eliminate infiltration of floodwaters into the facilities and discharge from the facilities into flood waters, and impairment of the facilities and systems.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-469. - Water supply facilities.

All new and replacement water supply treatment facilities, private water treatment plants, pumping stations, and water storage systems shall be designed in accordance with the water well construction standards in Chapter 62-532.500, F.A.C. and ASCE 24 Chapter 7 to minimize or eliminate infiltration of floodwaters into the systems.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-470. - Limitations on sites in regulatory floodways.

No development, including but not limited to site improvements, and land disturbing activity involving fill or regrading, shall be authorized in the regulatory floodway unless the floodway encroachment analysis required in section 8-436(1) of this article demonstrates that the proposed development or land disturbing activity will not result in any increase in the base flood elevation.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-471. - Limitations on placement of fill.

Subject to the limitations of this article, fill shall be designed to be stable under conditions of flooding including rapid rise and rapid drawdown of floodwaters, prolonged inundation, and protection against flood-related erosion and scour. In addition to these requirements, if intended to support buildings and structures (zone A only), fill shall comply with the requirements of the Florida Building Code.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-472. - Limitations on sites in coastal high hazard areas (zone V).

In coastal high hazard areas, alteration of sand dunes and mangrove stands shall be permitted only if such alteration is approved by the Florida Department of Environmental Protection and only if the engineering analysis required by section 8-436(3) of this article demonstrates that the proposed alteration will not increase the potential for flood damage. Construction or restoration of dunes under or around elevated buildings and structures shall comply with section 8-498(3) of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-473. - Reserved.

DIVISION 13. - MANUFACTURED HOMES

Sec. 8-474. - General.

All manufactured homes installed in flood hazard areas shall be installed by an installer that is licensed pursuant to F.S. § 320.8249, and shall comply with the requirements of Chapter 15C-1, F.A.C. and the requirements of this article. If located seaward of the coastal construction control line, all manufactured homes shall comply with the more restrictive of the applicable requirements.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-475. - Foundations.

All new manufactured homes and replacement manufactured homes installed in flood hazard areas shall be installed on permanent, reinforced foundations that:

(1) In flood hazard areas (zone A) other than coastal high hazard areas, are designed in accordance with the foundation requirements of the Florida Building Code, Residential Section R322.2 and this article.

(2) In coastal high hazard areas (zone V), are designed in accordance with the foundation requirements of the Florida Building Code, Residential Section R322.3 and this article.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 21-10, § 5, 6-14-21)

Sec. 8-476. - Anchoring.

All new manufactured homes and replacement manufactured homes shall be installed using methods and practices which minimize flood damage and shall be securely anchored to an adequately anchored foundation system to resist flotation, collapse or lateral movement. Methods of anchoring include, but are not limited to, use of over-the-top or frame ties to ground anchors. This anchoring requirement is in addition to applicable state and local anchoring requirements for wind resistance.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-477. - Elevation.

All manufactured homes that are placed, replaced, or substantially improved in flood hazard areas shall be elevated such that the bottom of the frame is at or above the elevation required, as applicable to the flood hazard area, in the Florida Building Code, Residential Section R322.2 (Zone A) or R322.3 (Zone V and Coastal A Zone).

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 21-10, § 5, 6-14-21)

Sec. 8-478. - Enclosures.

Enclosed areas below elevated manufactured homes shall comply with the requirements of the Florida Building Code, Residential Section R322.2 or R322.3 for such enclosed areas, as applicable to the flood hazard area.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 21-10, § 5, 6-14-21)

Editor's note— Ord. No. 21-10, § 5, adopted June 14, 2021, repealed § 8-478, which pertained to general elevation requirement and derived from Ord. No. 17-08, § 3, 5-22-17. Therefore, § 8-480 is renumbered as § 8-478.

Sec. 8-479. - Utility equipment.

Utility equipment that serves manufactured homes, including electric, heating, ventilation, plumbing, and air conditioning equipment and other service facilities, shall comply with the requirements of the Florida Building Code, Residential Section R322, as applicable to the flood hazard area.

(Ord. No. 17-08, § 3, 5-22-17; Ord. No. 21-10, § 5, 6-14-21)

Editor's note— Ord. No. 21-10, § 5, adopted June 14, 2021, repealed § 8-479, which pertained to elevation requirement for certain existing manufactured home parks and subdivisions and derived from Ord. No. 17-08, § 3, 5-22-17. Therefore, § 8-481 is renumbered as § 8-479.

Secs. 8-480—8-482. - Reserved.

DIVISION 14. - RECREATIONAL VEHICLES AND PARK TRAILERS

Sec. 8-483. - Temporary placement.

Recreational vehicles and park trailers placed temporarily in flood hazard areas shall:

(1) Be on the site for fewer than one hundred eighty (180) consecutive days; or

(2) Be fully licensed and ready for highway use, which means the recreational vehicle or park model is on wheels or jacking system, is attached to the site only by quick-disconnect type utilities and security devices, and has no permanent attachments such as additions, rooms, stairs, decks and porches.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-484. - Permanent placement.

Recreational vehicles and park trailers that do not meet the limitations in section 8-483 of this article for temporary placement shall meet the requirements of division 13 of this article for manufactured homes.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-485. - Reserved.

DIVISION 15. - TANKS

Sec. 8-486. - Underground tanks.

Underground tanks in flood hazard areas shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads during conditions of the design flood, including the effects of buoyancy assuming the tank is empty.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-487. - Above-ground tanks, not elevated.

Above-ground tanks that do not meet the elevation requirements of section 8-488 of this article shall:

(1) Be permitted in flood hazard areas (zone A) other than coastal high hazard areas, provided the tanks are anchored or otherwise designed and constructed to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads during conditions of the design flood, including the effects of buoyancy assuming the tank is empty and the effects of flood-borne debris.

(2) Not be permitted in coastal high hazard areas (zone V).

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-488. - Above-ground tanks, elevated.

Above-ground tanks in flood hazard areas shall be elevated to or above the design flood elevation and attached to a supporting structure that is designed to prevent flotation, collapse or lateral movement during conditions of the design flood. Tank-supporting structures shall meet the foundation requirements of the applicable flood hazard area.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-489. - Tank inlets and vents.

Tank inlets, fill openings, outlets and vents shall be:

(1) At or above the design flood elevation or fitted with covers designed to prevent the inflow of floodwater or outflow of the contents of the tanks during conditions of the design flood; and

(2) Anchored to prevent lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the design flood.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-490. - Reserved.

DIVISION 16. - OTHER DEVELOPMENT

Sec. 8-491. - General requirements for other development.

All development, including man-made changes to improved or unimproved real estate for which specific provisions are not specified in this article or the Florida Building Code, shall:

(1) Be located and constructed to minimize flood damage;

(2) Meet the limitations of section 8-470 of this article if located in a regulated floodway;

(3) Be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the design flood;

(4) Be constructed of flood damage-resistant materials; and

(5) Have mechanical, plumbing, and electrical systems above the design flood elevation or meet the requirements of ASCE 24, except that minimum electric service required to address life safety and electric code requirements is permitted below the design flood elevation provided it conforms to the provisions of the electrical part of building code for wet locations.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-492. - Fences in regulated floodways.

Fences in regulated floodways that have the potential to block the passage of floodwaters, such as stockade fences and wire mesh fences, shall meet the limitations of section 8-470 of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-493. - Retaining walls, sidewalks and driveways in regulated floodways.

Retaining walls and sidewalks and driveways that involve the placement of fill in regulated floodways shall meet the limitations of section 8-470 of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-494. - Roads and watercourse crossings in regulated floodways.

Roads and watercourse crossings, including roads, bridges, culverts, low-water crossings and similar means for vehicles or pedestrians to travel from one side of a watercourse to the other side, that encroach into regulated floodways shall meet the limitations of section 8-470 of this article. Alteration of a watercourse that is part of a road or watercourse crossing shall meet the requirements of section 8-436(2) of this article.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-495. - Concrete slabs used as parking pads, enclosure floors, landings, decks, walkways, patios and similar nonstructural uses in coastal high hazard areas (zone V).

In coastal high hazard areas, concrete slabs used as parking pads, enclosure floors, landings, decks, walkways, patios and similar nonstructural uses are permitted beneath or adjacent to buildings and structures provided the concrete slabs are designed and constructed to be:

(1) Structurally independent of the foundation system of the building or structure;

(2) Frangible and not reinforced, so as to minimize debris during flooding that is capable of causing significant damage to any structure; and

(3) Have a maximum slab thickness of not more than four (4) inches.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-496. - Decks and patios in coastal high hazard areas (zone V).

In addition to the requirements of the Florida Building Code, in coastal high hazard areas decks and patios shall be located, designed, and constructed in compliance with the following:

(1) A deck that is structurally attached to a building or structure shall have the bottom of the lowest horizontal structural member at or above the design flood elevation and any supporting members that extend below the design flood elevation shall comply with the foundation requirements that apply to the building or structure, which shall be designed to accommodate any increased loads resulting from the attached deck.

(2)

A deck or patio that is located below the design flood elevation shall be structurally independent from buildings or structures and their foundation systems, and shall be designed and constructed either to remain intact and in place during design flood conditions or to break apart into small pieces to minimize debris during flooding that is capable of causing structural damage to the building or structure or to adjacent buildings and structures.

(3) A deck or patio that has a vertical thickness of more than twelve (12) inches or that is constructed with more than the minimum amount of fill necessary for site drainage shall not be approved unless an analysis prepared by a qualified registered design professional demonstrates no harmful diversion of floodwaters or wave runup and wave reflection that would increase damage to the building or structure or to adjacent buildings and structures.

(4) A deck or patio that has a vertical thickness of twelve (12) inches or less and that is at natural grade or on nonstructural fill material that is similar to and compatible with local soils and is the minimum amount necessary for site drainage may be approved without requiring analysis of the impact on diversion of floodwaters or wave runup and wave reflection.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-497. - Other development in coastal high hazard areas (zone V).

In coastal high hazard areas, development activities other than buildings and structures shall be permitted only if also authorized by the appropriate federal, state or local authority; if located outside the footprint of, and not structurally attached to, buildings and structures; and if analyses prepared by qualified registered design professionals demonstrate no harmful diversion of floodwaters or wave runup and wave reflection that would increase damage to adjacent buildings and structures. Such other development activities include but are not limited to:

(1) Bulkheads, seawalls, retaining walls, revetments, and similar erosion control structures;

(2) Solid fences and privacy walls, and fences prone to trapping debris, unless designed and constructed to fail under flood conditions less than the design flood or otherwise function to avoid obstruction of floodwaters; and

(3) On-site sewage treatment and disposal systems defined in 64E-6.002, F.A.C., as filled systems or mound systems.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-498. - Nonstructural fill in coastal high hazard areas (zone V).

In coastal high hazard areas:

(1) Minor grading and the placement of minor quantities of nonstructural fill shall be permitted for landscaping and for drainage purposes under and around buildings.

(2) Nonstructural fill with finished slopes that are steeper than one unit vertical to five units horizontal shall be permitted only if an analysis prepared by a qualified registered design professional demonstrates no harmful diversion of floodwaters or wave runup and wave reflection that would increase damage to adjacent buildings and structures.

(3) Where authorized by the Florida Department of Environmental Protection or applicable local approval, sand dune construction and restoration of sand dunes under or around elevated buildings are permitted without additional engineering analysis or certification of the diversion of floodwater or wave runup and wave reflection if the scale and location of the dune work is consistent with local beach-dune morphology and the vertical clearance is maintained between the top of the sand dune and the lowest horizontal structural member of the building.

(Ord. No. 17-08, § 3, 5-22-17)

Sec. 8-499. - Accessory structures.

Accessory structures are permitted below the base flood elevation provided the accessory structures are used only for parking or storage and:

(1) If located in special flood hazard areas (Zone A/AE) other than coastal high hazard areas, are one-story and not larger than six hundred (600) square feet and have flood openings in accordance with Section R322.2 of the Florida Building Code, Residential.

(2) If located in coastal high hazard areas (Zone V/VE), are not located below elevated buildings and are not larger than one hundred (100) square feet.

(3) Are anchored to resist flotation, collapse or lateral movement resulting from flood loads.

(4) Have flood damage-resistant materials used below the base flood elevation plus one (1) foot.

(5) Have mechanical, plumbing and electrical systems, including plumbing fixtures, elevated to or above the base flood elevation plus one (1) foot.

(Ord. No. 21-10, § 6, 6-14-21)

Sec. 8-500. - Reserved.

Planning and Zoning Board

Planning Division Memorandum
Planning and Building Department

TO: Planning and Zoning Board

DATE: February 19, 2025

RE: Discussion Related to Developing Specific Criteria

The City Commission has directed staff to work with the city's Citizen Boards to examine concerns related to development in low-lying and/or flood prone areas. This issue has become more of a concern recently with more frequent development applications proposing significant amounts of fill, higher than minimum finished floor elevations, and building techniques or design, such as on slab construction that minimizes the options to control drainage, runoff and water for residential development.

The third item that staff would like to discuss with the PZB, and the public, is the potential of developing criteria in the land development code to incorporate more resilient types of construction and site development techniques in flood prone areas.

The city's Raymond Deschler the city's Floodplain Coordinator, as well as a Certified Floodplain Manager will lead this discussion.

Please see the attached for your review and information.

Thank you for your attention to this matter. If you have any questions or require additional information, please do not hesitate to call me at (904) 209-4320 or email at askinner@citystaug.com or contact Ray Deschler directly at (904) 201-8840 or email at rdeschler@citystaug.com .

Amy McClure Skinner, AICP
Director
Planning and Building Department

February 12, 2025

RE: Planning and Zoning Board Special Meeting

Summary: Below is a list of higher regulatory development standards/policy options categorized in terms of their impact on community level flood risk reduction as determined by the City's floodplain coordinator. Most of these policies are recognized as higher regulatory standards or "Best Practices" under FEMA's Community Rating System (CRS), and through the Association of State Floodplain Manager's (ASFPM) "No Adverse Impacts" toolkit.

Tier 1 – High Impact

1. **Prohibit the use of fill in all Special Flood Hazard Areas** (SFHA) (Flood Zones A, AE, V, and VE). Exceptions made for small amounts (6 in. or less) of fill dirt used for landscaping and grading purposes only.

2. **Prohibit slab-on-grade and backfilled stem-wall foundation types within the SFHA**. This would allow for crawlspace foundations only (ie. piers or pilings) within the SFHA.

3. **Raising the freeboard requirement**. The City currently requires all new or substantially renovated residential structures built within the SFHA to have their finished floor elevation a minimum of 1 ft above the property's base flood elevation (BFE) as minimally required in the building code.

   A property's BFE is the predicted flood height during a 1% annual-chance-flood event. Further increasing the finished floor elevation height requirement (ex. BFE + 2ft) would provide added protection and reduced flood risk for all newly built or substantially renovated residential structures.

4. **100-Year Floodplain Compensating Volume.** Consider requiring compensating storage volume to offset the impacts of the use of fill. This should be on a 1:1 basis.

   Example language: No net loss of 100-year (1% annual probability) floodplain storage is allowed. Any fill placement would require an offsetting excavation for no net loss, and compensating storage shall be equivalently provided between the seasonal high-water level and the 100-year flood level to allow storage function during all lesser flood events.

Tier 2 – Moderate Impact

1. **Limiting the use of fill to a "reasonable" amount**. Instead of completely prohibiting the use of fill, another option is setting a maximum allowable amount.

    - Example 1 - A maximum of 2 feet of fill above the existing grade is permitted around the perimeter of a proposed structure only. Lots shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of 6 inches within the first 10 feet.

    - Example 2 – The amount of fill will not exceed the BFE of the property around the perimeter of the proposed structure. *Lots* shall be graded to drain surface water away from foundation walls. The *grade* shall fall a minimum of 6 inches within the first 10 feet.

2. **Require a "Certification of No Adverse Impact" signed by a licensed engineer** stating that "*the proposed development will not adversely affect flood risks for other properties and communities as measured by increased flood stages, flood velocities, or increased potential for erosion and sedimentation. or any other impact deemed important or as specified by the city of St. Augustine, unless the impact is mitigated as provided for in a community or watershed-based plan. This certification shall employ industry standards for hydraulic and hydrological analysis to determine no adverse impact and all data shall be provided in hard copy and digitally for review and corroboration by the city's engineer or any governmental review agency acceptable to the city of St. Augustine*"

    A *certification of no adverse impact* could be applied widely, to say to all development related permits involving the use of fill within the SFHA, or more narrowly, for unique permit specific circumstances or specific areas.

3. **Applying floodplain management regulations in the 0.2%-annual-flood-hazard area**. This would mean flood zones "X", and "X – shaded" located within the City are treated as "A" zones in regard to floodplain regulations. In other words, the entire City would be treated as a part of the SFHA, and would be subject to all applicable higher regulatory standards and floodplain regulations.

    FEMA's classifies flood zones "X" and "X – shaded" as areas of minimal and moderate flood hazard, respectively. They are normally excluded from the SFHA, and unlike flood zones "A", "AE", and "V", are not subject to FEMA NFIP regulations.

4. **Adopting V Zone standards for Coastal A zones.** Coastal A zones are areas landward of V zones and are designated as subject to wave heights of between 1.5 ft to 3 ft. V Zones design standards prohibit the use of structural fill and require buildings to be constructed on piers or piling with the lowest horizontal structural member of the lowest floor elevated to or above the freeboard requirement.

   They also require the bottom level to either be unobstructed or have breakaway walls. Pier or column foundations must be anchored to resist flotation, collapse, and lateral movement due to the effect of wind and water loads acting simultaneously on all building components. Requires a V - Zone certificate signed by a licensed engineer.

5. **Lower Threshold for Substantial Damage / Substantial Improvement.** Consider a lower threshold than the 50% for both Substantial Damage and Substantial Improvement. This will have the effect of requiring more structures to come into compliance.

Tier 3 - Low Impact

1. **Limit Lot Coverage**. Consider reductions to allowed lot impervious coverage (e.g. 50%). Consider increasing allowed heights in exchange for smaller building footprints. Also consider prohibiting or limiting the footprint of accessory structures, such as storage structures or detached buildings.

2. **Low Impact Development/Green Infrastructure**. Consider requiring or incentivizing the installation of green infrastructure to store and infiltrate runoff onsite from new impervious surfaces.

3. **Limit Impervious Surfaces (Private properties).** Explore providing information and support to private property owners to reduce impervious services. Consider offering reductions to stormwater utility fees for reduction in impervious surfaces or other incentives. The previous Building Code Task Force recommended utilizing incentive programs to implement porous materials for driveways and patios, and to cap the maximum impervious surface ratio at 70%.

4. **Enclosure Limitations**. Consider prohibiting or limiting the size of enclosures below the lowest floor/lowest horizontal structure member. The construction method could also be limited to require breakaway walls in lieu of walls of enclosures with flood openings.

These items are suggested for discussion purposes and are listed from the highest development related impacts to the lowest discussed items that could be implemented by land development code revisions.

Raymond Deschler, CFM
Floodplain Coodinator

Planning and Zoning Board

Planning Division Memorandum
Planning and Building Department

TO: Planning and Zoning Board

DATE: February 19, 2025

RE: Discussion Related to Developing Specific Criteria

The City Commission has directed staff to work with the city's Citizen Boards to examine concerns related to development in low-lying and/or flood prone areas. This issue has become more of a concern recently with more frequent development applications proposing significant amounts of fill, higher than minimum finished floor elevations, and building techniques or design, such as on slab construction that minimizes the options to control drainage, runoff and water for residential development.

Lastly, as part of the discussion related to potentially developing criteria in the land development code to incorporate more resilient types of construction and site development techniques in flood prone areas, staff would like to discuss with the PZB, and the public, language drafted related to fill that could be inserted into the code.

Please see the attached draft language with notes so that you can see the thought process involved with creating code language. Included is the existing Chapter 11 Conservation language, definitions and a couple articles for your review and information.

Thank you for your attention to this matter. If you have any questions or require additional information, please do not hesitate to call me at (904) 209-4320 or email at askinner@citystaug.com or contact Sarah Daugherty directly at (904) 209-4213 or email at sdaugherty@citystaug.com .

Amy McClure Skinner, AICP
Director
Planning and Building Department

Other Section Amendments (Chapter 25)

(X) For development utilizing fill~~filling improvements~~, post development runoff shall not exceed predevelopment runoff on the parcel or onto adjacent properties or waterways as shown by calculations performed by a registered and qualified design professional. The maximum elevation of the fill shall not exceed 1 foot above highest adjacent grade or the base flood elevation of the property or adjacent properties according to the most recent FEMA Flood Insurance Rate Map, whichever is less. Any development that includes placement of fill shall provide flood routing calculations demonstrating that the Standards and Criteria in Sec. 29-26 can be met without encroaching on the floodplain as well as compliance with Sections 8-435 and 8-436 of this Code. No such fill may be placed until such calculations have been submitted in a report signed and sealed by a professional engineer licensed in the State of Florida and have been reviewed and approved in writing by the Floodplain Manager.

(x) All property owners must maintain their fill improvements in good repair. Fill is presumed to be in disrepair if it allows for upland erosion or the transfer of material through or onto adjacent properties beyond the intended design such that it adversely impacts adjacent properties, public infrastructure or the public right-of-way. Fill is presumed to be in disrepair if it is not contained onsite impacting adjacent properties or waterways.

(x) Applicants who do not meet the above criteria for development utilizing fill may submit an alternative design for consideration by the Planning and Zoning Board. Alternative designs must provide evidence that the criteria of this section cannot strictly be met due to extraordinary characteristics of the property and its surroundings. Alternative designs must clearly demonstrate that they reduce environmental impacts in an alternative way. It shall be the burden of the applicant to prove that the proposed alternative design does not result in greater negative impacts than a design that adheres to the administrative requirements. An analysis of alternatives may be submitted at the time of application at the option of the applicant. ~~The City shall have the option of requiring the analysis of alternative designs where such alternatives have the potential to reduce environmental or navigational impacts. It shall be the burden of the applicant to prove that alternatives do not result in lesser impacts than the proposed design. An analysis of alternatives may be submitted at the time of application at the option of the applicant.~~

(x) Alternative designs that do not meet the criteria in this Section shall require a PZB hearing. If such findings are made by the planning and building division, the application will be heard by the planning and zoning board that shall consider at a minimum the following special conditions to be placed upon the application to accomplish the purposes of the Comprehensive Plan and this Code, to prevent or minimize adverse effects upon the public, the environment, and neighborhoods, and, to ensure

Commented [ed1]: These are essentially the standards from the Conservation Overlay Zone we are proposing but they remove all implications of association with shoreline improvements and can be considered "upland fill" for lack of a better description (I hope that makes sense).... Its generally structured this way:
1-What is the standard to achieve (do no harm to your neighbor and limit the amount of fill in relation to the subject and adjacent properties based on elevations.
2-Maintain your fill in good repair and defines disrepair.
3-You can propose an alternative design but the burden is on the applicant.
4-What can PZB and do?
This language is entirely consistent with what we have laid out in the Conservation Overlay Zone, but its exclusively focused on just fill.

Commented [IL2]: I went ahead and used "fill" as opposed to "filling" everywhere for consistency with the definition, and because that is the colloquialism.

Commented [IL3]: Question: anyway to have some version not require an engineer? Perhaps for smaller square footage of fill?

Commented [RD4]: It looks like we are setting two different runoff standards, the first is that post-development runoff must not exceed predevelopment runoff. The second are the standards in Sec. 29-26. Is this an issue? Can we require both? What if the predevelopment runoff for a site does not meet the criteria in Sec. 29-26?. This may not be an issue but just wanted to highlight that.

Commented [RD5]: Do we have a sense of how financially feasible it would be for an applicant to pay for this? I wonder how restrictive these runoff standards will actually be in terms of amount of fill. Will most applicants be able to fill all the way to the BFE/1 ft above the HAG? Or will most be restricted to a vert small amount.. Obviously that is very site specific.

Commented [RD6]: Again, this is a little confusing. Does the "1ft above" apply only to highest adjacent grade, or to the BFE as well. Are we evaluating the highest adjacent grade on both the subject property and the adjacent lots?

Commented [JB7]: Please see examples from the South Davis Shores study and Fullerwood Drainage study. They both had some suggestions for language that may help with this. We could make it more generic to state, a registered professional engineer or qualified registered design professional

compatibility of filling improvements if conventional standards are inadequate to protect the public interest and surrounding land uses or if additional improvements are needed to facilitate a transition between different filling improvements. Special conditions may include any item which can be reasonably expected to enhance the probability that the proposed fill activity will be conducted in compliance with the intent of this article. Special conditions may also be applied in order to assure consistency with the comprehensive plan. Those conditions may include, but are not limited to, field inspections by city staff; reports; monitoring; bonding; easements; guaranteed survival of nonaffected and/or replanted vegetation; protective barriers; setbacks; protective earthwork; replants; signage; restoration and/or mitigation. Other special conditions may include enhanced gutters directing stormwater runoff to onsite retention areas including, but not limited to, anchored rain barrels or cisterns, bioswales, raingardens, bioretention flow-through planters or cells, or rock swales; permeable pavement; retaining walls or berms or other accepted onsite or offsite drainage retention techniques that will prevent post development runoff to exceed predevelopment runoff as approved by the engineer of record. For detention areas: wet detention is storage of stormwater at or below the design mean high water table. Dry detention is storage of stormwater one foot above the design mean high water table. Examples of detention systems are excavated or natural depression storage areas, pervious pavement with subgrade, or above ground storage areas.

Sec. 28-2. - Definitions.

Fill means sand, gravel, earth or other materials of any composition whatsoever.

Yard means a required open space other than a court unoccupied and unobstructed by any structure or portion of a structure from thirty (30) inches above the general ground level of the graded lot upward; provided, however, that fences, walls, poles, posts and other customary yard accessories, ornaments and furniture may be permitted in any yard subject to height limitations and requirements limiting obstruction of visibility. No ~~soil, rock, or other materials consisting of fill~~filling may ~~be placed~~ occur in any required yard setback more than thirty (30) inches above the general ground level measured at the Abutting property line.

Commented [ed8]: I think we need a definition of fill since the new language in the Conservation Overlay Zone we are proposing references "fill" instead of the act of filling.

For reference: *Filling* means the depositing on land, whether submerged or not, of sand, gravel, earth or other materials of any composition whatsoever.

Commented [ed9]: Isabelle I made this change to tie it back to the act of filling which is defined.... Just a small clean up of what you sent today.

ARTICLE II. CONSERVATION OVERLAY ZONE DEVELOPMENT[1]

Sec. 11-26. Purpose and intent.

The purpose of this article is to establish criteria for the review of development proposals and to manage, regulate and direct development within Conservation Overlay Zones 1, 2 and 3 following the goals, objectives and policies contained in the conservation and coastal management element of the comprehensive plan. Further, this article shall serve to preserve and protect environmentally sensitive areas within the city; to promote an understanding of the importance of these areas through passive or scenic recreational opportunities; to protect and conserve endangered, threatened or unique plant and animal life; and to minimize the dangers of natural disasters by discouraging unsuitable development in areas where such growth could impair natural systems or result in loss of life or property.

(Code 1964, § 7-112; Ord. No. 96-02, § 1, 2-26-96)

Sec. 11-27. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Conservation Overlay Zone 1 comprises the most environmentally sensitive and valuable natural resources within the city. It includes all beaches, shores and dunes seaward of the state's coastal construction control line (F.S. ch. 161), all wetlands within the state's wetlands jurisdiction line (F.S. ch. 403), brackish water, and some habitat areas for species recognized as endangered, threatened, of special concern, or unique by federal, state and local agencies. This zone includes the estuarine/riverine environments created by the San Sebastian and Matanzas Rivers and their tributaries.

Conservation Overlay Zone 2 includes all property one hundred (100) feet landward from the most restrictive boundary line establishing Conservation Overlay Zone 1. Zone 2 is the transition zone or buffer area between Zone 1 and Zone 3, and may include areas recognized as habitat for species considered endangered, threatened, of special concern, or unique by federal state and local agencies. The primary purpose of Zone 2 is to protect the functional integrity of Zone 1, and to protect Zone 3 from extreme high water conditions.

Conservation Overlay Zone 3 is comprised of uplands and urban/residential areas which are inland from Zones 1 and 2, and which require special environmental consideration. Zone 3 is comprised of those undeveloped areas considered to be special flood hazard areas and significant tree canopy areas.

Conservation overlay zone development means any construction or use which requires a permit from the city, physically located or taking place within a conservation overlay zone.

Floodplain means an area inundated during a ten-year flood or designated as flood hazard areas by the National Flood Insurance Program.

[1]Cross reference(s)—Building permits, etc., within conservation zones, § 8-41.

Shoreline modification means a seawall, hybrid shoreline, living shoreline or other structure or action that permanently changes the physical configuration or quality of the shoreline, specifically at the point where upland areas and tidal waters meet.

Significant tree means a tree described in the following list:

Latin Name	Common Name	Minimum dbh (to Maximum dbh)
Fraxinus spp.	ash	18
Betula nigra	birch, river	24
Punus serotina	black cherry	18
Nyssa sylvatica	blackgum, black tupelo	18
Catalpa binoniodes	catalpa	18
Prunus caroliniana	cherry laurel	10
Lagerstroemia indica	crape myrtle - single trunk	10
Taxodium distichum	cypress, bald (pond cypress)	10
Ulmus parvifolia	elm, drake	10
Ulmus alata	elm, winged	10
Ulmus Americana	elm, American	18
Chionanthus virginicus	fringetree	10
Carya tomentosa	hickory, mockernut	18
Carya glabra	hickory, pignut	18
Ilex opaca	holly, American	10
Ilex cassine	holly, dahoon	10
Ilex x attenuate	holly, "East Palatka"	10
Gordonia lasianthus	loblolly bay	10
Magnolia grandiflora	magnolia, southern	18
Magnolia grandiflora var	magnolia, southern v. "Little Gem"	10
Magnolia virginiana	magnolia, sweetbay	10
Acer rubum and Acer spp.	maple, red or other maples	18
Quercus hemisphaerica	oak, laurel	15 to 36
Quercus laurifolia	oak, laurel (swamp)	15 to 36
Quercus virginiana	oak, live (southern live oak)	18
Quercus nuttallii	oak, nuttall	18
Quercus spp.	oak, other unlisted species	18
Quercus stellata	oak, post	18
Quercus falcata	oak, red (southern red oak)	18
Quercus geminate	oak, sand live	10
Quercus shumardii	oak, shumard	18
Quercus laevis	oak, turkey	18
Quercus nigra	oak, water	15 to 36

Quercus phellos	oak, willow	18
Carya illinoensis	pecan	18
Cercis canadensis	red bud	10
Juniperus virginiana	red cedar, eastern	8
Juniperus silicicola	red cedar, southern	8
Liquidambar styraciflua	sweetgum	18
Platanus occidentalis	sycamore	18
Liriodendron tulipifera	tulip-poplar, tuliptree	18
Juglans nigra	walnut, black	18
Celtis laevigata	hackberry (sugarberry)	15 to 36

Significant tree canopy areas are defined as clusters of trees which form at least twenty-five (25) percent cover and include a variety of oak species and softwood species.

Special flood hazard areas means areas which may become inundated during a one hundred-year flood.

Undeveloped conservation park lands means a property that shall remain in a natural, undeveloped state in order to preserve and protect the natural resources of the property for the benefits of wildlife, the ecosystem and for future generations to appreciate and study. Maintenance of undeveloped conservation park lands for the removal of invasive or exotic species, for public safety and to promote the longevity and viability of these park lands is permitted to be done by the City of St. Augustine or by those designated to do so by the City of St. Augustine.

(Code 1964, § 7-113; Ord. No. 96-02, § 1, 2-26-96; Ord. No. 09-17, § 1, 5-11-09; Ord. No. 15-47, § 1, 1-11-16; Ord. No. 19-03, § 1, 1-28-19)

Cross reference(s)—Definitions and rules of construction generally, § 1-2.

Sec. 11-28. Issuance of building permits.

(a) The planning and zoning board shall review all applications for development in Conservation Overlay Zone 1; all applications for development in Conservation Overlay Zone 2, except as specified in subsection (b); and all applications for development in Conservation Overlay Zone 3, except as specified in subsection (c). Such approval by the planning and zoning board shall be after a public hearing as required by chapter 28.

(b) The planning and building division may issue permits for additions to existing structures, for construction of new secondary structures, such as fences, driveways, decks, patios, greenhouses, garages and sheds, and use permits for uses otherwise permitted to be conducted in these structures located in Conservation Overlay Zone 2 when no drainage into the marsh is proposed, no significant alteration of surface water hydrology will occur through the placement of fill, shoreline modification or otherwise and native plant materials are preserved or replaced. The planning and building division may issue permits for the construction of new primary structures located in Conservation Overlay Zone 2 when the above conditions are met and when the subject property already contains a seawall, bulkhead or rip rap shoreline, or is located within one hundred fifty (150) feet of existing development and the primary structure is located no closer to the marsh edge or to the mean high water line than are adjacent primary structures. In addition, such additions and new structures may not exceed the lesser of seventy-five (75) feet or seventy-five (75) percent of the lot width.

Commented [SD1]: I recommend changing this language to say, "when no drainage into a marsh is proposed without a maintained or restored 25-buffer."

(c) The planning and building division may issue permits for structures and uses otherwise permitted and located within Conservation Overlay Zone 3 provided that all healthy significant trees are retained on the site.

(d) Removal of a significant tree shall be approved by the planning and zoning board. All significant trees removed shall be replaced in accordance with the requirements of chapter 25.

(Code 1964, § 7-114; Ord. No. 96-02, § 1, 2-26-96; Ord. No. 09-17, § 1, 5-11-09; Ord. No. 19-03, § 1, 1-28-19)

Sec. 11-29. Standards for review.

(a) Permits for structures and uses located within Conservation Overlay Zone 1 shall be issued only for such structures and uses which have received permits under provisions of applicable federal and state regulations and will be issued only for those structures and related uses such as fishing piers and catwalks, boardwalks, boat docks, boathouses, boat ramps, marinas, and marine railways, as well as dredging and filling, which are determined to be to the benefit of the public as a whole and which are determined as having no significant negative impact on natural systems, by either individual or cumulative effect. The planning and zoning board is authorized to impose limitations in the nature and manner of construction and/or use so as to avoid damage to adjacent salt marshes and the vegetative communities contained therein, to avoid impacts to adjacent or nearby property owners, eliminate any harm to the animal, fish or shellfish contained therein, to avoid blocking or disrupting vistas and scenic opportunities, and to enhance those vistas and scenic opportunities which are determined to benefit the public as a whole.

Commented [SD2]: Remove outdated reference.

Commented [SD3R2]: Remove reference to boathouses and they are not permitted.

(b) Permits for structures and uses located within Conservation Overlay Zone 2 shall be issued only for those structures and related uses which are determined as having no significant negative impact on adjacent properties or natural systems by either individual or cumulative effect and consistent with the purpose of Conservation Overlay Zone 2 to protect the functional integrity of Zone 1 and to protect Zone 3 from extreme high-water conditions. At no time shall the impervious area in Conservation Overlay Zone 2 exceed twenty-five (25) percent without that area receiving treatment equivalent to the St. Johns River Water Management District water quality treatment provisions required when new development is proposed along an unaltered shoreline. The first (landward of the most restrictive jurisdictional line, which may be the mean high-water line or wetlands jurisdictional line) twenty-five (25) feet, measured in width perpendicular to the most restrictive jurisdictional line, in Conservation Overlay Zone 2 shall remain undeveloped except as provided in subsections (1)—(4) of this subsection. If the area is already disturbed, a restoration plan is required. The planning and zoning board is authorized to impose limitations in the following manner so as to avoid damage to adjacent properties, salt marshes and the vegetative communities contained therein, to eliminate any harm to any animal, fish or shellfish life contained therein, to avoid blocking Conservation Overlay Zone 1 vistas and scenic opportunities, and to enhance those vistas and scenic opportunities which are determined to benefit the public as a whole. Rear or side lot drainage from grassed or altered areas of new development along an altered shoreline not directed to a water management system may be discharged to an adjacent water body/wetland; however, the area not treated must be compensated elsewhere in the system. This may be accomplished by providing additional water quality treatment in the system equivalent to that which will be discharged untreated. Water discharged shall be at non-erosive velocities. Rear or side lot drainage from grassed or altered areas of new development along an unaltered shoreline not directed to a water management system may be discharged to an adjacent water body/wetland through the twenty-five (25) feet buffer (water discharged shall be at non-erosive velocities), with the following permitted activities:

Commented [RD4]: This section needs more elaboration. It's not clear how we would enforce this. Is this saying that for untreated runoff that is conveyed to a waterbody on an altered shoreline, there would need to be an equivalent amount of runoff treated elsewhere within our drainage system citywide to offset the untreated amount? That's how I'm interpreting it.

(1) Pruning vegetation to retain or create a reasonable view. Ground cover and shrub vegetation to a height of thirty-six (36) inches should be retained.

(2) A maximum of fifty (50) percent of the basal area of trees, and a maximum of fifty (50) percent of the total number of saplings, may be removed for any purpose in a twenty-year period. A healthy, well-distributed strand of trees, saplings, shrubs and ground covers and their living, undamaged root systems shall be left in place. Replacement planting with native, low maintenance vegetation is permitted to maintain the fifty (50) percent level.

Commented [SD5]: Consider removing

(3) Dead, diseased, unsafe, or fallen trees may be removed.

(4) Bridges, paths, walkways, gazebos, docks and decks, bulkheads, seawalls, and retaining walls, and accessways to such amenities are permitted across the buffer provided such activities have minimal impact to the wetlands and are scaled to preserve the integrity of the buffer (less than ten (10) percent of the total area calculation of the buffer). These structures must demonstrate that they are of a reasonable, compatible scale to similar structures in the neighboring area. Structures in Conservation Overlay Zone 2 that are connected to adjacent structures in Zones 1 or 3 shall be sized relative to that adjacent structure and be designed so as to minimize off-site visual and environmental impacts. The applicant will present any mitigating design and environmental elements as part of the review of the structure in Conservation Overlay Zone 2.

Restoration plan(s) shall be developed to achieve the fifty (50) percent criteria above for those sites already disturbed. If the altered shoreline is bulk-headed, softening of this hardened shoreline with riprap, environmentally engineered materials or other techniques to soften wave energies and promote vegetation is encouraged. Should a softening effort be employed, a reduction in the twenty-five (25) feet buffer may be permitted.

(c) Applications for development in Conservation Overlay Zones shall be evaluated according to the following criteria:

(1) Site specific conditions.

(2) The site's relationship to adjacent properties including parcel elevations, bodies of water and surrounding conservation zones.

(3) Natural and proposed drainage patterns.

(4) Effect of point and nonpoint discharge in the marine environment.

(5) Proposed soil stabilization and erosion control methods.

(6) Impact on floodplain including general impacts related to flood management or fill.

(7) Impact of development on vegetative and animal communities.

(8) Potential for contaminated drainage, storage of pollutants and the use of poisonous chemicals and materials.

(9) Effect of shade on vegetation and shellfish.

(10) Effect of boat wake and boat traffic on manatees, vegetation, shellfish and wildlife, as well as shoreline erosion.

(11) Impact of development on shoreline by linear feet and percent of site.

(12) Impact of development on vistas and scenic opportunities by linear feet, height, mass and percent of site.

(13) Existing amounts of native plants and proposed retention and use of native plants for landscape and open space purposes.

(14) Impact of development on plant and animal habitat and potential loss in acres and percent of site.

(15) Impact of development on water quality. Water quality objectives will be presumed to have been met if runoff water is routed to a surface water management system permitted by the St. Johns River Water Management District or to a treatment facility that is equivalent to the water quality treatment criteria (water retention/detention) of the water management district. (An engineer or landscape architect licensed in the State of Florida is required to certify that the treatment facility is equivalent to the district's criteria.)

Commented [SD6]: Add language :
(5) For commercial properties with an approved storm water management system, the buffer can be reduced to provide amenities to provide public access to vistas and scenic opportunities which are determined to benefit the public as a whole.

Commented [RS7]: On a side note, it is implied that the applicant should provide this information to the PZB, but they do not. Can this be changed to require the applicant to provide it so that PZB can approve it?

Commented [JB8]: Should we also add to include parcel and/or existing ground elevations, when I read parcel, I don't necessarily think of existing grade

(16) Impact of development on shellfish and on commercial and sport fish and waterfowl.

(17) Specific conditions applicable to docks. In addition to the considerations listed in subsections (1) through (16) herein, no boathouse, roofed structure or wall shall be constructed on any dock. This section shall not prohibit the use of bumpers or similar structures built at or near the water line and below deck elevation to protect the dock from damage caused by moored vessels. The deck of any private boat dock shall not exceed six (6) feet in height above mean high water. Boatlifts mounted on docks, or constructed on or adjacent to a dock, shall be limited to a capacity of twelve thousand (12,000) pounds or less. All boatlifts shall be low profile boatlifts or no profile boatlifts, and no boats in excess of thirty-two (32) feet in length shall be allowed on a boatlift. In addition, the maximum height, excluding masts, antennas and other non-occupiable features, of a boat suspended in a boatlift shall not exceed six (6) feet above the gunwale (gunnel); whereby, the gunwale (gunnel) is defined as the upper edge of the side of the ship or boat. A low profile boatlift is a boatlift for a single watercraft in which no part of the boatlift shall exceed three (3) feet above the deck. A no profile boatlift is a boatlift for a single watercraft in which no part of the boatlift shall protrude above the deck.

(18) Specific conditions applicable to fill and shoreline modifications. Fill and shoreline modification projects that meet the requirements of subsections (1) through (17) and this subsection may be administratively approved. In addition to the considerations in subsection (1) through (17) herein, fill or shoreline modifications, regardless of lot configuration or size, shall not cause significant harmful diversion of floodwater or wave runup and wave reflection would increase damage to adjacent properties, buildings or structures. Fill and shoreline modifications, regardless of lot configuration or size, shall also not allow the unmitigated trespass of tidal or flood waters onto adjacent property, public right-of-way or other public infrastructure. New or substantially improved armored shorelines shall include a minimum top elevation of 7.0 feet NAVD88 and maximum elevation not to exceed the base flood elevation of the property or adjacent properties according to the most recent FEMA Flood Insurance Rate Map. New or substantially improved hybrid shorelines shall include a minimum top elevation of 7.0 feet NAVD88 and remain in place with the addition of native plants, as appropriate and maximum elevation not to exceed the base flood elevation of the property or adjacent properties according to the most recent FEMA Flood Insurance Rate Map. New or substantially improved natural shoreline treatments shall consist of a gradual slope no steeper than 4:1 with a minimum top elevation of 7.0 feet NAVD88 coupled with native plants and could include a sill to address wave energy dissipation if necessary and a maximum elevation not to exceed the base flood elevation of the property or adjacent properties according to the most recent FEMA Flood Insurance Rate Map. For fill, post development runoff shall not exceed predevelopment runoff on the parcel or onto adjacent properties or waterways as shown by calculations performed by a registered and qualified design professional. The maximum elevation of the fill shall not to exceed 1 foot above highest adjacent grade or the base flood elevation of the property or adjacent properties according to the most recent FEMA Flood Insurance Rate Map, whichever is less. Any development that includes placement of fill shall provide flood routing calculations demonstrating that the Standards and Criteria in Sec. 29-26 can be met without encroaching on the floodplain as well as compliance with Sections 8-435 and 8-436 of this Code. No such fill may be placed until such calculations have been submitted in a report signed and sealed by a professional engineer licensed in the State of Florida and have been reviewed and approved in writing by the Floodplain Manager. Applicants who do not meet the above criteria may submit an alternative design for consideration by the Planning and Zone Board. ~~The City shall have the option of requiring the analysis of a~~Alternative designs must provide evidence that the criteria of this section cannot strictly be met due to extraordinary characteristics of the property and its surroundings. ~~where such a~~Alternatives designs must clearly demonstrate that they ~~have the potential to~~ reduce environmental or navigational impacts in an alternative way. It shall be the burden of the applicant to prove that the proposed alternatives design does not result in ~~lesser~~ greater negative impacts than a design that adheres to the administrative requirements~~the proposed design~~. An analysis of alternatives may be submitted at the time of application at the option of the applicant. Alternative designs that do

Commented [SD9]: If this is the criteria used to determine if staff can approve or if it goes to PZB it should be placed as Sec. 11-28(e).

Should include maintaining current drainage pattern when runoff is not routed to a surface water management system permitted by the St. Johns Rive Water Management District or to a treatment facility that is equivalent to.

Commented [RD10]: We may want to add an exception to meeting the minimum height for older homes who's finished floor is below 7ft. We don't want to force an older home to install a bulkhead (with fill) that is higher than the homes finished floor. That could result in negative drainage towards the structure.

Commented [SD11]: Do we want to define and include retaining walls in this?

Commented [JB12]: Do we need to consider the recently completed VA and/or results coming out of the Back Bay study? Do we want to consider our current 1ft freeboard requirement or FEMA's 2ft freeboard requirement for this?

Commented [RS13R12]: If there is a need, in the log run, to reduce the amount of fill on the entire lot, limiting this height to the BFE is better. A ground has to slope away from a new structure, which will make the ground higher than this.

Commented [RD14]: Is this referring to the highest adjacent grade of the adjacent lots or on the subject parcel?

Commented [RD15]: I found this a little confusing. May want to reword this or elaborate more. Does the "1 ft above" apply to the base flood elevation as well? Does this mean we are considering the BFE of both the subject property and adjacent lots?

Commented [ed16]: For single family homes (properties less than 40 acres) the design event is 10 year 1 hour event. Can we require a higher peak stage than Section 29-26? I know this may be a discussion for another day, but overall, this is a really really low design storm event. *Minimum criteria for compliance.* All development containing ... [1]

Commented [IL17R16]: Realistically there are effectively no single-family parcel projects that are anywhere near 40 acres in the city left. I can't speak to how to change this standard, but if any change is needed it would be to d ... [2]

Commented [IL18]: Is there any way to have a standard that does not require an engineer to sign off? I'm just thinking for very small fill projects, the cost of an engineer may be a factor?

Commented [RS19R18]: Generally, if you are bringing in fill to build something on the lot, an engineer will draw the structural plans. Certain architects can draw up structural plans and probably could do this, too. I generally say ... [3]

not meet the criteria in subsection (1) through (17) and the administrative approval standards of subsection (18)~~and this subsection~~ shall require a PZB hearing.else.

(d) Permits for structures and uses located within Conservation Overlay Zone 3 shall be issued only for those structures and uses which do not significantly alter the surface water hydrology or tree canopy cover, ~~or~~ cause the removal of significant trees or impact adjacent parcels through the placement of fill or shoreline modifications. The planning and zoning board is authorized to impose limitations on the nature and manner of construction and/or so as to avoid alteration of surface water hydrology which would increase the flood hazard potential and to minimize the impact on existing trees and native vegetation. Limitations may also be imposed to protect against impacts to adjacent or nearby parcels related to the placement of fill or shoreline modifications.

(1) In determining whether or not a permit required by this section should be issued, the city planning and zoning board shall consider and base all decisions on the following:

a. The condition of the tree with respect to disease, insect attack, danger of falling, proximity to existing or proposed structures and interferences with utility services.

b. The necessity of removing a tree to construct proposed improvements in order to allow reasonable economic use of the property.

c. The relief of the land where the tree is located and the effect removal of the tree would have on erosion, soil moisture retention, diversion, increased or decreased flow of surface waters and the city master drainage plan or similar plan adopted by the city commission.

d. The number and density of trees existing in the neighborhood on improved or unimproved property. The planning and building division shall also be guided by the effect removal of a tree would have on property values in the neighborhood where the property is located and on other vegetation in the neighborhood.

e. Whether the tree has been designated a significant tree.

f. Impact upon the urban and natural environment, including:

1. Ground and surface water stabilization.
2. Water quality and aquifer recharge.
3. Ecological impacts.
4. Noise pollution.
5. Air movement.
6. Air quality.
7. Wildlife habitat.

g. The ease with which the property owner or agent can alter or revise the proposed development or improvements to accommodate existing trees, including the tree or trees proposed to be removed.

h. Consideration of the elevation of the applicant's property in relation to adjacent properties and the impact a proposed shoreline modification may have on adjacent or nearby properties.

(e) Issuance of tree removal permits. The planning and building division shall issue the removal permit for trees not identified as significant trees under section 11-27 unless, upon consideration of the criteria set forth above, it finds any of the following will result:

Commented [SD20]: I'm assuming this is max 1 foot above the lesser elevation of BFE or max adjacent grade?

Also is it the lesser of each of multiple adjacent properties?

Wondering if we should define terms Finished Grade and Existing Grade in 28-2 and use maximum Finished Grade in place of maximum elevation of fill and maximum Finished Grade on developed lots or maximum Existing Grade on vacant lots instead of highest adjacent grade.

Possible definitions:
Existing Grade is the elevation (NAVD88) of the land before any grading takes place.

Finished Grade is the final grade elevation (NAVD88).

(1) That the property owner or agent will not be unreasonably affected in shifting the location of the proposed structure, building or improvement, which shift will maintain the existence of the subject trees and still permit construction of such building or improvement on the site.

(2) That the property owner or agent will not be unreasonably affected in modifying the design of the proposed structure, building or other improvement, which modification will maintain the existence of the trees proposed to be removed and still permit construction substantially similar to that originally proposed.

(3) That the removal of the subject trees will have a substantial adverse impact on the urban and natural environment.

(4) That the subject trees are significant trees and removal must be reviewed by the planning and zoning board.

(f) Issuance of permits for fill and shoreline modifications. The planning and building division shall issue permits for fill or shoreline modifications unless, upon consideration of the criteria set forth above, it finds that the analysis ~~prepared by qualified registered design professionals~~ demonstrates harmful diversion of floodwater or wave runup and wave reflection would increase damage to adjacent properties, buildings or structures. If such findings are made by the planning and building division, the application will be heard by the planning and zoning board ~~thatthat~~may shall consider at a minimum the following special conditions to be placed upon the application to accomplish the purposes of the Comprehensive Plan and this Code, to prevent or minimize adverse effects upon the public, the environment, and neighborhoods, and, to ensure compatibility between fill and shoreline improvements if conventional standards are inadequate to protect the public interest and surrounding land uses or if additional improvements are needed to facilitate a transition between different fill and shoreline uses in a green to gray approach:

(1) Incorporating native seagrass and other native plants;

(2) Incorporating edging which holds the toe of existing or vegetative slopes in place;

(3) Incorporating oyster or clam shell bags;

(4) Establishing living structures such as benthic substrates;

~~(3)~~(5) Incorporating other natural shoreline features;

(6) Incorporating breakwater structures off shore to reduce wave action and encourage sediment accretion;

(7) Seawall enhancement projects may include the addition of rock or riprap in front of the wall in order to help dissipate wave energy and refraction, or the introduction of native plants;

(8) Constructing wing walls or returns at the end of the structure to tie back into the shoreline added at the initial time of construction or after assuming that the original structure hasn't been damaged;

(9) Seawalls with sloped (not vertical) faces and use of seawall pockets or grooves (similar to rock rip rap);

(10) Additional design elements to prevent erosion that can be considered: diverting surface runoff away from shorelines, limiting flow of ground or surface water toward shorelines, placing or relocating drain fields / septic systems at least 25 feet from shorelines, having minimal paved areas near shorelines and avoiding installation of pools, sheds, and other outbuildings at least 25 feet from shorelines.

(11) Special conditions may also include any item which can be reasonably expected to enhance the probability that the proposed fill activity will be conducted in compliance with the intent of this article. Special conditions may also be applied in order to assure consistency with the comprehensive plan. Those conditions may include, but are not limited to, field inspections by city staff; reports; monitoring; bonding; easements; guaranteed survival of nonaffected and/or replanted vegetation; protective

Commented [SD21]: Which criteria?

Commented [SD22]: I think we should keep the requirement for professional requirements for analysis.

Commented [ed23]: Same language in 8-497 except I added adjacent properties whereas that section only lists buildings or structures.

Commented [JB24]: The Inlet Dr project we have in design that was potentially "piloting" this new ordinance has Wave Attenuation Devices (WADs) proposed with oyster gabions to help with wave attenuation, should we broaden the description to include other related or similar wave attenuation techniques and/or devices

Commented [DS25]: Is 25 feet enough to not have potential environmental impacts. Maybe 50 feet?

barriers; setbacks; protective earthwork; replants; signage; restoration and/or mitigation. Other special conditions may include enhanced gutters directing stormwater runoff to onsite retention areas including, but not limited to, anchored rain barrels or cisterns, bioswales, raingardens, bioretention flow-through planters or cells, or rock swales; permeable pavement; retaining walls or berms or other accepted onsite or offsite drainage retention techniques that will prevent post development runoff to exceed predevelopment runoff as approved by the engineer of record. For detention areas: wet detention is storage of stormwater at or below the design mean high water table. Dry detention is storage of stormwater one foot above the design mean high water table. Examples of detention systems are excavated or natural depression storage areas, pervious pavement with subgrade, or above ground storage areas.

(g) Maintenance and operations of fill and shoreline modifications. All property owners must maintain their fill and shoreline modification in good repair to address general tidal flooding conditions from tidal impacts, understanding that storm events are not general conditions. Fill and shoreline modification are presumed to be in disrepair if they allow for upland erosion, transfer of material through the shoreline modification or onto adjacent properties or allow tidal waters to flow unimpeded over or through the modification beyond the intended design such that it adversely impacts adjacent properties, public infrastructure or the public right-of-way. Fill is presumed to be in disrepair if it is not contained onsite impacting adjacent properties or waterways.

(Code 1964, § 7-115; Ord. No. 96-02, § 1, 2-26-96; Ord. No. 00-34, § 1, 10-9-00; Ord. No. 01-14, § 1, 7-23-01; Ord. No. 04-01, § 1, 1-26-04; Ord. No. 14-14, § 1, 9-22-14; Ord. No. 19-03, § 1, 1-28-19; Ord. No. 21-13, § 1, 8-23-21)

Commented [SD26]: PZB will enforce these provisions alone or on top of the original criterial or

Commented [DS27]: Is there a citation or penalty for non-maintenance?

Commented [ed28R27]: Need City staff input.

Commented [RS29R27]: We can create a code enforcement case on it and take the property owner to the Special Magistrate to get compliance, if necessary. If they do not come into compliance, it is a running fine.

Sec. 11-30. Review procedures.

Any required conservation overlay zone development approvals shall be reviewed and approved by the planning and zoning board prior to any required review by the designated corridor review committee insofar as the review is related to compliance with design standards. Modifications to the plans, specifications or conditions approved by the planning and zoning board may result in additional review by the board before any city permits may be issued.

(Code 1964, § 7-116; Ord. No. 96-02, § 1, 2-26-96; Ord. No. 18-09, § 2, 6-25-18)

Secs. 11-31—11-50. Reserved.

Page 6: [1] Commented [ed16] **erin deadylaw.com** **11/19/2024 2:51:00 PM**

For single family homes (properties less than 40 acres) the design event is 10 year 1 hour event. Can we require a higher peak stage than Section 29-26? I know this may be a discussion for another day, but overall, this is a really really low design storm event. *Minimum criteria for compliance.* All development containing impervious area in excess of five hundred (500) square feet (excluding single-family residential buildings constructed in subdivisions platted on or before July 22, 1991) must meet the storm drainage criteria established in this division.

(b) *Major developments.* The peak post-development storm drainage runoff for major developments must not exceed the peak pre-development storm drainage runoff for a twenty-five (25) year, twenty-four (24) hour storm event. The U.S. Soil Conservation Service TR-55 method and the Modret Program are the accepted methods of evaluating this storm event.

© *Minor developments.* The storm drainage runoff for minor developments must be retained on-site. Calculations of this runoff volume will be based on the Rational Method using a ten (10) year, one (1) hour storm event.

Page 6: [2] Commented [IL17R16] **Isabelle Lopez** **12/27/2024 2:02:00 PM**

Realistically there are effectively no single-family parcel projects that are anywhere near 40 acres in the city left. I can't speak to how to change this standard, but if any change is needed it would be to define the type of actual development we do still have in the city, for residential split it into multifamily vs single family, not by acreage.

Page 6: [3] Commented [RS19R18] **Richard Schauland** **1/10/2025 2:14:00 PM**

Generally, if you are bringing in fill to build something on the lot, an engineer will draw the structural plans. Certain architects can draw up structural plans and probably could do this, too. I generally say "registered design professional". It is not too much to require this.

ARTICLE II. - CONSERVATION OVERLAY ZONE DEVELOPMENT

Footnotes:

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Cross reference— *Building permits, etc., within conservation zones, § 8-41.*

Sec. 11-26. - Purpose and intent.

The purpose of this article is to establish criteria for the review of development proposals and to manage, regulate and direct development within Conservation Overlay Zones 1, 2 and 3 following the goals, objectives and policies contained in the conservation and coastal management element of the comprehensive plan. Further, this article shall serve to preserve and protect environmentally sensitive areas within the city; to promote an understanding of the importance of these areas through passive or scenic recreational opportunities; to protect and conserve endangered, threatened or unique plant and animal life; and to minimize the dangers of natural disasters by discouraging unsuitable development in areas where such growth could impair natural systems or result in loss of life or property.

(Code 1964, § 7-112; Ord. No. 96-02, § 1, 2-26-96)

Sec. 11-27. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Conservation Overlay Zone 1 comprises the most environmentally sensitive and valuable natural resources within the city. It includes all beaches, shores and dunes seaward of the state's coastal construction control line (F.S. ch. 161), all wetlands within the state's wetlands jurisdiction line (F.S. ch. 403), brackish water, and some habitat areas for species recognized as endangered, threatened, of special concern, or unique by federal, state and local agencies. This zone includes the estuarine/riverine environments created by the San Sebastian and Matanzas Rivers and their tributaries.

Conservation Overlay Zone 2 includes all property one hundred (100) feet landward from the most restrictive boundary line establishing Conservation Overlay Zone 1. Zone 2 is the transition zone or buffer area between Zone 1 and Zone 3, and may include areas recognized as habitat for species considered endangered, threatened, of special concern, or unique by federal state and local agencies. The primary purpose of Zone 2 is to protect the functional integrity of Zone 1, and to protect Zone 3 from extreme high water conditions.

Conservation Overlay Zone 3 is comprised of uplands and urban/residential areas which are inland from Zones 1 and 2, and which require special environmental consideration. Zone 3 is comprised of those undeveloped areas considered to be special flood hazard areas and significant tree canopy areas.

Conservation overlay zone development means any construction or use which requires a permit from the city, physically located or taking place within a conservation overlay zone.

Floodplain means an area inundated during a ten-year flood or designated as flood hazard areas by the National Flood Insurance Program.

Significant tree means a tree described in the following list:

Latin Name	Common Name	Minimum dbh (to Maximum dbh)
Fraxinus spp.	ash	18
Betula nigra	birch, river	24
Punus serotina	black cherry	18
Nyssa sylvatica	blackgum, black tupelo	18
Catalpa binoniodes	catalpa	18
Prunus caroliniana	cherry laurel	10
Lagerstroemia indica	crape myrtle - single trunk	10
Taxodium distichum	cypress, bald (pond cypress)	10
Ulmus parvifolia	elm, drake	10
Ulmus alata	elm, winged	10
Ulmus Americana	elm, American	18
Chionanthus virginicus	fringetree	10
Carya tomentosa	hickory, mockernut	18
Carya glabra	hickory, pignut	18
Ilex opaca	holly, American	10
Ilex cassine	holly, dahoon	10
Ilex x attenuate	holly, "East Palatka"	10
Gordonia lasianthus	loblolly bay	10
Magnolia grandiflora	magnolia, southern	18
Magnolia grandiflora var	magnolia, southern v. "Little Gem"	10
Magnolia virginiana	magnolia, sweetbay	10
Acer rubum and Acer spp.	maple, red or other maples	18
Quercus hemisphaerica	oak, laurel	15 to 36
Quercus laurifolia	oak, laurel (swamp)	15 to 36
Quercus virginiana	oak, live (southern live oak)	18
Quercus nuttallii	oak, nuttall	18

Quercus spp.	oak, other unlisted species	18
Quercus stellata	oak, post	18
Quercus falcata	oak, red (southern red oak)	18
Quercus geminate	oak, sand live	10
Quercus shumardii	oak, shumard	18
Quercus laevis	oak, turkey	18
Quercus nigra	oak, water	15 to 36
Quercus phellos	oak, willow	18
Carya illinoensis	pecan	18
Cercis canadensis	red bud	10
Juniperus virginiana	red cedar, eastern	8
Juniperus silicicola	red cedar, southern	8
Liquidambar styraciflua	sweetgum	18
Platanus occidentalis	sycamore	18
Liriodendron tulipifera	tulip-poplar, tuliptree	18
Juglans nigra	walnut, black	18
Celtis laevigata	hackberry (sugarberry)	15 to 36

Significant tree canopy areas are defined as clusters of trees which form at least twenty-five (25) percent cover and include a variety of oak species and softwood species.

Special flood hazard areas means areas which may become inundated during a one hundred-year flood.

Undeveloped conservation park lands means a property that shall remain in a natural, undeveloped state in order to preserve and protect the natural resources of the property for the benefits of wildlife, the ecosystem and for future generations to appreciate and study. Maintenance of undeveloped conservation park lands for the removal of invasive or exotic species, for public safety and to promote the longevity and viability of these park lands is permitted to be done by the City of St. Augustine or by those designated to do so by the City of St. Augustine.

(Code 1964, § 7-113; Ord. No. 96-02, § 1, 2-26-96; Ord. No. 09-17, § 1, 5-11-09; Ord. No. 15-47, § 1, 1-11-16; Ord. No. 19-03, § 1, 1-28-19)

Cross reference— Definitions and rules of construction generally, § 1-2.

Sec. 11-28. - Issuance of building permits.

(a) The planning and zoning board shall review all applications for development in Conservation Overlay Zone 1; all applications for development in Conservation Overlay Zone 2, except as specified in subsection (b); and all applications for development in Conservation Overlay Zone 3, except as specified in subsection (c). Such approval by the planning and zoning board shall be after a public hearing as required by chapter 28.

(b) The planning and building division may issue permits for additions to existing structures, for construction of new secondary structures, such as fences, driveways, decks, patios, greenhouses, garages and sheds, and use permits for uses otherwise permitted to be conducted in these structures located in Conservation Overlay Zone 2 when no drainage into the marsh is proposed, no significant alteration of surface water hydrology will occur and native plant materials are preserved or replaced. The planning and building division may issue permits for the construction of new primary structures located in Conservation Overlay Zone 2 when the above conditions are met and when the subject property contains a seawall, bulkhead or rip rap shoreline, or is located within one hundred fifty (150) feet of existing development and the primary structure is located no closer to the marsh edge or to the mean high water line than are adjacent primary structures. In addition, such additions and new structures may not exceed the lesser of seventy-five (75) feet or seventy-five (75) percent of the lot width.

(c) The planning and building division may issue permits for structures and uses otherwise permitted and located within Conservation Overlay Zone 3 provided that all healthy significant trees are retained on the site.

(d) Removal of a significant tree shall be approved by the planning and zoning board. All significant trees removed shall be replaced in accordance with the requirements of chapter 25.

(Code 1964, § 7-114; Ord. No. 96-02, § 1, 2-26-96; Ord. No. 09-17, § 1, 5-11-09; Ord. No. 19-03, § 1, 1-28-19)

Sec. 11-29. - Standards for review.

(a) Permits for structures and uses located within Conservation Overlay Zone 1 shall be issued only for such structures and uses which have received permits under provisions of applicable federal and state regulations and will be issued only for those structures and related uses such as fishing piers and catwalks, boardwalks, boat docks, boathouses, boat ramps, marinas, and marine railways, as well as dredging and filling, which are determined to be to the benefit of the public as a whole and which are determined as having no significant negative impact on natural systems, by either individual or cumulative effect. The planning and zoning board is authorized to impose limitations in the nature and manner of construction and/or use so as to avoid damage to adjacent salt marshes and the vegetative communities contained therein, to eliminate any harm to the animal, fish or shellfish contained therein, to avoid blocking or disrupting vistas and scenic opportunities, and to enhance those vistas and scenic opportunities which are determined to benefit the public as a whole.

(b) Permits for structures and uses located within Conservation Overlay Zone 2 shall be issued only for those structures and related uses which are determined as having no significant negative impact on adjacent natural systems by either individual or cumulative effect and consistent with the purpose of Conservation Overlay Zone 2 to protect the functional integrity of Zone 1 and to protect Zone 3 from extreme high-water conditions. At no time shall the impervious area in

Conservation Overlay Zone 2 exceed twenty-five (25) percent without that area receiving treatment equivalent to the St. Johns River Water Management District water quality treatment provisions required when new development is proposed along an unaltered shoreline. The first (landward of the most restrictive jurisdictional line, which may be the mean high-water line or wetlands jurisdictional line) twenty-five (25) feet, measured in width perpendicular to the most restrictive jurisdictional line, in Conservation Overlay Zone 2 shall remain undeveloped except as provided in subsections (1)—(4) of this subsection. If the area is already disturbed, a restoration plan is required. The planning and zoning board is authorized to impose limitations in the following manner so as to avoid damage to adjacent salt marshes and the vegetative communities contained therein, to eliminate any harm to any animal, fish or shellfish life contained therein, to avoid blocking Conservation Overlay Zone 1 vistas and scenic opportunities, and to enhance those vistas and scenic opportunities which are determined to benefit the public as a whole. Rear or side lot drainage from grassed or altered areas of new development along an altered shoreline not directed to a water management system may be discharged to an adjacent water body/wetland; however, the area not treated must be compensated elsewhere in the system. This may be accomplished by providing additional water quality treatment in the system equivalent to that which will be discharged untreated. Water discharged shall be at non-erosive velocities. Rear or side lot drainage from grassed or altered areas of new development along an unaltered shoreline not directed to a water management system may be discharged to an adjacent water body/wetland through the twenty-five (25) feet buffer (water discharged shall be at non-erosive velocities), with the following permitted activities:

(1) Pruning vegetation to retain or create a reasonable view. Ground cover and shrub vegetation to a height of thirty-six (36) inches should be retained.

(2) A maximum of fifty (50) percent of the basal area of trees, and a maximum of fifty (50) percent of the total number of saplings, may be removed for any purpose in a twenty-year period. A healthy, well-distributed strand of trees, saplings, shrubs and ground covers and their living, undamaged root systems shall be left in place. Replacement planting with native, low maintenance vegetation is permitted to maintain the fifty (50) percent level.

(3) Dead, diseased, unsafe, or fallen trees may be removed.

(4) Bridges, paths, walkways, gazebos, docks and decks, bulkheads, seawalls, and retaining walls, and accessways to such amenities are permitted across the buffer provided such activities have minimal impact to the wetlands and are scaled to preserve the integrity of the buffer (less than ten (10) percent of the total area calculation of the buffer). These structures must demonstrate that they are of a reasonable, compatible scale to similar structures in the neighboring area. Structures in Conservation Overlay Zone 2 that are connected to adjacent structures in Zones 1 or 3 shall be sized relative to that adjacent structure and be designed so

as to minimize off-site visual and environmental impacts. The applicant will present any mitigating design and environmental elements as part of the review of the structure in Conservation Overlay Zone 2.

Restoration plan(s) shall be developed to achieve the fifty (50) percent criteria above for those sites already disturbed. If the altered shoreline is bulk-headed, softening of this hardened shoreline with riprap, environmentally engineered materials or other techniques to soften wave energies and promote vegetation is encouraged. Should a softening effort be employed, a reduction in the twenty-five (25) feet buffer may be permitted.

(c) Applications for development in Conservation Overlay Zones shall be evaluated according to the following criteria:

(1) Site specific conditions.

(2) The site's relationship to adjacent properties, bodies of water and surrounding conservation zones.

(3) Natural and proposed drainage patterns.

(4) Effect of point and nonpoint discharge in the marine environment.

(5) Proposed soil stabilization and erosion control methods.

(6) Impact on floodplain.

(7) Impact of development on vegetative and animal communities.

(8) Potential for contaminated drainage, storage of pollutants and the use of poisonous chemicals and materials.

(9) Effect of shade on vegetation and shellfish.

(10) Effect of boat wake and boat traffic on manatees, vegetation, shellfish and wildlife, as well as shoreline erosion.

(11) Impact of development on shoreline by linear feet and percent of site.

(12) Impact of development on vistas and scenic opportunities by linear feet, height, mass and percent of site.

(13) Existing amounts of native plants and proposed retention and use of native plants for landscape and open space purposes.

(14) Impact of development on plant and animal habitat and potential loss in acres and percent of site.

(15)

Impact of development on water quality. Water quality objectives will be presumed to have been met if runoff water is routed to a surface water management system permitted by the St. Johns River Water Management District or to a treatment facility that is equivalent to the water quality treatment criteria (water retention/detention) of the water management district. (An engineer or landscape architect licensed in the State of Florida is required to certify that the treatment facility is equivalent to the district's criteria.)

(16) Impact of development on shellfish and on commercial and sport fish and waterfowl.

(17) Specific conditions applicable to docks. In addition to the considerations listed in subsections (1) through (16) herein, no boathouse, roofed structure or wall shall be constructed on any dock. This section shall not prohibit the use of bumpers or similar structures built at or near the water line and below deck elevation to protect the dock from damage caused by moored vessels. The deck of any private boat dock shall not exceed six (6) feet in height above mean high water. Boatlifts mounted on docks, or constructed on or adjacent to a dock, shall be limited to a capacity of twelve thousand (12,000) pounds or less. All boatlifts shall be low profile boatlifts or no profile boatlifts, and no boats in excess of thirty-two (32) feet in length shall be allowed on a boatlift. In addition, the maximum height, excluding masts, antennas and other non-occupiable features, of a boat suspended in a boatlift shall not exceed six (6) feet above the gunwale (gunnel); whereby, the gunwale (gunnel) is defined as the upper edge of the side of the ship or boat. A low profile boatlift is a boatlift for a single watercraft in which no part of the boatlift shall exceed three (3) feet above the deck. A no profile boatlift is a boatlift for a single watercraft in which no part of the boatlift shall protrude above the deck.

(d) Permits for structures and uses located within Conservation Overlay Zone 3 shall be issued only for those structures and uses which do not significantly alter the surface water hydrology or tree canopy cover, or cause the removal of significant trees. The planning and zoning board is authorized to impose limitations on the nature and manner of construction and/or so as to avoid alteration of surface water hydrology which would increase the flood hazard potential and to minimize the impact on existing trees and native vegetation.

(1) In determining whether or not a permit required by this section should be issued, the city planning and zoning board shall consider and base all decisions on the following:

a. The condition of the tree with respect to disease, insect attack, danger of falling, proximity to existing or proposed structures and interferences with utility services.

b. The necessity of removing a tree to construct proposed improvements in order to allow reasonable economic use of the property.

c. The relief of the land where the tree is located and the effect removal of the tree would have on erosion, soil moisture retention, diversion, increased or decreased flow of surface waters and the city master drainage plan or similar plan adopted by the city commission.

d.

The number and density of trees existing in the neighborhood on improved or unimproved property. The planning and building division shall also be guided by the effect removal of a tree would have on property values in the neighborhood where the property is located and on other vegetation in the neighborhood.

e. Whether the tree has been designated a significant tree.

f. Impact upon the urban and natural environment, including:

1. Ground and surface water stabilization.
2. Water quality and aquifer recharge.
3. Ecological impacts.
4. Noise pollution.
5. Air movement.
6. Air quality.
7. Wildlife habitat.

g. The ease with which the property owner or agent can alter or revise the proposed development or improvements to accommodate existing trees, including the tree or trees proposed to be removed.

(e) Issuance of permit. The planning and building division shall issue the removal permit for trees not identified as significant trees under section 11-27 unless, upon consideration of the criteria set forth above, it finds any of the following will result:

(1) That the property owner or agent will not be unreasonably affected in shifting the location of the proposed structure, building or improvement, which shift will maintain the existence of the subject trees and still permit construction of such building or improvement on the site.

(2) That the property owner or agent will not be unreasonably affected in modifying the design of the proposed structure, building or other improvement, which modification will maintain the existence of the trees proposed to be removed and still permit construction substantially similar to that originally proposed.

(3) That the removal of the subject trees will have a substantial adverse impact on the urban and natural environment.

(4) That the subject trees are significant trees and removal must be reviewed by the planning and zoning board.

(Code 1964, § 7-115; Ord. No. 96-02, § 1, 2-26-96; Ord. No. 00-34, § 1, 10-9-00; Ord. No. 01-14, § 1, 7-23-01; Ord. No. 04-01, § 1, 1-26-04; Ord. No. 14-14, § 1, 9-22-14; Ord. No. 19-03, § 1, 1-28-19; Ord. No. 21-13, § 1, 8-23-21)

Sec. 11-30. - Review procedures.

Any required conservation overlay zone development approvals shall be reviewed and approved by the planning and zoning board prior to any required review by the designated corridor review committee insofar as the review is related to compliance with design standards. Modifications to the plans, specifications or conditions approved by the planning and zoning board may result in additional review by the board before any city permits may be issued.

(Code 1964, § 7-116; Ord. No. 96-02, § 1, 2-26-96; Ord. No. 18-09, § 2, 6-25-18)

Secs. 11-31—11-50. - Reserved.

Initiative to Develop more Resilient Criteria for Building for Flood Prevention

Relevant Terms

A. Terms Currently Defined in Land Development Code
B. Terms Defined in Draft Resilient Shoreline Ordinance
C. Terms Beneficial to Define for Flood Prevention

Summary:

A list of relevant terms already defined in code, proposed to be defined in code, or may need to be defined to have a productive conversation about and the implementation of flood prevention strategies. This list should not be considered exhaustive but rather a collection of terms useful for flood prevention.

A. Currently Defined in Land Development Code

Chapter 8- Building and Building Regulations- Article III Coastal Construction

Coastal or *shore protection structure* means shore-hardening structures, such as seawalls, bulkheads, revetments, rubble mound structures, groins, breakwaters, and aggregates of materials other than beach sand used for shoreline protection; beach and dune restoration; and other structures which are intended to prevent erosion or protect other structures from wave and hydrodynamic forces.

Construction means the carrying out of any building, clearing, filling, excavation, or substantial improvement in the size or use of any structure or the appearance of any land. When appropriate to the context, "construction" refers to the act of construction or the result of construction.

Dune means a mound or ridge of loose sediments, usually sand-sized sediments, lying landward of the beach and deposited by any natural or artificial mechanism.

Chapter 8- Building and Building Regulations- Article V. Floodplain Management

Base flood elevation. The elevation of the base flood, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other

datum specified on the flood insurance rate map (FIRM). [Also defined in Florida Building Code, Building, Section 202.]

Basement. The portion of a building having its floor subgrade (below ground level) on all sides. [Also defined in Florida Building Code, Building, Section 202; see "Basement (for flood loads)".]

Coastal construction control line. The line established by the State of Florida pursuant to F.S. § 161.053, and recorded in the official records of the city, which defines that portion of the beach-dune system subject to severe fluctuations based on a 100-year storm surge, storm waves or other predictable weather conditions.

Coastal high hazard area. A special flood hazard area extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. Coastal high hazard areas are also referred to as "high hazard areas subject to high velocity wave action" or "V Zones" and are designated on flood insurance rate maps (FIRM) as zone V1-V30, VE, or V.

Design flood. The flood associated with the greater of the following two (2) areas: [Also defined in Florida Building Code, Building, Section 202.]

(1) Area with a floodplain subject to a 1-percent or greater chance of flooding in any year; or
(2) Area designated as a flood hazard area on the city's flood hazard map, or otherwise legally designated.

Design flood elevation. The elevation of the "design flood," including wave height, relative to the datum specified on the city's legally designated flood hazard map. In areas designated as zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as zone AO where the depth number is not specified on the map, the depth number shall be taken as being equal to two (2) feet. [Also defined in Florida Building Code, Building, Section 202.]

Encroachment. The placement of fill, excavation, buildings, permanent structures or other development into a flood hazard area which may impede or alter the flow capacity of riverine flood hazard areas.

Flood or *flooding.* A general and temporary condition of partial or complete inundation of normally dry land from: [Also defined in Florida Building Code, Building, Section 202.]

(1) The overflow of inland or tidal waters.
(2) The unusual and rapid accumulation or runoff of surface waters from any source.

Flood damage-resistant materials. Any construction material capable of withstanding direct and prolonged contact with floodwaters without sustaining any damage that requires more than cosmetic repair. [Also defined in Florida Building Code, Building, Section 202.]

Flood hazard area. The greater of the following two areas: [Also defined in Florida Building Code, Building, Section 202.]

(1) The area within a floodplain subject to a 1-percent or greater chance of flooding in any year.
(2) The area designated as a flood hazard area on the city's flood hazard map, or otherwise legally designated.

Floodplain development permit or approval. An official document or certificate issued by the city, or other evidence of approval or concurrence, which authorizes performance of specific development activities that are located in flood hazard areas and that are determined to be compliant with this article.

Floodway. The channel of a river or other riverine watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot. [Also defined in Florida Building Code, Building, Section 202.]

Floodway encroachment analysis. An engineering analysis of the impact that a proposed encroachment into a floodway is expected to have on the floodway boundaries and base flood elevations; the evaluation shall be prepared by a qualified Florida licensed engineer using standard engineering methods and models.

Highest adjacent grade. The highest natural elevation of the ground surface prior to construction next to the proposed walls or foundation of a structure.

Lowest floor. The lowest floor of the lowest enclosed area of a building or structure, including basement, but excluding any unfinished or flood-resistant enclosure, other than a basement, usable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the structure in violation of the non-elevation requirements of the Florida Building Code or ASCE 24. [Also defined in Florida Building Code, Building, Section 202.]

Special flood hazard area. An area in the floodplain subject to a 1 percent or greater chance of flooding in any given year. Special flood hazard areas are shown on FIRMs as zone A, AO, A1-A30, AE, A99, AH, V1-V30, VE or V. [Also defined in Florida Building Code, Building Section 202.]

Watercourse. A river, creek, stream, channel or other topographic feature in, on, through, or over which water flows at least periodically.

Initiative to Develop more Resilient Criteria for Building for Flood Prevention

Chapter 11 -Environmental Protection

Conservation Overlay Zone 1 comprises the most environmentally sensitive and valuable natural resources within the city. It includes all beaches, shores and dunes seaward of the state's coastal construction control line (F.S. ch. 161), all wetlands within the state's wetlands jurisdiction line (F.S. ch. 403), brackish water, and some habitat areas for species recognized as endangered, threatened, of special concern, or unique by federal, state and local agencies. This zone includes the estuarine/riverine environments created by the San Sebastian and Matanzas Rivers and their tributaries.

Conservation Overlay Zone 2 includes all property one hundred (100) feet landward from the most restrictive boundary line establishing Conservation Overlay Zone 1. Zone 2 is the transition zone or buffer area between Zone 1 and Zone 3, and may include areas recognized as habitat for species considered endangered, threatened, of special concern, or unique by federal state and local agencies. The primary purpose of Zone 2 is to protect the functional integrity of Zone 1, and to protect Zone 3 from extreme high water conditions.

Conservation Overlay Zone 3 is comprised of uplands and urban/residential areas which are inland from Zones 1 and 2, and which require special environmental consideration. Zone 3 is comprised of those undeveloped areas considered to be special flood hazard areas and significant tree canopy areas.

Conservation overlay zone development means any construction or use which requires a permit from the city, physically located or taking place within a conservation overlay zone.

Floodplain means an area inundated during a ten-year flood or designated as flood hazard areas by the National Flood Insurance Program.

Special flood hazard areas means areas which may become inundated during a one hundred-year flood.

Chapter 25 -Trees and Landscaping

Site plan means a scaled plan of the property to be developed, showing the locations of all structures and buildings, required yards, required parking, surface drive areas, loading spaces, stacking spaces, planting areas (both bufferyards and interior), dumpsters, exterior mechanical equipment, storm drainage retention areas, and all trees three (3) inches or larger dbh., by species and dbh. (both to be removed and to be retained), and any other necessary details required for review.

Initiative to Develop more Resilient Criteria for Building for Flood Prevention

Chapter 28 - Zoning

Buildable area means the portion of a lot remaining after required yards have been provided. Buildings may be placed in any part of the buildable area, but limitations on percentage of the lot which may be covered by buildings may require open space within the buildable area.

Building means any structure used or intended for supporting or sheltering any use or occupancy.

Developable land means all of a parcel of land except lands lying within proposed public rights-of-way; marshlands, swamps, floodplains or other environmentally sensitive lands where local, state or federal regulations otherwise prohibit development; and bodies of water such as ponds, lakes and reservoirs, either natural or manmade.

Fence means an artificially constructed barrier of any material or combination of materials erected to enclose or screen areas of land.

Floodplain means either riverine or inland depressional areas. Riverine floodplains are those areas contiguous with a lake, stream, or stream bed whose elevation is greater than the normal waterpool elevation but equal to or lower than the projected one-hundred-year flood elevation. Inland depressional floodplains are floodplains not associated with a stream system but which are low points to which surrounding lands drain.

Height, building, means the vertical distance measured from the mandatory freeboard requirement of one (1) foot above the base flood elevation as determined by the Federal Emergency Management Agency to the top of the highest point of the roof or parapet, exclusive of chimneys or other building accessories or ornamental features, for buildings constructed within known flood zones and delineated on the Federal Emergency Management Agency Insurance Rate Map; provided, however, that in instances of buildings outside of such known flood zones, vertical distance shall be measured from the average contact ground level at the front wall of the building.

Impervious surface means those surfaces which do not absorb water. They consist of all buildings, parking areas, driveways, roads, sidewalks, any areas of concrete or asphalt and other surfaces not pervious to water. Including any hard surface that prevents or restricts the flow of water into the soil.

Impervious surface ratio means a measure of the intensity of land use which is determined by dividing the total area of all impervious surfaces on a site by gross site or lot area.

Lot means a parcel of land of at least sufficient size to meet minimum zoning requirements for use, coverage and area, and to provide such yards and other open spaces as are herein required, provided that certain nonconforming lots of record ("non-conforming lots of record"),

at the effective date of this chapter (April 29, 1975), or any amendment to the zoning atlas of the city increasing the dimensional requirements of lots within the zoning district in which the lots are located, are exempted from certain of its provisions under the terms of this chapter (see section 28-119). Such lot shall have frontage on a public or private street and may consist of a single lot of record; a portion of a lot of record; a combination of complete lots of record, or complete lots of record and portions of lots of record, or of portions of lots of record; or a parcel of land described by metes and bounds; provided, that in no case of division or combination shall any residual lot or parcel be created which does not meet the requirements of this chapter. As of the effective date of this article, any two or more nonconforming lots of record located in single-family residential districts RS-1 and RS-2 on which a residential or commercial structure exists, excluding accessory structures as defined by section 28-348 of this Code, are considered combined and may not thereafter be divided into nonconforming lots by the removal or destruction of the structure or any portion thereof by any means whatsoever. Such lots, however, may be replatted so long as the replatted lots conform to the requirements of this chapter.

Lot coverage means that portion of the lot, excluding open water bodies determined using the mean high water line, that is covered by buildings and structures, measured from the face of the vertical wall of the building or structure, not including roof overhang, but including awnings, carports, or other unenclosed structures.

Minimum floor elevation means the lowest elevation permissible for the construction, erection or other placement of any floor, including a basement floor.

Pervious surface means any material that permits full or partial absorption of stormwater into previously unimproved land.

Chapter 29 -Stormwater Management

Impervious area means any part of any parcel of land that has been modified by the action of persons to reduce the land's natural ability to absorb and hold rainfall including areas that have been cleared, graded, paved, graveled or compacted, or covered with structures and excluding all lawns, landscape areas, water and other areas designated by the city manager.

Stormwater means any surface flow, runoff and drainage consisting entirely of water from any form of natural precipitation and resulting from such precipitation.

Stormwater management system means all natural and manmade elements used to convey stormwater from the first point of impact with the surface of the earth to a suitable outlet either inside or outside the city. The stormwater management system includes all pipes, channels, streams, ditches, wetlands, sinkholes, detention and retention basins, ponds, and other stormwater conveyance and treatment facilities, whether public or private.

B. Defined in Draft Resilient Shoreline Ordinance

Appurtenant Structure includes boathouses, sheds, gazebos, detached apartments, and pool houses on the same parcel as the principal property.

Bank means the level space separating a waterway from an inland area, often sloped, elevated and constructed of compacted soil.

Berm an earthen mound designed with impermeability to resist the flow of tidal waters through it to an adjacent property or public right-of-way.

Bulkhead a vertical or near-vertical, substantially impermeable structure that provides shoreline protection from waves while retaining upland soils.

Breakwater a structure constructed from rip rap, armor stone or precast concrete units that has a top elevation at or above the Mean High Water Line, with a specified slope and linear geometry, that is placed offshore for the purpose of dissipating wave energy before reaching the shoreline.

Cap means the top of a seawall which is usually formed and poured with concrete and rebar.

Crest means the highest portion of a shoreline feature.

Datum (vertical) means a base elevation used as a reference from which to reckon heights or depths.

Escarpment an area of the shoreline where the elevation changes suddenly. Escarpments are usually caused by erosion and refers to a steep slope (greater than 2:1) and greater than 18 inches in height.

Erosion the process of losing soil to wind, water, through natural processes or anthropogenic means.

Fetch the distance of open water over which wind blows or waves propagate unobstructed.

Floodplain means an area inundated during a ten-year flood or designated as flood hazard areas by the National Flood Insurance Program.

Grade (Slope, incline, gradient, pitch) - a physical feature of a landform which is described by the tangent of the angle the surface makes to horizontal. Typically described by the ratio of "rise over run" or vertical to horizontal distance.

Green-grey infrastructure or green-grey materials a combination of engineered and natural elements that provide environmental qualities, ecosystem value and protective services.

High Tide Flooding refers to king tides or exceptional high tides which occur seasonally around a new or full moon when the Moon and Sun are at their perigee (closest point to Earth).

Living shorelines, a suite of shoreline protection techniques that incorporate habitat restoration alone or in combination with some type of built infrastructure to provide coastal protective services. Living shorelines use native vegetation alone or in conjunction with low sills, encompassing riprap, oyster bag arrays, in front of low elevation Seawalls or Bulkheads to stabilize the shoreline.

Mean High Water Line the average of the high tide water levels over a 19-year time period (tidal epoch). These water levels vary based on the area of tidal influence, the distance from a pass or inlet or distance upstream from the mouth of a river.

Mooring structure a boat dock, slip, davit, hoist, lift, floating vessel platform, mooring pile, or similar structure attached to land or to a seawall, to which a vessel can be secured by ropes or cables.

North American Vertical Datum (NAVD 88) means the vertical control for datum of orthometric height established for vertical control surveying in the United States of America based upon the General Adjustment of the North American Datum of 1988. The National Geodetic Survey (NGS) is working on replacing NAVD 88 with plans to release the new datums in 2022.

Overtopping water levels or waves that are above the crest height of a shoreline treatment or seawall.

Natural and Nature-Based Features (NNBFs) are landscape features that are used to provide engineering functions relevant to flood risk management, while producing additional economic, environmental, and/or social benefits. Examples include beaches and dunes; vegetated environments such as salt marshes, freshwater wetlands and fluvial flood plains, and seagrass beds; coral and oyster reefs, barrier islands and others. NNBFs may occur naturally or be engineered, constructed and/or restored to mimic natural conditions.

Preempted area is the same meaning as Article IV, Sec. 7-82(d).

Public interest determination an analysis that balances criteria for a determination on whether a seawall/bulkhead tidal flood barrier project is not contrary to the public interest.

Public nuisance a condition injurious to the public health or safety of the community or a neighborhood, or injurious to any considerable number of persons, or a condition that

obstructs the free passage or use, in the customary manner, of any public right-of-way or adversely impacts the operation of public infrastructure.

Revetments structures usually made of large, loose, irregularly shaped stone or other material such as limerock or clean concrete rubble and have a specified slope on the waterward face. Revetments are constructed directly on the shoreline on or around the Mean High Water Line.

Rip Rap/Armor Stone generally rounded, limestone or granite that is placed on a slope to interlock and dissipate wave energy. Rip rap is effective at retaining sediment when used in conjunction with geotextile fabric.

Sea level rise projections the projected rise in water level for the Gulf of Mexico without the influence of a storm. Sea level rise projections are defined by the State of Florida in Section 380.093, F.S. to include National Oceanic and Atmospheric Administration 2022 tech report scenarios for Intermediate Low and Intermediate High for 2040 and 2070. Sea level rise projections will be updated approximately every five (5) years, based on updated information produced by the National Oceanic and Atmospheric Administration, the National Climate Assessment, the Florida Flood Hub and other appropriate sources predicting future flood risk.

Seawall a vertical or near-vertical, substantially impermeable structure typically made of concrete, vinyl or steel, that provides shoreline protection from waves while retaining upland soils. The elevation of the top of a seawall must comply with the current minimum finished elevation requirements in the Code as set by the Department of _____ [insert local government building department here] to ensure protection of adjacent property, public right-of-way or other public infrastructure from flooding associated with currently realized and expected future sea level rise.

Seawall Enhancement Project work performed in conjunction with an existing seawall/bulkhead which cannot be removed due to requirements of the immediately adjacent upland infrastructure. Enhancement projects improve water quality, increase soil retention, provide habitat and reduce wave energy impacts to the seawall. Examples of enhancements include installing vegetation, planter tubes and riprap at the wall base to prevent scour.

Seawall height standards the height of seawall structures as prescribed in this Article or by a local building code represented in NAVD 88 or a subsequent vertical datum. Seawall height standards shall incorporate sea level rise projections, seasonal tidal fluctuations and other factors influencing water levels that should be considered for protecting shorelines and property from future flood risk by the year 2070. The elevation of the top of a seawall, bulkhead cap or other protection must comply with the current minimum finished elevation of [undetermined] feet NAVD 88 to ensure protection of adjacent property, public right-of-way or other public infrastructure from flooding associated with currently realized and expected future sea level rise.

Shoreline means a tidally influenced area where land meets water.

Shoreline modification structures or actions that permanently change the physical configuration or quality of the shoreline, particularly at the point where upland areas and tidal waters meet.

Shoreline type the state of the shoreline in terms of environmental or structural elements that presently exist or could exist in the future at that tidally influenced area.

Sill - a low-elevation, shore-parallel structure constructed of precast concrete units with proper pH balance, riprap, oyster bags, oyster domes, or similar material on the waterward side of a created tidal wetland fringe marsh. A sill is typically constructed below the Mean High Water Line.

Storm surge the abnormal rise in the water elevation caused by a combination of effects from a storm including the atmospheric pressure changes, wind effects, the Earth's rotation, shallow water depth and rainfall.

Substantial improvement any repair, reconstruction, rehabilitation, alteration, addition, or other improvement of a building or structure, the cost of which equals or exceeds fifty (50) percent of the market value of the building or structure before the improvement or repair is started. If the structure has incurred "substantial damage," any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either: [Also defined in Florida Building Code, Building, Section 202.]

(1) Any project for improvement of a building required to correct existing health, sanitary, or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions.

(2) Any alteration of a historic structure provided the alteration will not preclude the structure's continued designation as a historic structure.

Substantially impermeable means any shoreline protection constructed, repaired, or reconstructed pursuant to this Section, in a manner that prevents groundwater on the landward side of the structure from being affected by tidal waters on the seaward side of the wall.

Tidal datum a standard elevation defined by measurement of a certain phase of the tide over long time periods. Tidal datums are used as references to measure local water levels and should not be extended into areas having differing oceanographic characteristics without substantiating measurements. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. Tidal datums are also the basis for

establishing privately owned land, state owned land, territorial sea, exclusive economic zone, and high seas boundaries.

Tidal flood barrier means any structure or shoreline feature including, but not limited to, banks, berms, green-grey infrastructure, seawalls, seawall caps, NNBFs, upland stem walls, or other infrastructure that impedes tidal waters from flowing onto a subject and adjacent property or public right-of-way, and located within or along a tidally influenced area.

Tidal waters mean any water that alternately rises and falls in a predictable and measurable rhythm or cycle due to the gravitational attraction of the moon and sun, including seasonal tide events such as King Tides. Extreme tidal elevation changes caused by a storm event (i.e. storm surge) are not to be used as a determining factor of whether or not an existing shoreline protection structure is in violation of the _____'s maintenance requirements.

Tidally influenced area means the real property adjacent to, or affected by, a body of water with water level changes in response to the daily tide.

Toe scour – loss of soil or erosion at the outside toe base of a seawall, breakwater or revetment due to wave action, overflowing flood waters or currents. If the issue is not addressed the area of influence may grow to the point the foundational base is damaged or structural stability is affected.

C. Terms Beneficial to Define for Flood Prevention

Bio-swale or vegetated swale is a form of bioretention used to partially treat water quality, attenuated flooding potential and convey stormwater away from critical infrastructure. These systems are linear, with length to width dimensions much greater than the more typical 2:1 applied to bioretention cells. (Clark)

Existing Grade is the elevation (measured from sea level) of the land before any grading takes place. (Law Insider)

Finished Grade is the final grade elevation (measured from sea level) per approved plans. (Law Insider)

Flood walls are a concrete or steel wall, constructed along the banks of a stream to prevent floodwaters from reaching the area behind the structure. (ACOE)

Rain gardens are less engineered than bioretention areas. Rain gardens are small, shallow, sunken areas with plants that collect stormwater runoff and filter it through a mixture of soil, sand, or gravel. (EPA)

Retaining wall means a structure constructed to hold back or support an earthen bank. (Lake Clarke Shores)

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Bolstering Seawalls

To comply with a county mandate, Fort Lauderdale is requiring taller walls.

The city of Fort Lauderdale bought a boat in 2023 so that its code enforcement unit could conduct waterside property inspections, looking in part for seawalls in disrepair or walls so short that water flowed over them onto the public right of way or a neighbor's yard. If cited, property owners have a year to replace the wall with one that's 5 feet high, up from the 3.9 feet required before.

The city's 2023 Tidal Barrier Ordinance is one adaptation the "Venice of America" is making. The city is also spending more than $1 billion on water system and stormwater system projects. It's hard to attribute how much spending, private and public, is routine, albeit expensive, major upkeep and how much owes to adapting to sea level rise or heavier rains.

In passing the seawall law, the city followed a mandate from Broward County that all coastal municipalities require higher seawalls to answer projections of sea level rise for the next half century, projections driven by a U.S. Army Corps of Engineers study. (Notably, before 2016, the city focused not on minimum heights but on restricting maximum seawall heights — so that owners didn't block neighbors' views or create concrete canyons.) The 2023 ordinance requires the seawall to be raised to five feet high if an owner is cited for flooding neighbors or the public right-of-way, or if a seawall is more than 50% in need of repair or for new seawall construction. The expectation is that as existing seawalls over time reach the end of their 50-year useful lives, new, five-foot walls will replace them making homes on the city's waterways resilient. As sea level rise projections change, the height requirement can change with them.

As of November, the city had cited approximately 50 property owners for seawall issues. "There's things we can do in the public realm, but there's things that have to happen in the private realm as well in order for us to be as resilient a community as we can be," says city resilience officer Nancy Gassman.

The price of a new seawall is $1,000 to $2,000 per linear foot. A back-of-the-envelope calculation shows it will cost property owners $1.7 billion to $3.5 billion to replace all the seawalls along the city's 165 miles of waterway. But much of the cost would come regardless of sea-level change. One costly item that does result from higher seas: Elevating lots as the groundwater table rises.

Meanwhile, those who can't pay to get their walls to five feet are finding buyers hungry for waterfront. "It's very common for people when they buy these houses as teardowns, that they elevate the seawall as part of the new construction," Gassman says.

Last year, the city of Fort Lauderdale replaced 130 feet of seawall at Merle Fogg Park near the Las Olas drawbridge to help reduce tidal flooding and make the area better prepared for future king tide events and sea level rise.

The city, meanwhile, has had plenty of its own adaptation work to do. It spent $1 million on one seawall to protect a city park and adjacent road and nearly $3 million to replace four seawalls on Las Olas Boulevard. It installed 200 tidal valves to keep ocean water from flowing back up the stormwater system and onto streets. It wants to put in another 200 tidal valves at $3,000 to $15,000 a pop.

Some of the adaptations are necessitated by heavier rains or higher seas — pumps to move stormwater when gravity formerly did the trick, for example. But other work owes to infrastructure aging out or to accommodate development. An under-construction $666-million water treatment plant replaces one at the end of its useful life that wasn't built to Category 5 hurricane standards and can't treat for what are known as forever chemicals.

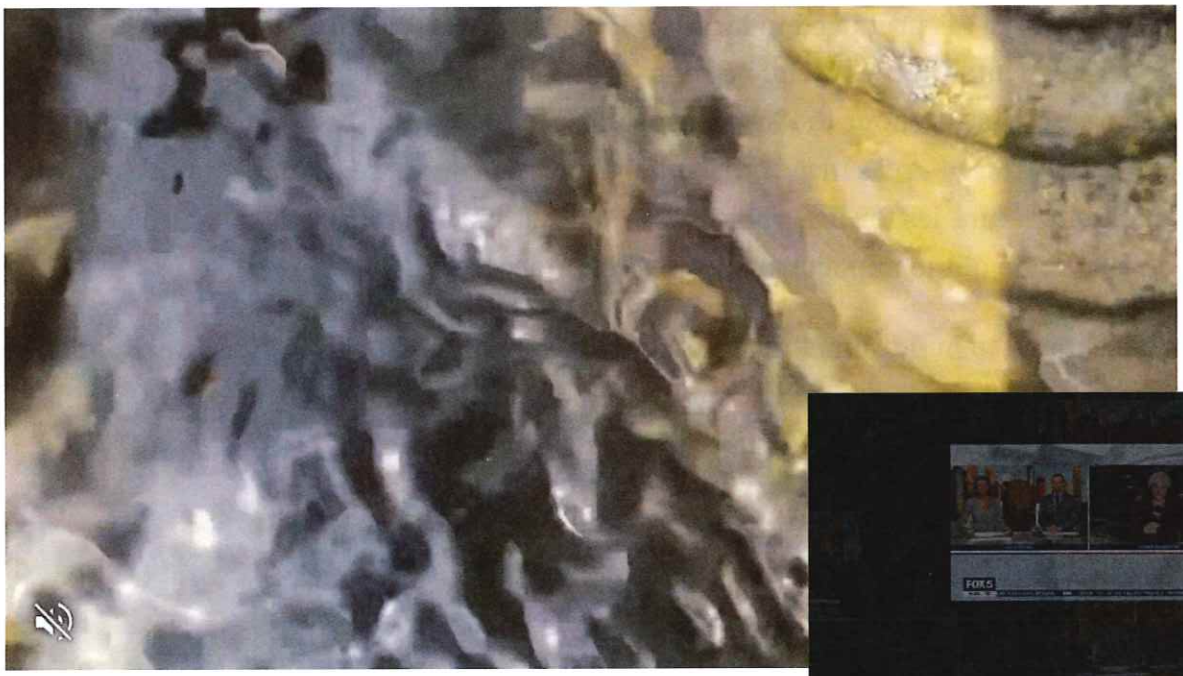
photo: City of Fort Lauderdale

CLIMATE CHANGE

Reinventing the South Florida seawall to help marine life, buffer rising seas

By **Ashley Miznazi**

Updated January 17, 2025 6:42 PM | 1



KindDesigns, a Miami-Dade tech start up, debuts a cutting-edge seawall design. By Ashle

In the back of a mansion under construction in Miami Beach, contractors are installing what may be the future first line of coastal defense from erosion and climate-driven sea-rise.

It's a seawall but not your old-school plain poured concrete installation. This is a "living seawall" and it's cutting-edge in both its design and how it is made.

For one thing, the wall— developed by a Miami-based tech start-up called KindDesigns — is produced in large sections by what is billed as the fastest 3D concrete printer in the world. Its robot arm can sculpt a 10-foot long segment out of concrete in just an hour that can be installed in pieces. But perhaps more important, it features raised areas inspired by mangrove roots that are intended to both provide nooks and crannies for fish and crabs and other marine creatures and also better absorb some of the impact from waves and storm surges.

"We wanted to build something that would be awesome for the environment and the whole marine ecosystem," said Anya Freeman, the founde
there's no green premium, the environmental benefits dor
cost."

A green premium means climate-friendly stuff usually cos
roughly similar in cost to traditional sea wall construction.

Seawalls at the Kind Design headquarters in Miami are produced using what is billed as the world's fastest concrete 3D printer. Sophia Bolivar *sophiabolivar@outlook.com*

The Miami Beach living sea wall is the first one that KindDesigns has installed in the county. The seawall is the same strength as the ones that have gone in the water for the last century, Freeman said, but uses half the rip rap, or boulder rocks, that are required in front of the older designs. The company has tapped advice from high-profile experts and attracted big-name investors.

"We've brought in some concrete experts Elon Musk was working with at the Boring Company to help us maximize our material for strength and speed," Freeman said.

Founder and CEO of Kind Designs Anya Freeman shows off her company baseball cap at their headquarters in Miami Sophia Bolivar *sophiabolivar@outlook.com*

As a member of Miami's ClimateReady Tech Hub —a county backed incubator that connects local startups with academic researchers — KindDesigns has access to a University of Miami's wave pool that simulates Category 5 hurricanes. They're running a test this month to determine what happens when waves break on the structure.

"I anticipate that it should perform well, I'll be able to quantify that after the testing," said Brian Haus, a professor and department chair of ocean sciences at the University of Miami.

A typical sea wall is a mirror to the waves that just bounce off it. Haus said that can create problems:

"Even though it does protect the property behind it, it can lead to more waves in the canal and cause problems for other boaters, or property owners."

A year ago, KindDesigns brought in $6M from recognizable investors including Mark Cuban and Patrick Murphy, a former Florida congressman and general contractor with Coastal Construction. With that funding, they bought a warehouse, grew the team and got three cutting-edge 3D printers.

"It's faster, less expensive and green – its a win, win, win," Murphy said. "If we're going to be serious about climate change, which is something I'm passionate about, the construction industry is a big piece of that that flies under the radar."

Murphy underlined data points that point to the industry being responsible for more than 40% of greenhouse gas emissions.

"Growing up you ignore seawalls and now they can be art and appealing -- and better for the environment" Murphy said.

KindDesigns wall submerged at Ocean Reef Club in Key Largo after 90 days. KIND Designs

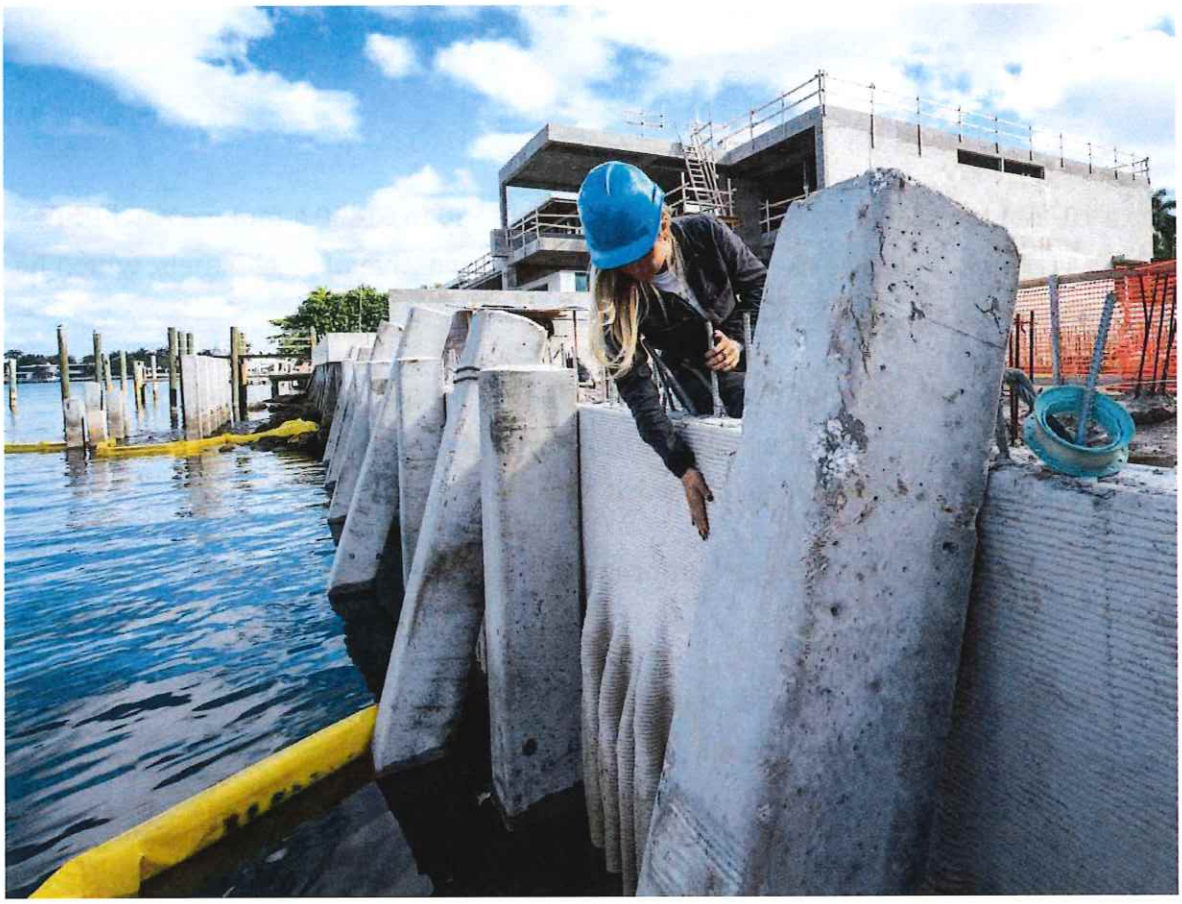
Better for the fish

As our natural reefs are under increasing threat, artificial structures like living seawalls may become key to maintaining marine life, said Alastair Harborne, a coral reef and fish ecologist from Florida International University.

"Sea level rise means that defenses and seawalls are going to be really important going forward and just putting a flat concrete block does not provide a lot of habitat for fish and other organisms," Harborne said.

Harborne and his graduate student will monitor the living sea wall installed on a home off the Venetian Causeway in Miami Beach for a year to see what life settles on it.

For fish to use it for sanctuary, he said the structure is more important than it is for it to be alive. But the wall's rough texture is expected to encourage animals like coral, crustaceans and snails to attach to it.



Founder and CEO of Kind Designs, Anya Freeman, inspects a 3D printed seawall in Miami Beach. Sophia Bolivar *sophiabolivar@outlook.com*

Meets code, ready to scale

Troy Wilson, the contractor installing the wall, said KindD roughly the same price for the property owners to install a seawall.

For a 10-foot tall seawall, that would run about $1500 to $1600 a foot, not including the rip rap rock. Both are cheaper than another alternative of steel panels, which he said can run about $3,000 a linear foot.

While it needs half the amount of rock and does not require the excavation and form construction to pour the concrete on site, the living seawall does costs more to transport. That, he said, makes it a "wash."

"So it's maybe a little bit cheaper but pretty comparable to the regular concrete walls," Wilson said.

His client's appeal to them so far has been the different and unique look but he said it's "still very fresh" on the market.

"Some people are a little bit nervous because they're not out there so they question how will they hold up in the environment over the years," Wilson said. "I think some of these higher-end builders will go to it because they're looking for new products. And, you know, who wants to look that ugly sea wall? Well, we don't think it's ugly because that's what pays our check."

A Kind Design employee drives a forklift next to 3D-printed seawalls at the company headquarters in Miami. Sophia Bolivar *sophiabolivar@outlook.com*

While KindDesigns focuses on residential properties, they won government contracts on the West Coast in Longboat Key and Bay Harbour Islands in Miami Beach. In Bay Harbour, the plan is to design 25 coral reef structures with six of them sculpted into famous Floridians. There's no word on who the busts will be yet, but the site will be visible by plane.

Now that the new and approved seawall is on the market,
the operation.

"I wanted to start KindDesigns to first find a solution for my home, this beautiful city. But number two to create something that can be scaled and duplicated so that we can bring this technology to every coastal city at risk globally," Freeman said.

CITY OF ST AUGUSTINE EST. 1565

Citizen Boards

Planning Division Memorandum
Planning and Building Department

TO: Planning and Zoning Board, Historic Architectural Review Board and the Corridor Review Committee

DATE: December 18, 2024

RE: Discussion Regarding an Initiative to Develop more Resilient Criteria for Building for Flood Prevention.

The City Commission has directed staff to work with the city's Citizen Boards to examine concerns related to development in low-lying and/or flood prone areas. This issue has become more of a concern recently with more frequent development applications proposing significant amounts of fill, higher than minimum finished floor elevations, and building techniques or design, such as on slab construction that minimizes the options to control drainage, runoff and water for residential development.

You may recall that several years ago the city did have an initiative with a "Building Code Task Force" that looked at this issue. This group recommended the adoption of a maximum impervious surface ratio (70% of the lot) in addition to the preexisting lot coverage limits, and the requirement for lot grading plans for new single-family development. These recommendations were adopted and are enforced through the city's building permit process. The lot grading plan requirements are attached for your information.

The city is also working with various entities on several major projects to address longer term resiliency efforts. These projects recognize the city's potential vulnerability to sea level rise, increased "sunny day" flooding and the potential impacts of tropical storms and other coastal storms.

The Planning and Zoning Board (PZB) has recognized that these issues impact proposed development which includes infill development in older areas, redevelopment as properties are demolished and redeveloped with new proposals, and character defining features in our historic districts, historic neighborhoods and our entry corridors. As well as, on specific historic structures as property owners and others work to protect their "investment" in the city.

This joint meeting gives the Boards an opportunity to discuss these issues as an introduction to the topic. Over the next several months there will be a series of special meetings to continue the discussion to potentially lead to additional recommendations and criteria that may help to address the impacts of new development.

Additional information related to this subject is attached for your review. The city will engage the public to encourage as much public input as possible, as well as work with an environmental consultant, and attorney to help with the process.

Thank you for your attention to this matter. If you have any questions or require additional information, please do not hesitate to call me at (904) 209-4320 or email at askinner@citystaug.com.

Amy McClure Skinner, AICP
Director
Planning and Building Department

Low-lying Areas in Central and South Downtown St. Augustine

Elevation Range: 0 to 6 ft NAVD88

Legend

- Area of Interest
- Road Centerline - City

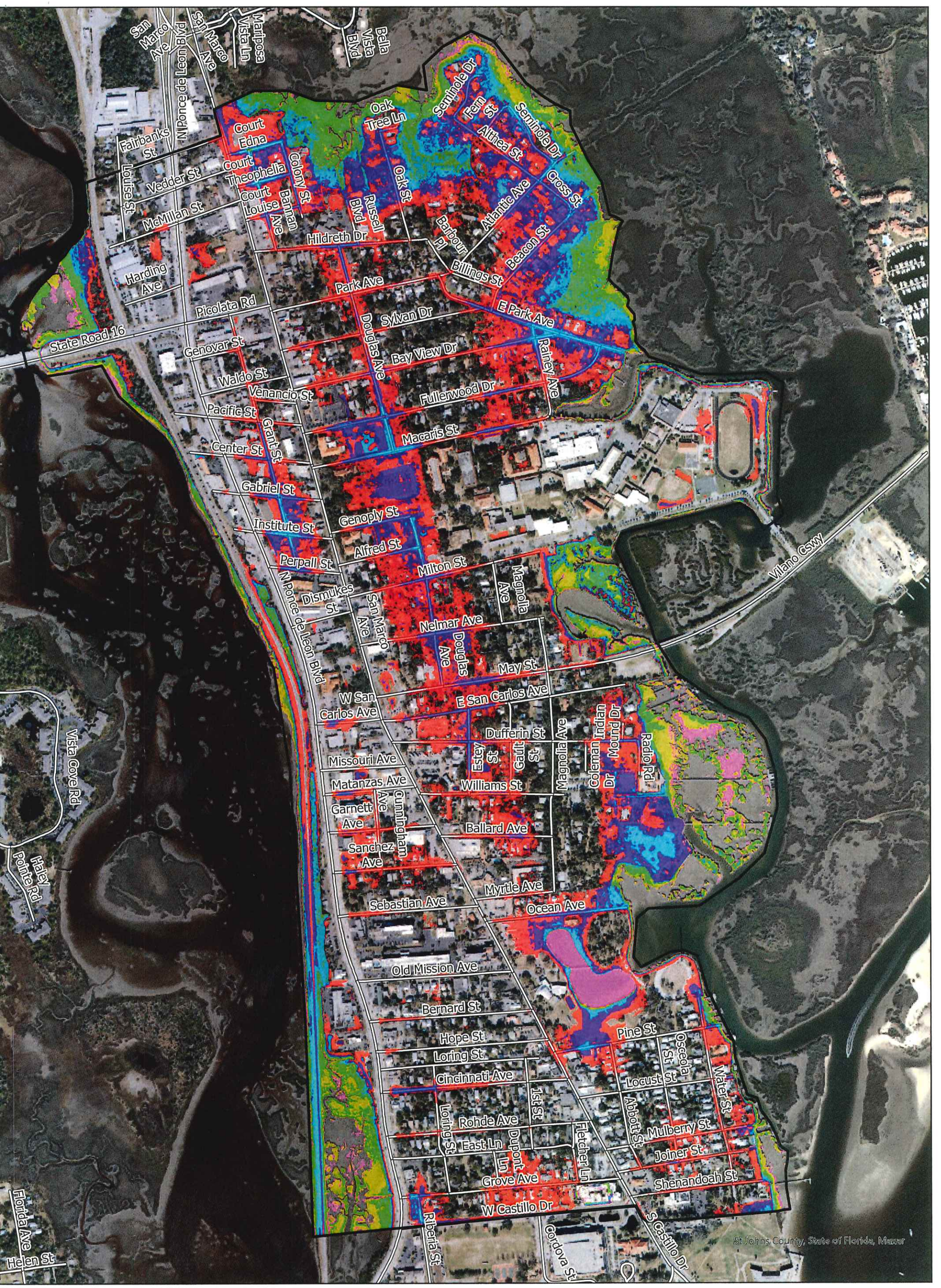
Elevations (ft NAVD88)

- 0.001 - 1
- 1.001 - 2
- 2.001 - 3
- 3.001 - 4
- 4.001 - 5
- 5.001 - 6

1:8,000

N W E S

0 600 Feet



North Downtown St. Augustine: Low-lying Areas

Elevation Range: 0 to 6 ft NAVD88

Legend

- Area of Interest
- Road Centerline - City

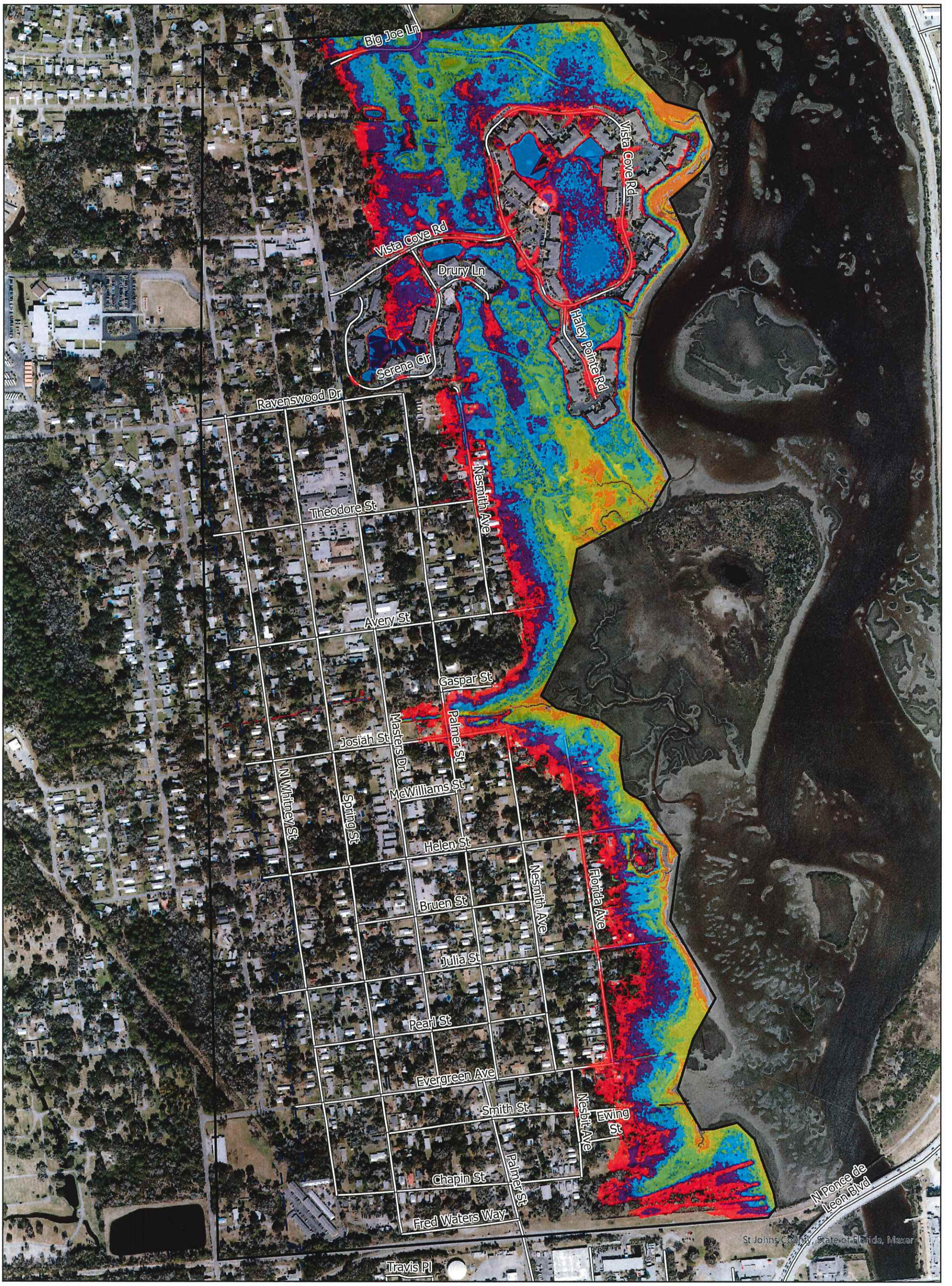
Elevations (ft NAVD88)

- 0.001 - 1
- 1.001 - 2
- 2.001 - 3
- 3.001 - 4
- 4.001 - 5
- 5.001 - 6

1:7,500

N
W E
S

0 600 Feet



Ravenswood: Low-lying Areas

Elevation Range: 0 to 7 ft NAVD88

Legend

- Area of Interest
- Municipal Boundary
- Road Centerline - City

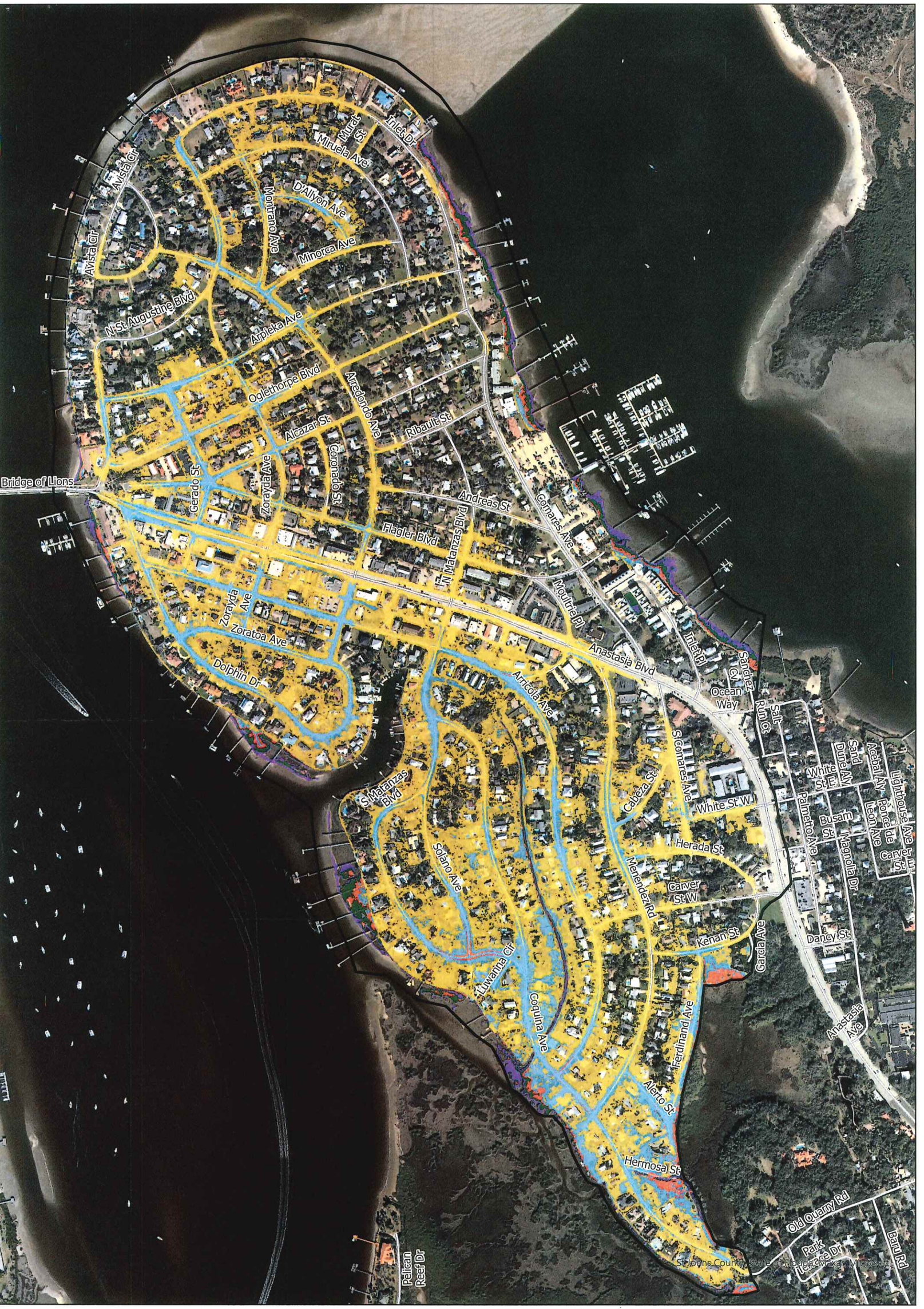
Elevations (ft NAVD88)

- 0.001 - 1
- 1.001 - 2
- 2.001 - 3
- 3.001 - 4
- 4.001 - 5
- 5.001 - 6
- 6.001 - 7

1:6,000

N
W E
S

0 500 Feet



Low-lying Areas in Davis Shores

Elevation Range: 0 to 5 ft NAVD88

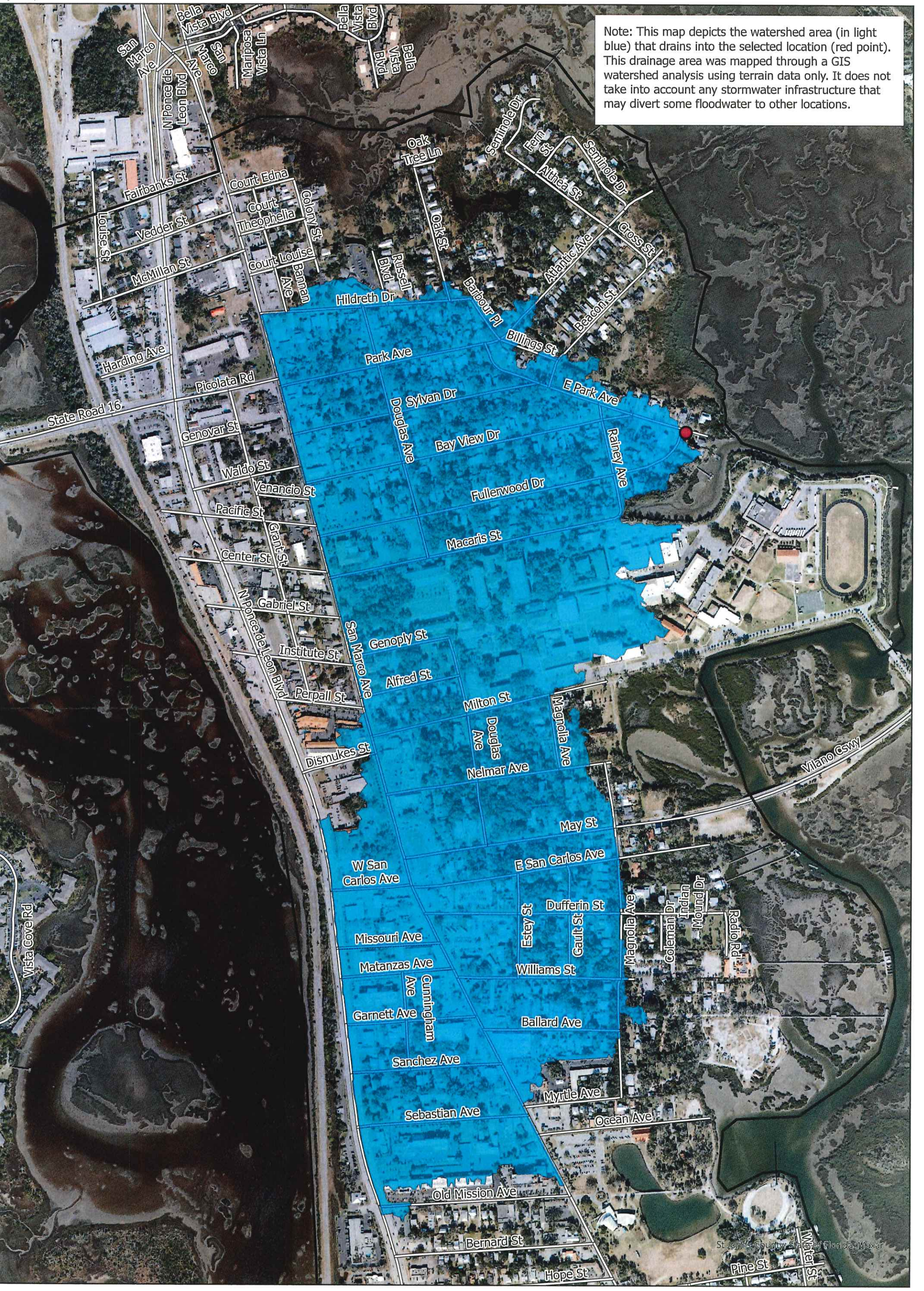
Legend

- Road Centerline - City
- Area of Interest
- Elevations (ft NAVD88)
  - 0.02 - 1.01
  - 1.02 - 2.01
  - 2.02 - 3
  - 3.01 - 4
  - 4.01 - 5

1:6,500

N W E S

0 500 Feet


Note: This map depicts the watershed area (in light blue) that drains into the selected location (red point). This drainage area was mapped through a GIS watershed analysis using terrain data only. It does not take into account any stormwater infrastructure that may divert some floodwater to other locations.
Bella Vista Blvd
San Marco Ave
Mariposa Vista Ln
N Ponce de Leon Blvd
Oak Tree Ln
Seminole Dr
Fern St
Althea St
Fairbanks St
Court Edna
Court Theophella
Colony St
Oak St
Louise St
Vedder St
McMillan St
Court Louise
Bannan Ave
Russell Blvd
Atlantic Ave
Gross St
Barbour Pl
Beacon St
Hildreth Dr
Billings St
Park Ave
E Park Ave
Harding Ave
Picolata Rd
State Road 16
Sylvan Dr
Douglas Ave
Bay View Dr
Rainey Ave
Genovar St
Waldo St
Venancio St
Fullerwood Dr
Pacific St
Grant St
Macaris St
Center St
Gabriel St
San Marco Ave
Genoply St
Institute St
Alfred St
Perpall St
Milton St
Magnolia Ave
Douglas Ave
Dismukes St
Nelmar Ave
Viano Cswy
May St
W San Carlos Ave
E San Carlos Ave
Dufferin St
Estey St
Gault St
Missouri Ave
Matanzas Ave
Williams St
Cunningham Ave
Garnett Ave
Ballard Ave
Sanchez Ave
Myrtle Ave
Sebastian Ave
Ocean Ave
Old Mission Ave
Bernard St
Hope St
Pine St
Water St
Vista Cove Rd
Magnolia Ave
Coleman Dr
Indian Mound Dr
Radio Rd
St Johns County, State of Florida, Maxar
Drainage Area for Selected Location in North Downtown St. Augustine
Legend
Area of Interest
Road Centerline - City
Drainage Point
Drainage Area
1:6000
N
W
E
S
0
500 Feet


Note: This map depicts the respective watershed areas that drain into each of the two selected locations. These drainage areas were mapped through a GIS watershed analysis using terrain data only. It does not take into account any stormwater infrastructure that may divert some floodwater to other locations.
Murat St
Inlet Dr
Miruela Ave
Avista Cir
D'Allyon Ave
Montrano Ave
Minorca Ave
Avista Cir
N St Augustine Blvd
Arpieka Ave
Oglethorpe Blvd
Arredondo Ave
Zorayda Ave
Alcazar St
Ribault St
Bridge of Lions
Gerado St
Coronado St
Andreas St
N Matanzas Blvd
Flagler Blvd
Conares Ave
Moultrie Pl
Zorayda Ave
Zoratoa Ave
Anastasia Blvd
Inlet Pl
Dolphin Dr
Arricola Ave
Sanchez Cv
Ocean Way
Run Ct
Salt
Ingram St
Sand Dune Aly
White St E
S Conares Ave
Cabeza St
White St W
Magnolia Dr
Busam St
Palmetto Ave
Herada St
S Matanzas Blvd
Solano Ave
Menendez Rd
Carver St W
Dancy St
Kenan St
Garda Ave
Coquina Ave
Luuwama Cir
Ferdinand Ave
Alerto St
Hermosa St
St Johns County, State of Florida, Maxar
Drainage Areas for Selected locations in South Davis Shores
Legend
Drainage Point 1
Point 1 Drainage Area
Drainage Point 2
Point 2 Drainage Area
Road Centerline - City
1:6,000
N
W
E
S
0
500 Feet

Maps Illustrating General Type of Shoreline Condition

Source: Basemap ESRI 2022; WSP 2023; COSA 2016

Explanation of Features

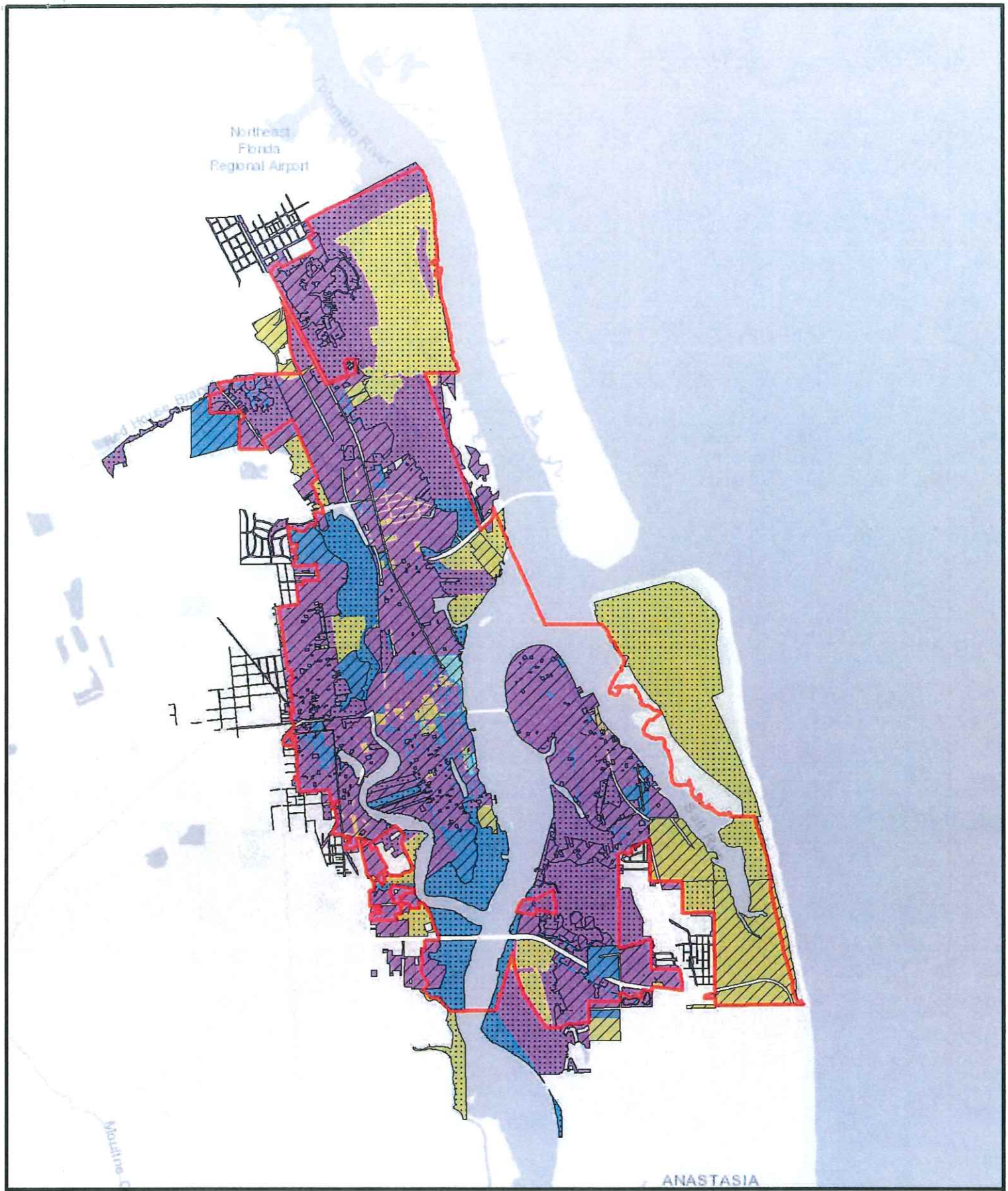
City of St. Augustine Boundary

City of St. Augustine - Resilient Shoreline Ordinance

Figure 1: Location Map

N

0 0.5 1 2 Miles



Explanation of Features

- City of St. Augustine Boundary
- Undeveloped
- Developed

Ownership

- City
- County + State
- Federal
- Private

Source: Basemap ESRI 2022; WSP 2023; COSA 2016; SJCPA 2023

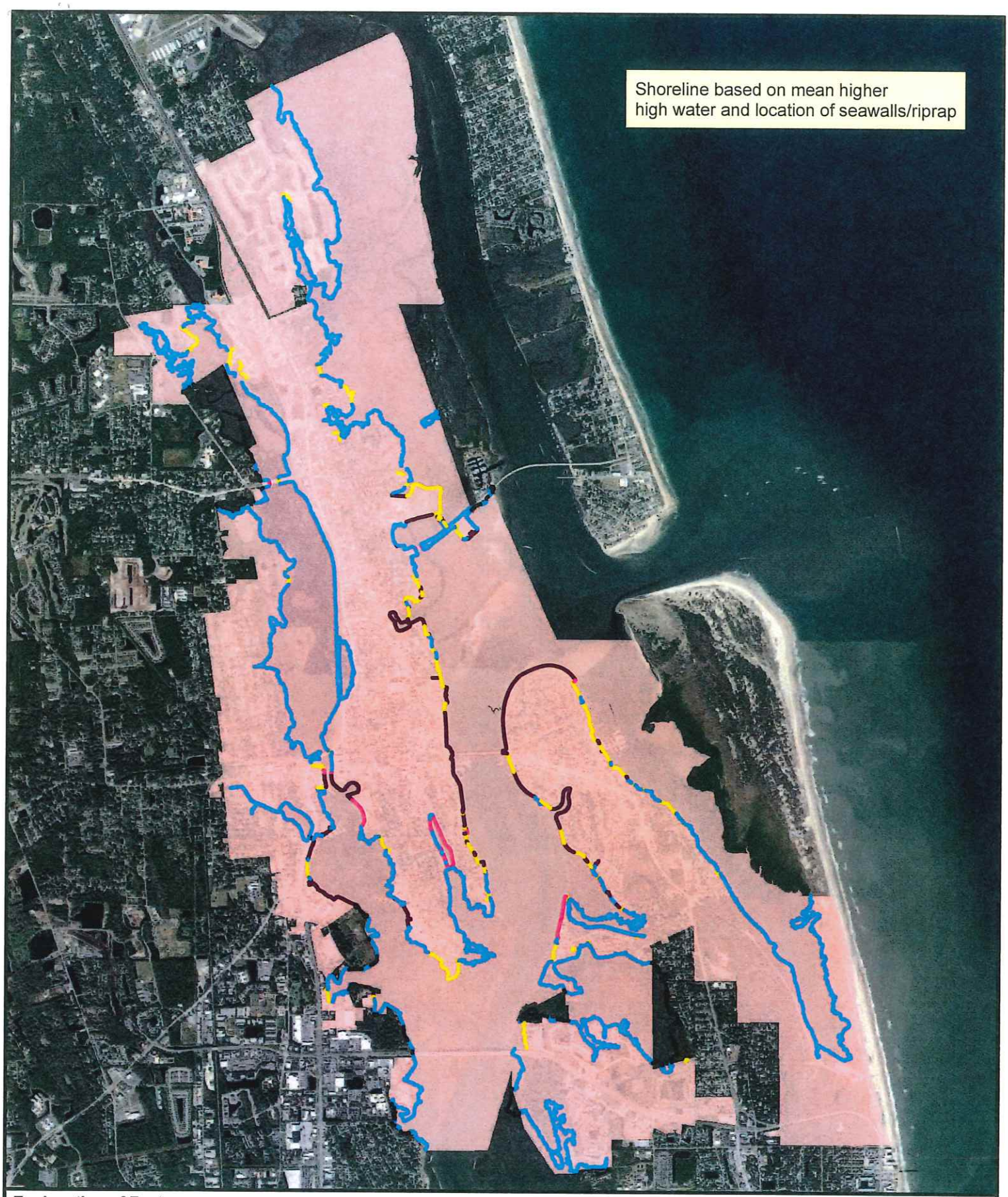
City of St. Augustine - Resilient Shoreline Ordinance

Figure 2: Parcel Map

N

0 0.5 1 2 Miles

wsp



Explanation of Features

City of St. Augustine Boundary

Shoreline Type

- Concrete Seawall
- Hybrid Shoreline
- Natural Shoreline
- Stone/Riprap Seawall
- Outside City Limits

Source: Basemap ESRI 2022; WSP 2023; COSA 2016; SJCPA 2023

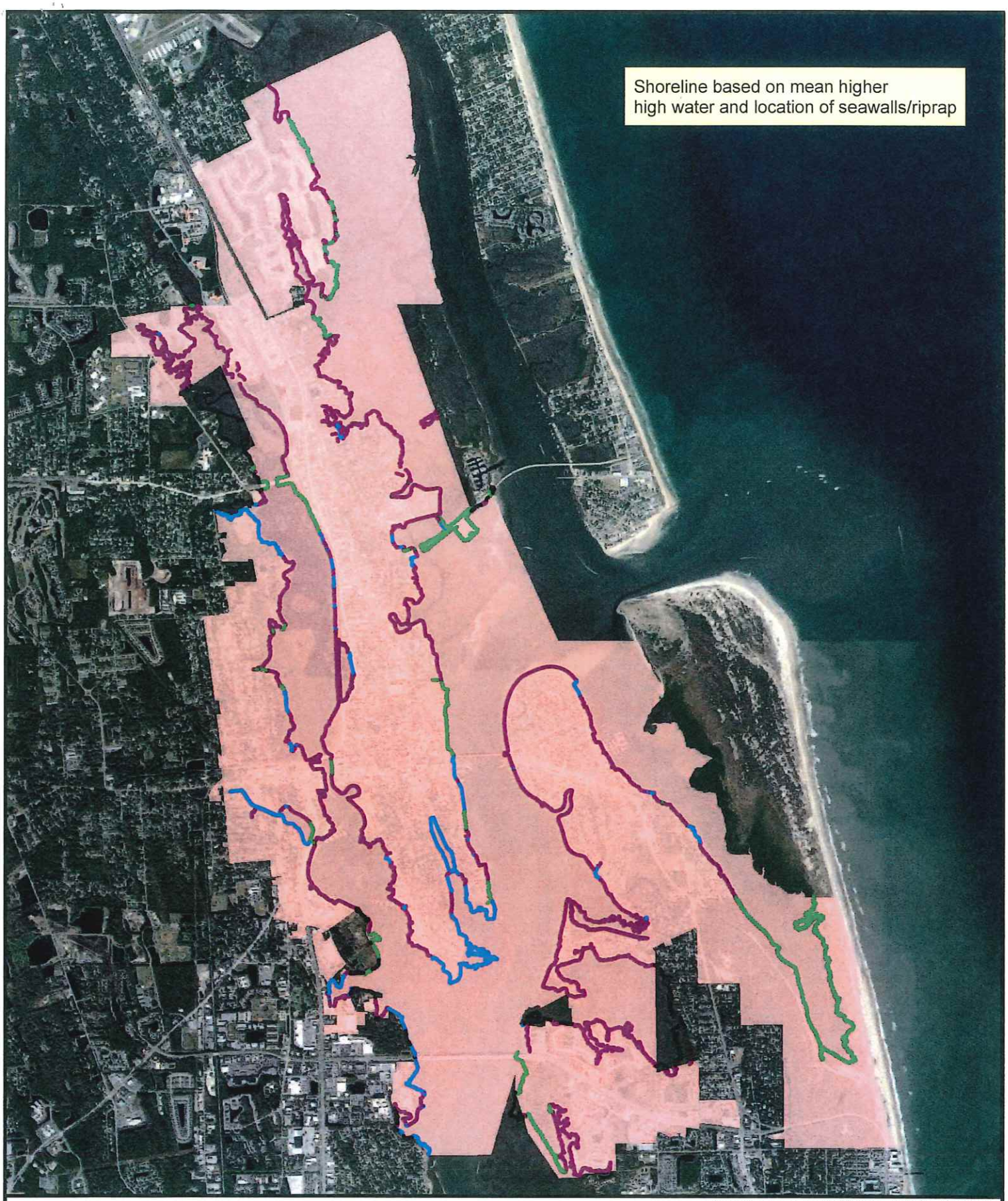
City of St. Augustine - Resilient Shoreline Ordinance

Figure 3: Shoreline Map

N

0 0.375 0.75 1.5 Miles

wsp



Source: Basemap ESRI 2022; WSP 2023; COSA 2016; SJCPA 2023

Explanation of Features

City of St. Augustine Boundary

Ownership

- City
- Private
- Public (Other than City)
- Outside City Limits

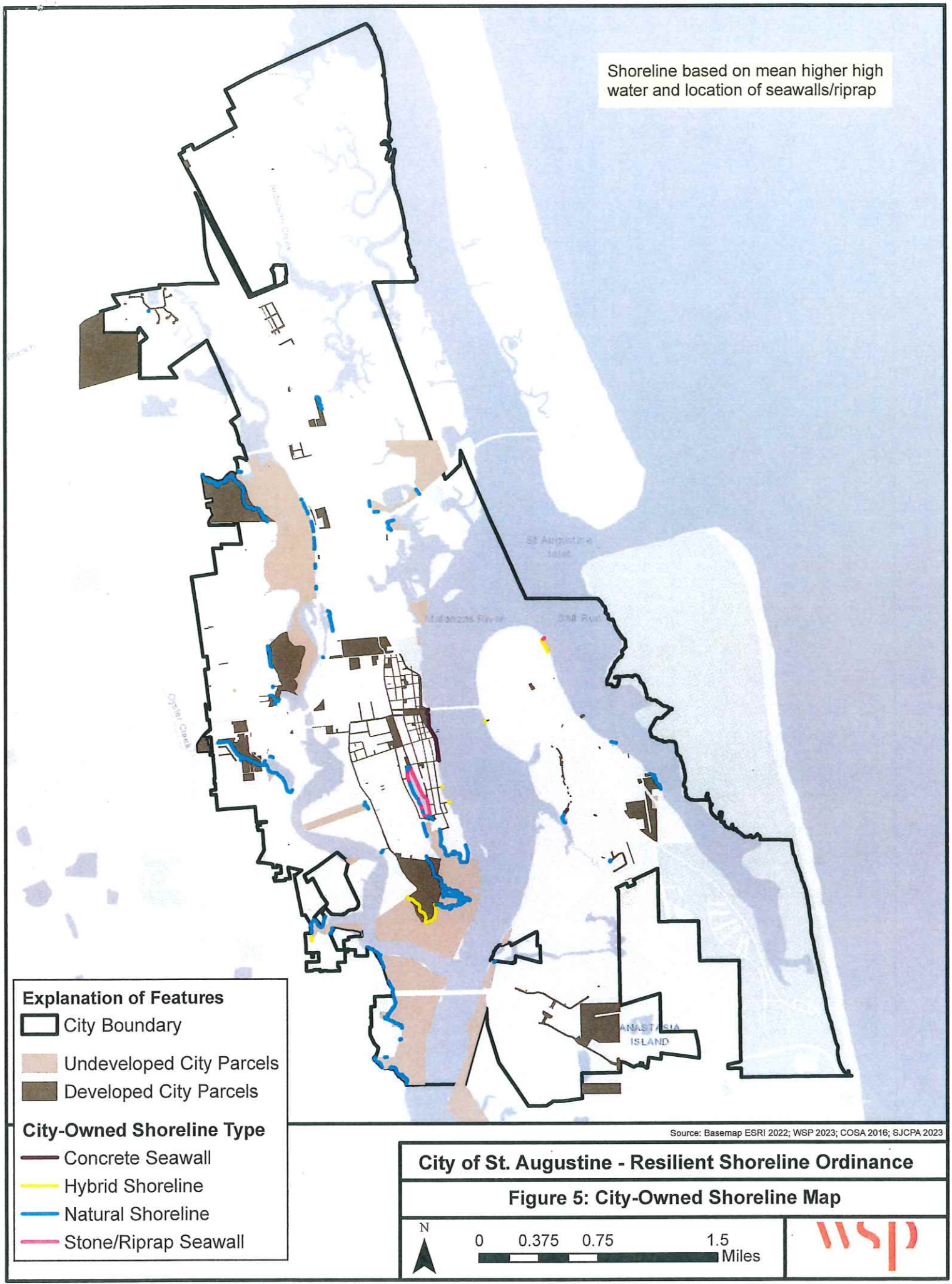
City of St. Augustine - Resilient Shoreline Ordinance

Figure 4: Shoreline Ownership Map

N

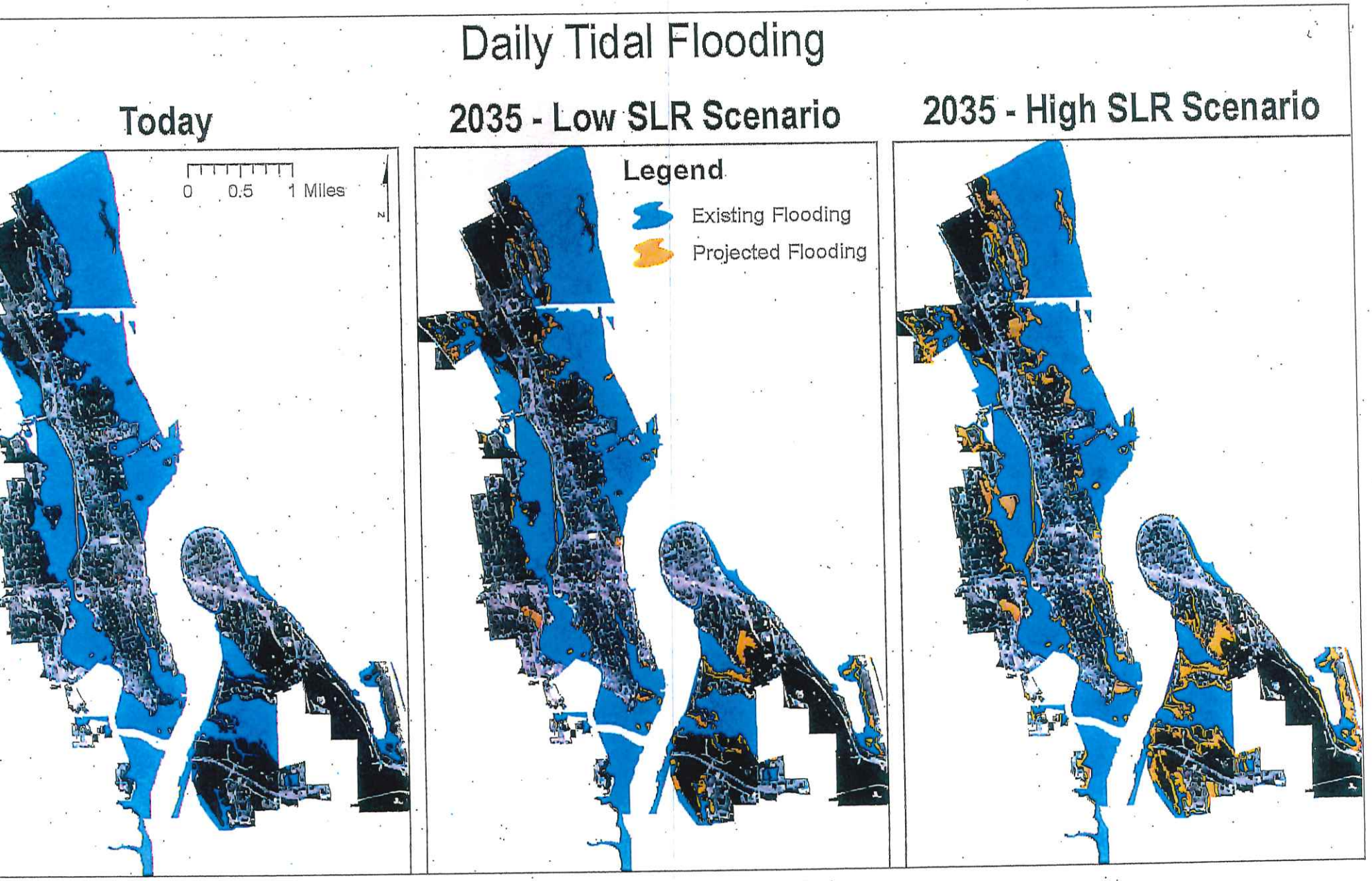
0 0.375 0.75 1.5 Miles

WSP


Shoreline based on mean higher high water and location of seawalls/riprap
Explanation of Features
City Boundary
Undeveloped City Parcels
Developed City Parcels
City-Owned Shoreline Type
Concrete Seawall
Hybrid Shoreline
Natural Shoreline
Stone/Riprap Seawall
ANASTASIA ISLAND
Source: Basemap ESRI 2022; WSP 2023; COSA 2016; SJCPA 2023
City of St. Augustine - Resilient Shoreline Ordinance
Figure 5: City-Owned Shoreline Map
N
0 0.375 0.75 1.5
Miles

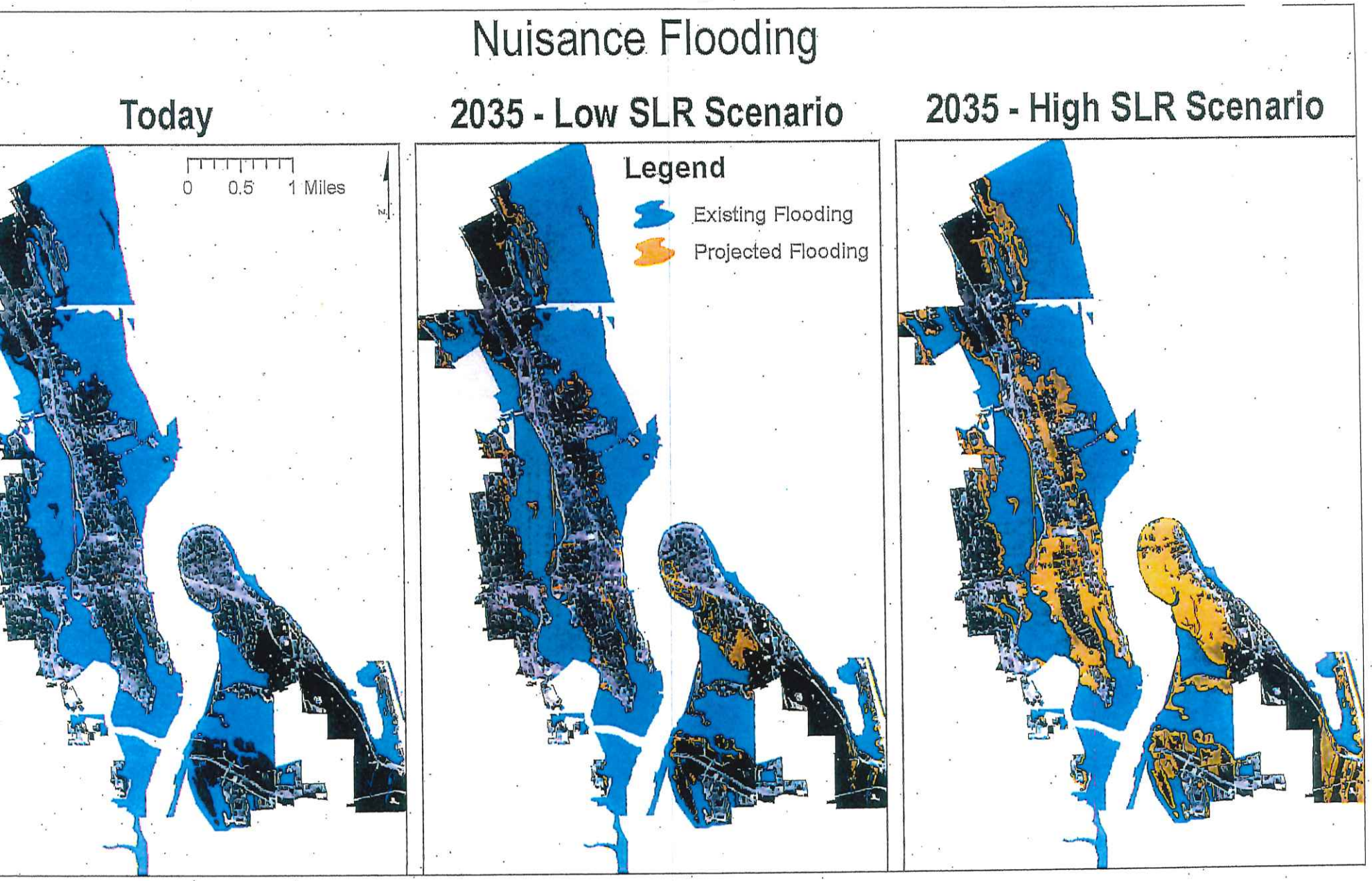
Maps from the 2016 Florida Department of Emergency Management (FDEM) City of St. Augustine Adaptation Plan and Maps Adopted in the 2020 Conservation and Coastal Management Element of the City's Comprehensive Plan

Daily Tidal Flooding



nges to areas of inundation under Mean High High Water (MHHW) for the modeled
and high sea level rise scenarios at the short-term planning horizon (2035) per the
of St. Augustine Vulnerability Report.
DEO September 2016

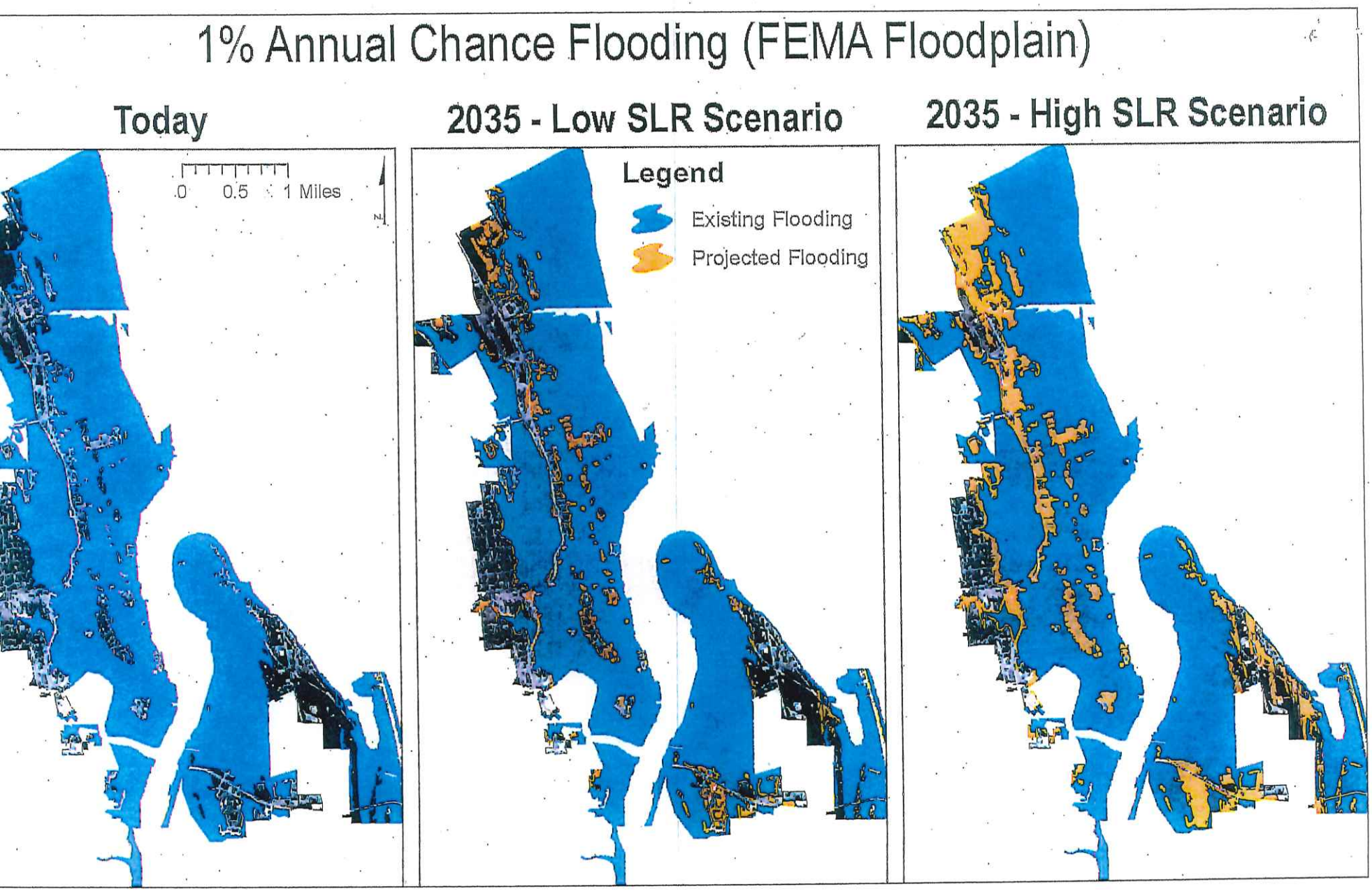
Nuisance Flooding



nges to areas of nuisance flood inundation for the modeled low and high sea level scenarios at the short-term planning horizon (2035) per the City of St. Augustine nerability Report.

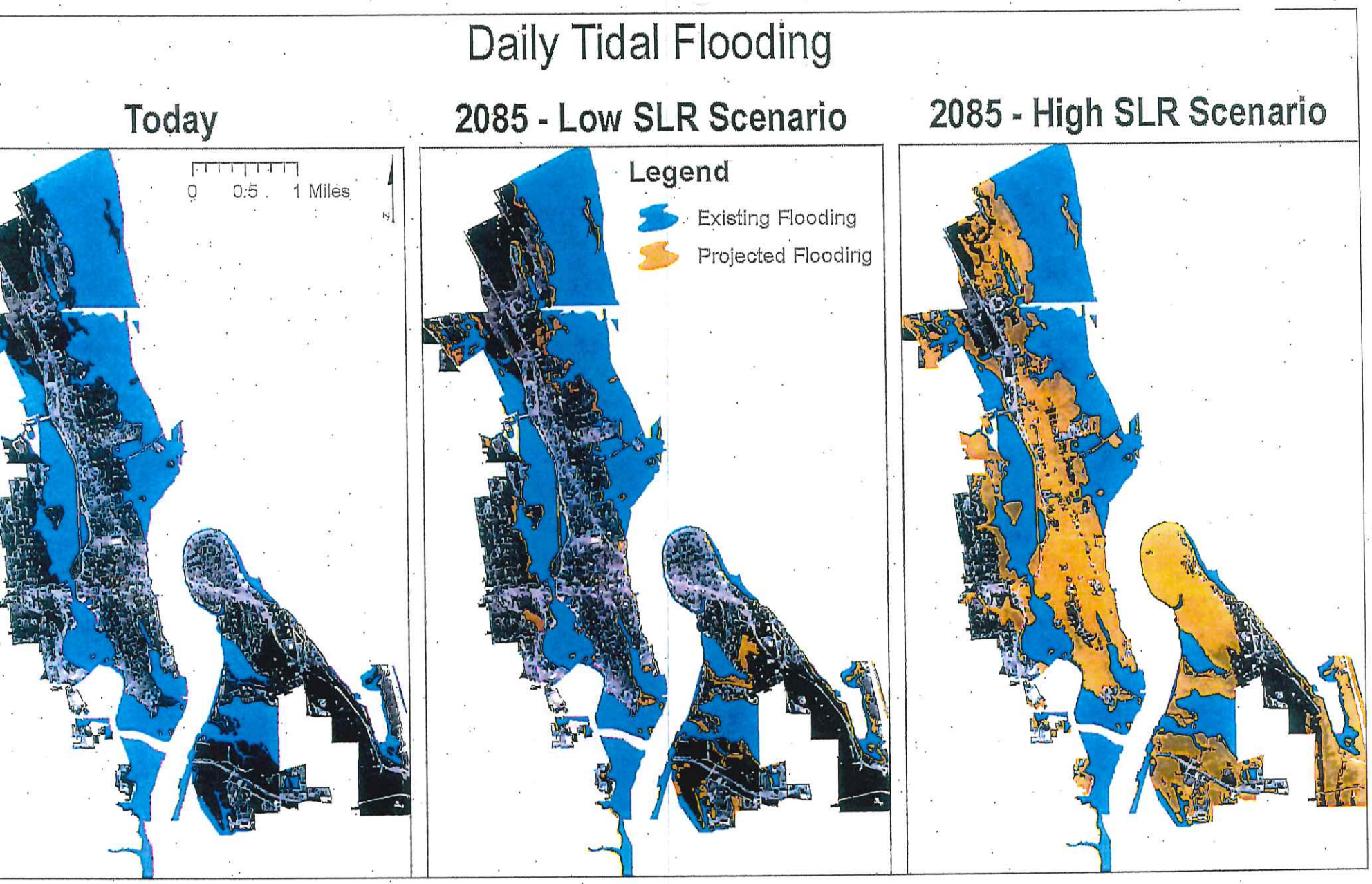
EO September 2016

1% Annual Chance Flooding (FEMA Floodplain)



ges to the 1% annual chance flood area (also known as 100-year flood hazard area)
ne modeled low and high sea level rise scenarios at the short-term planning horizon
5) per the City of St. Augustine Vulnerability Report.
EO September 2016

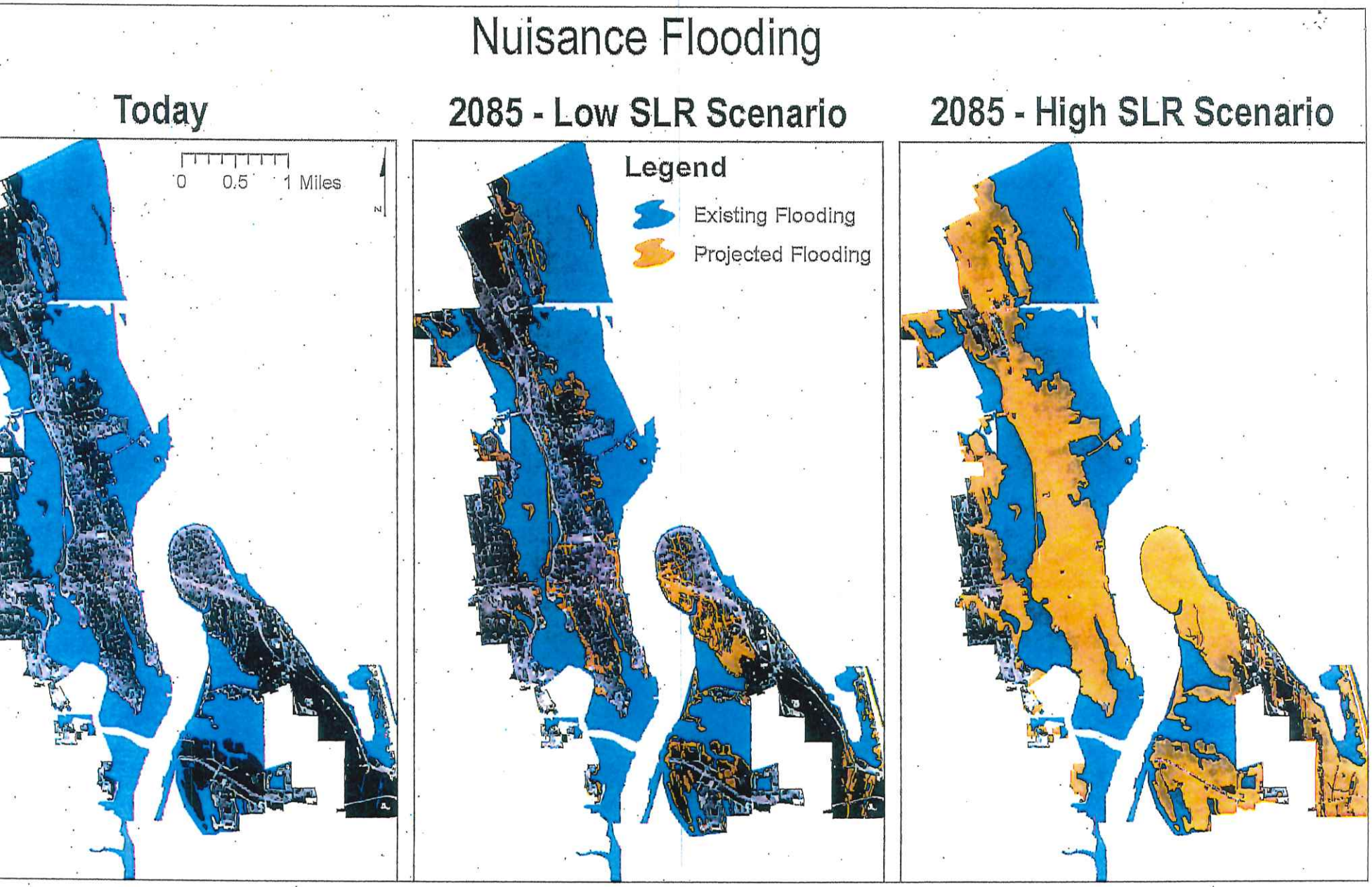
Daily Tidal Flooding



nges to areas of inundation under Mean High High Water (MHHW) for the modeled
and high sea level rise scenarios at the long-term planning horizon (2085) per the City
t. Augustine Vulnerability Report.

DEO September 2016

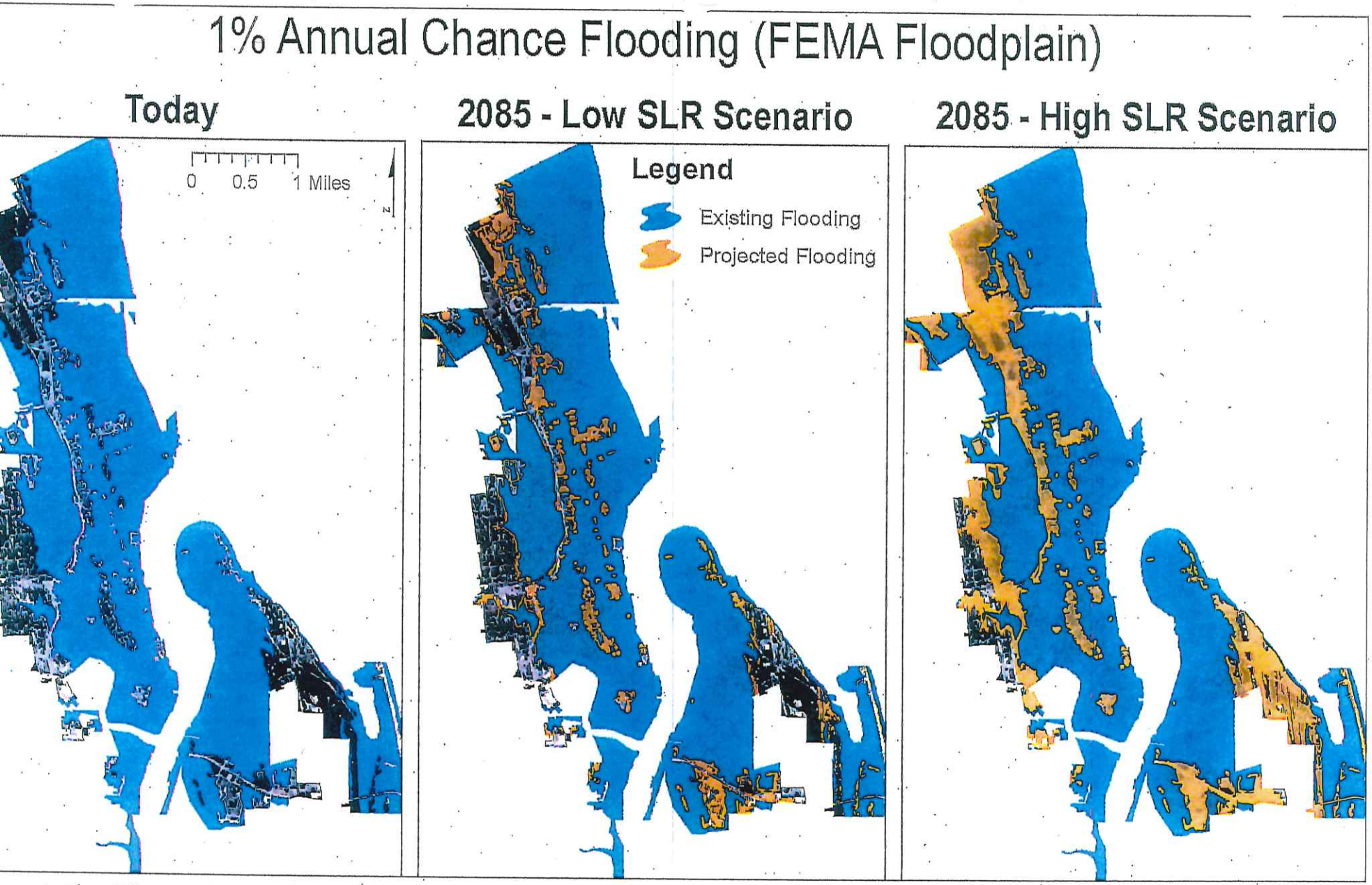
Nuisance Flooding



ges to areas of nuisance flood inundation for the modeled low and high sea level
cenarios at the long-term planning horizon (2085) per the City of St. Augustine
rability Report.

O September 2016

1% Annual Chance Flooding (FEMA Floodplain)



ges to the 1% annual chance flood area (also known as 100-year flood hazard area)
ne modeled low and high sea level rise scenarios at the long-term planning horizon
5) per the City of St. Augustine Vulnerability Report.

EO September 2016

Figure 1. Wetlands and Water Bodies

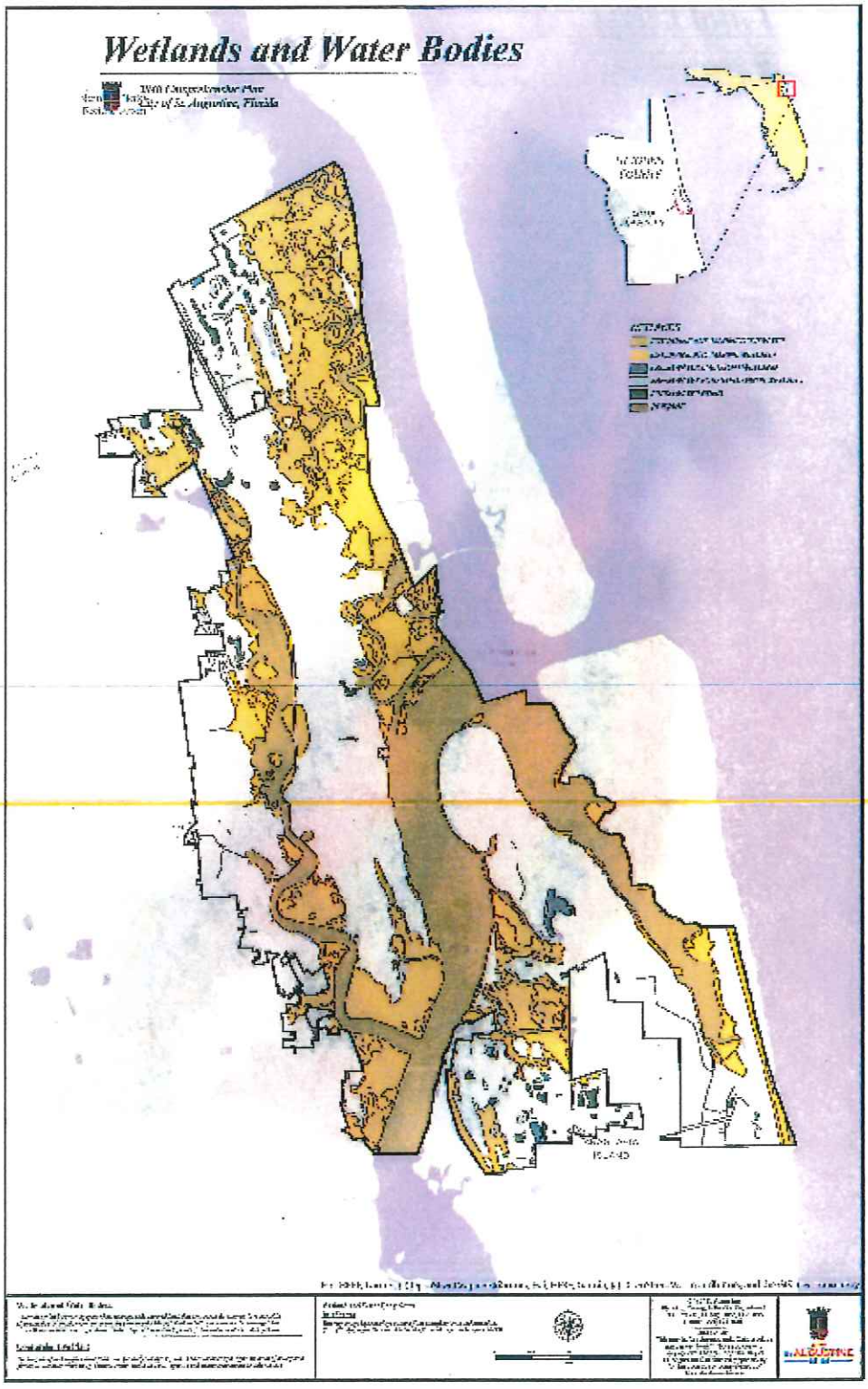


Figure 2. 2014 Land Cover

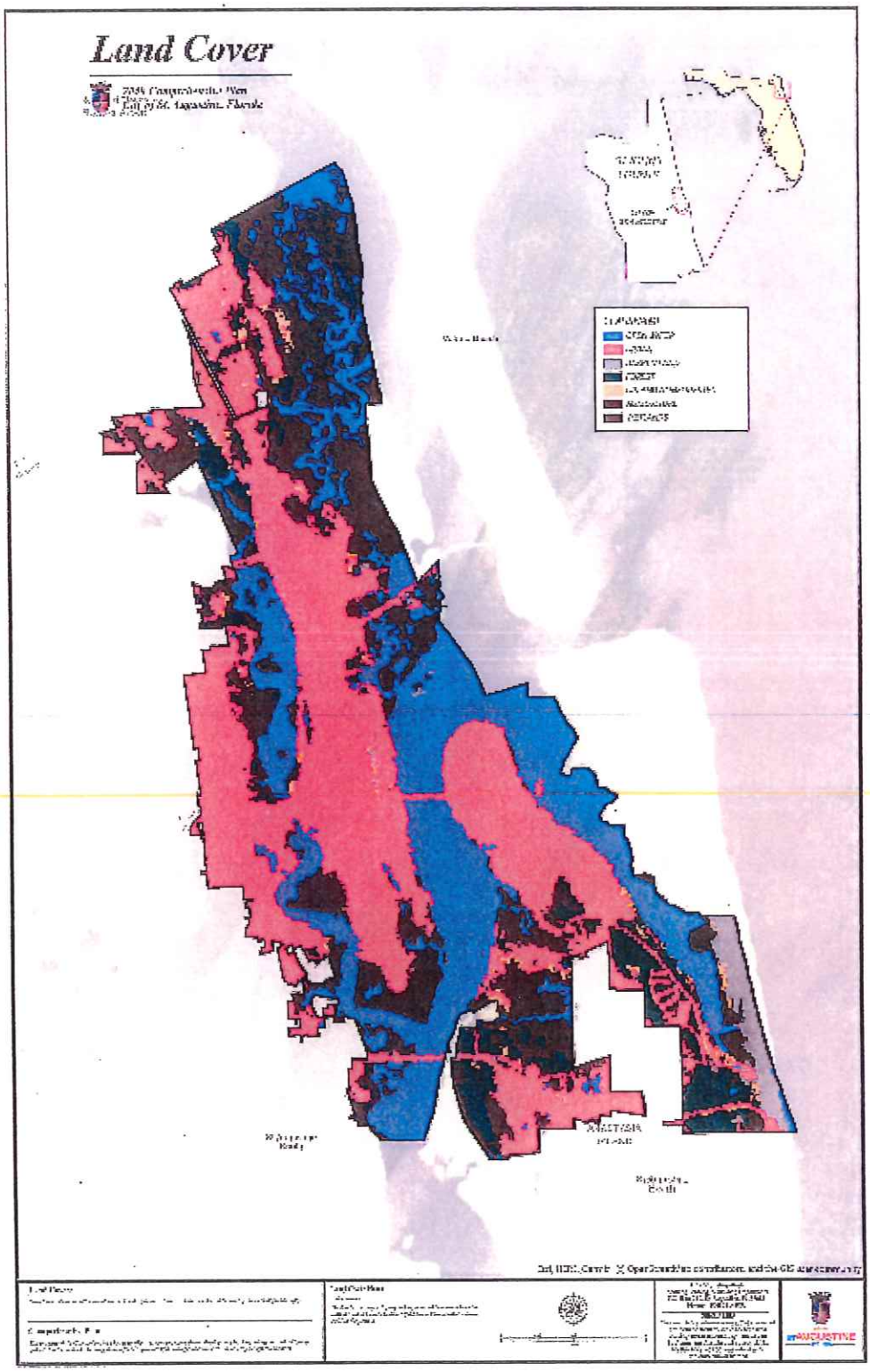


Figure 3. Public Utility Infrastructure Area

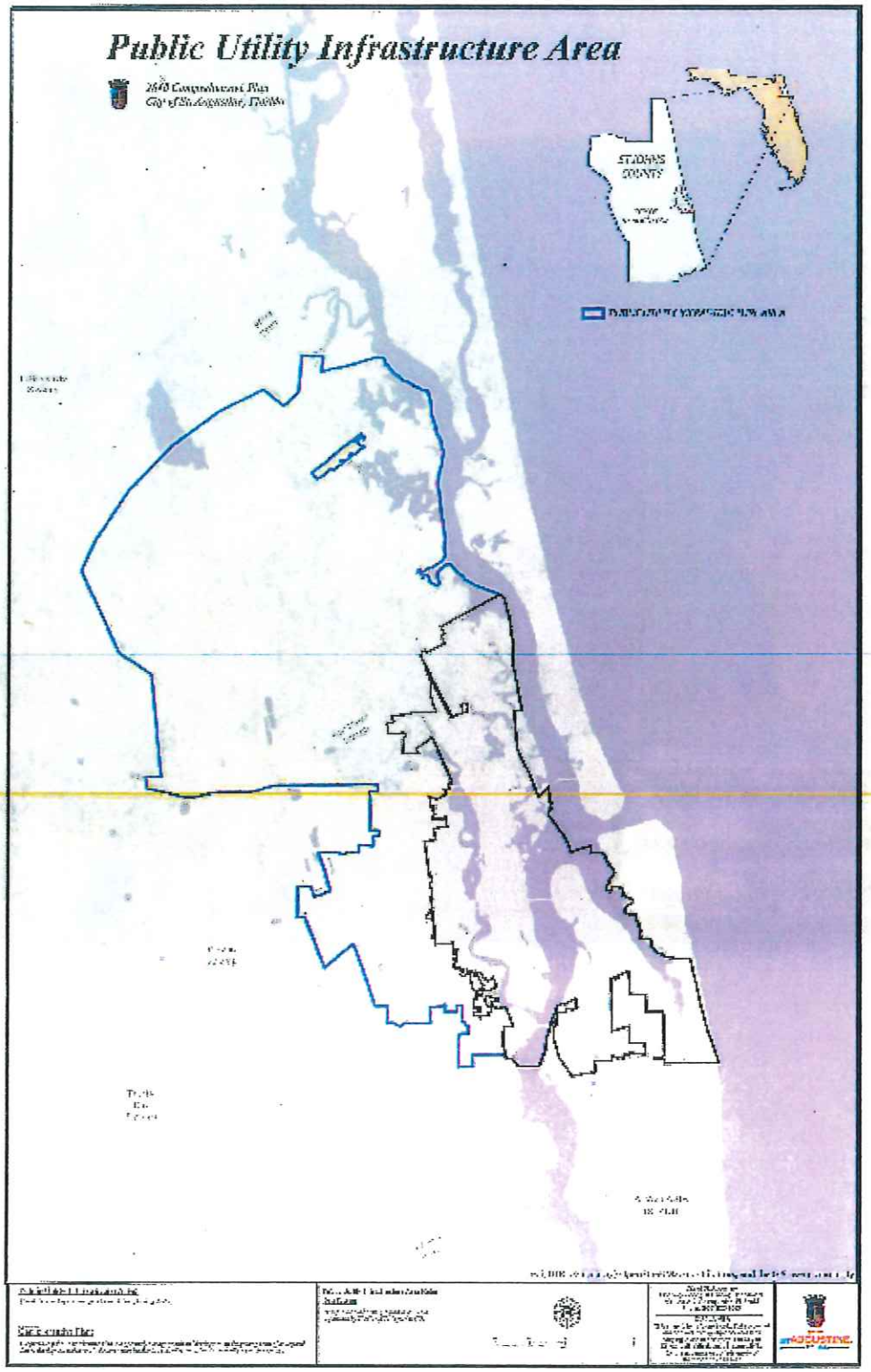


Figure 4. Water Resource Caution Area

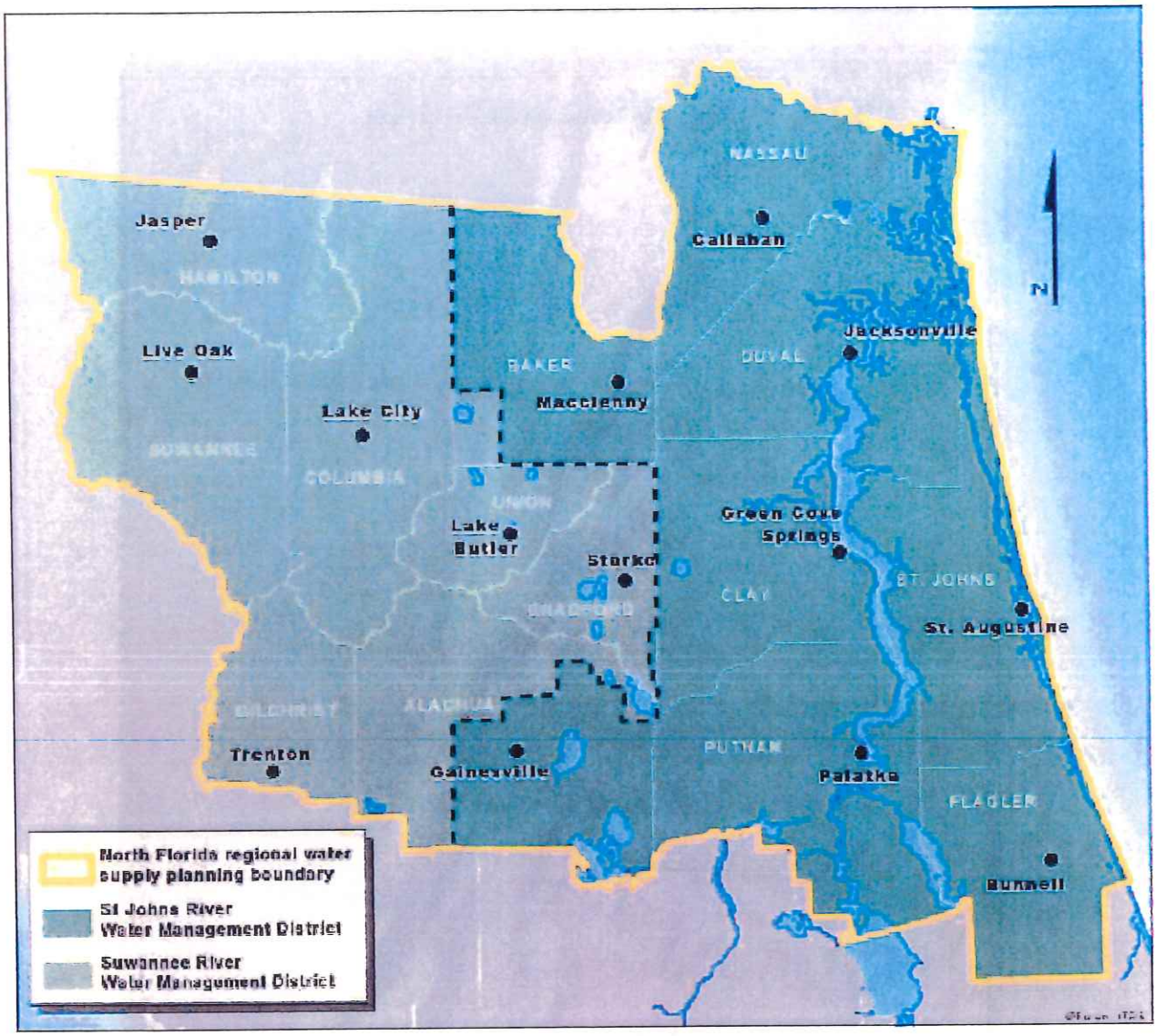


Figure 5. FEMA Flood Zones

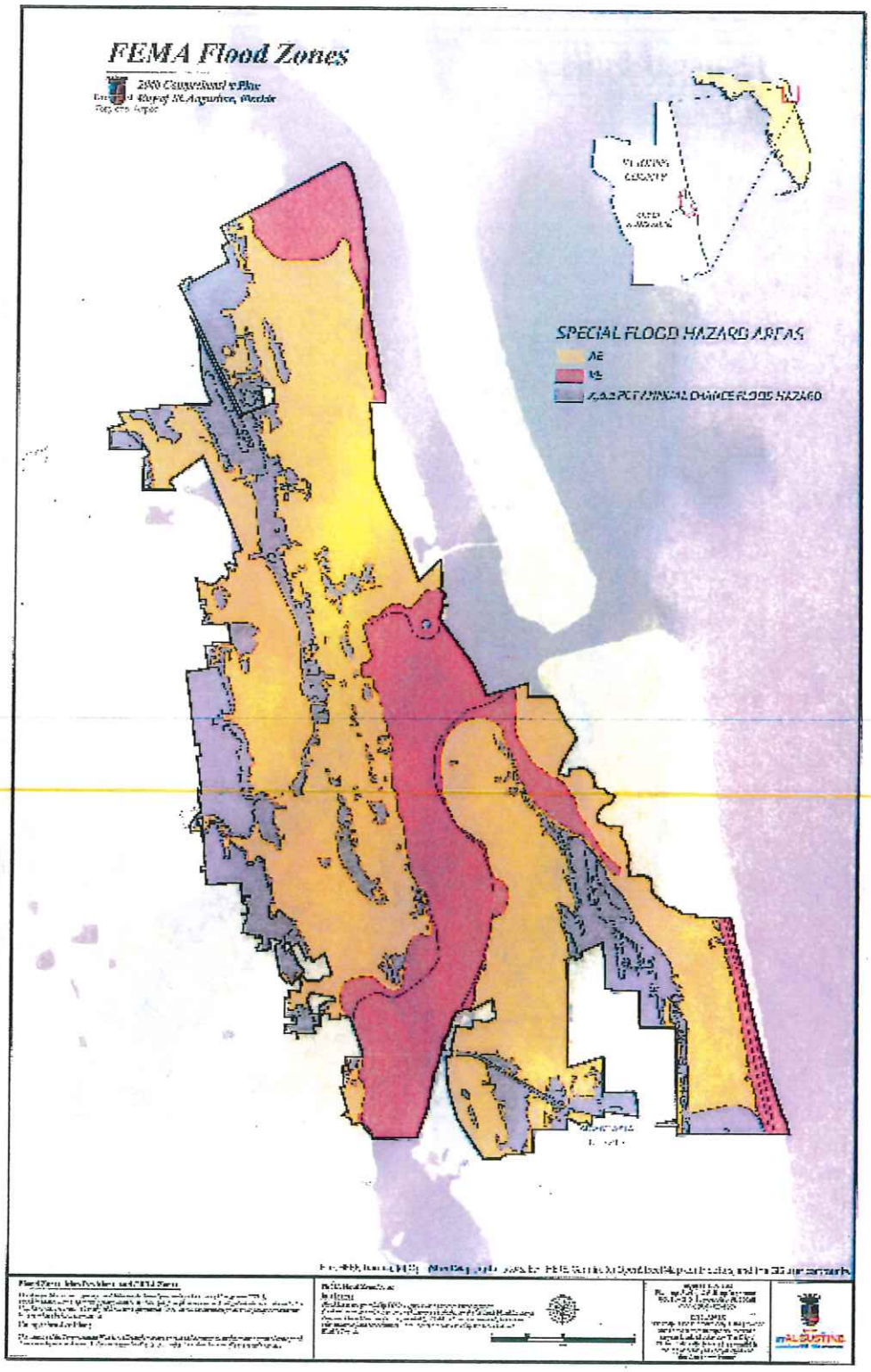


Figure 6. General Soils

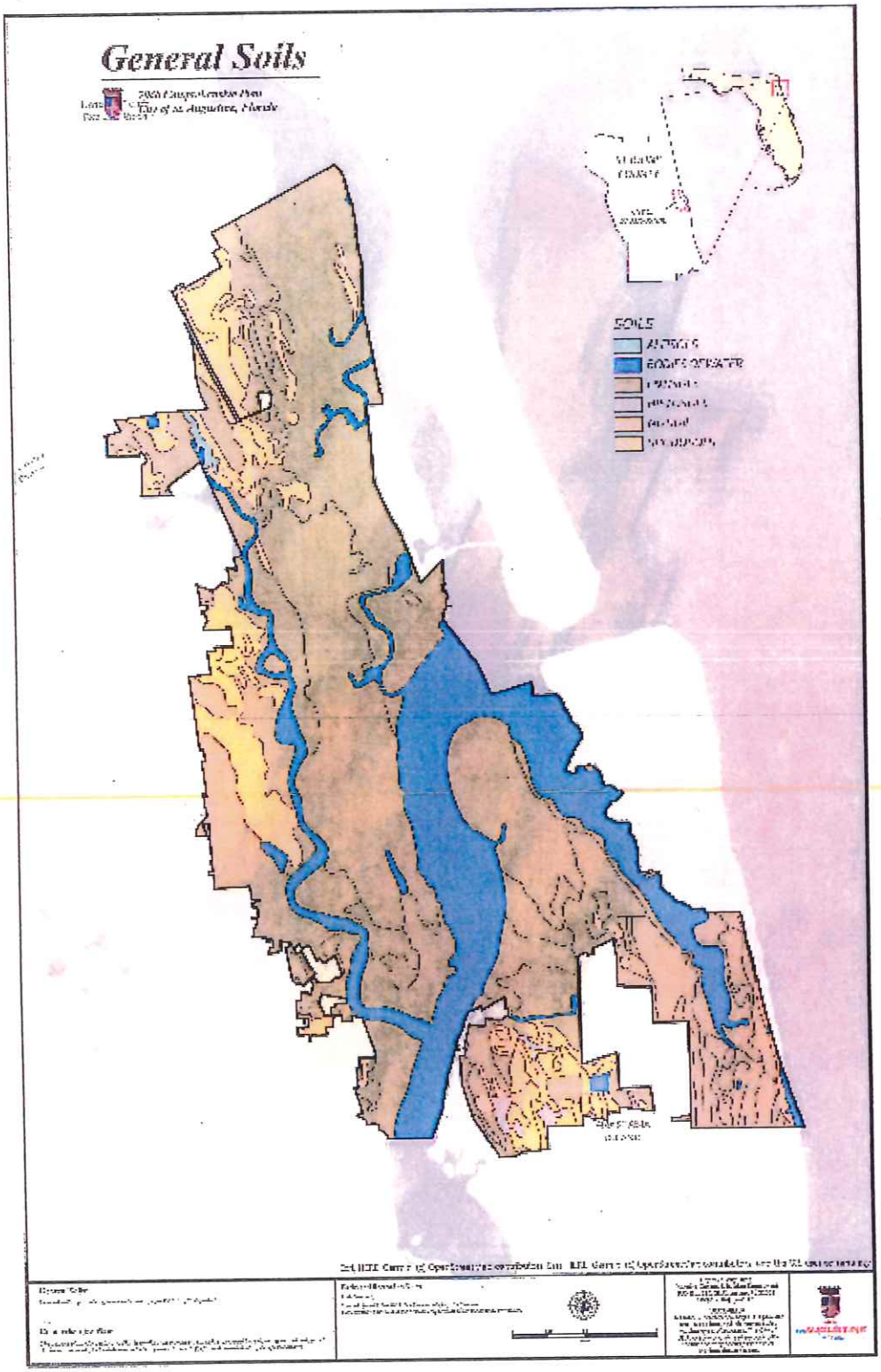


Figure 7. Evacuation Routes and Emergency Shelters

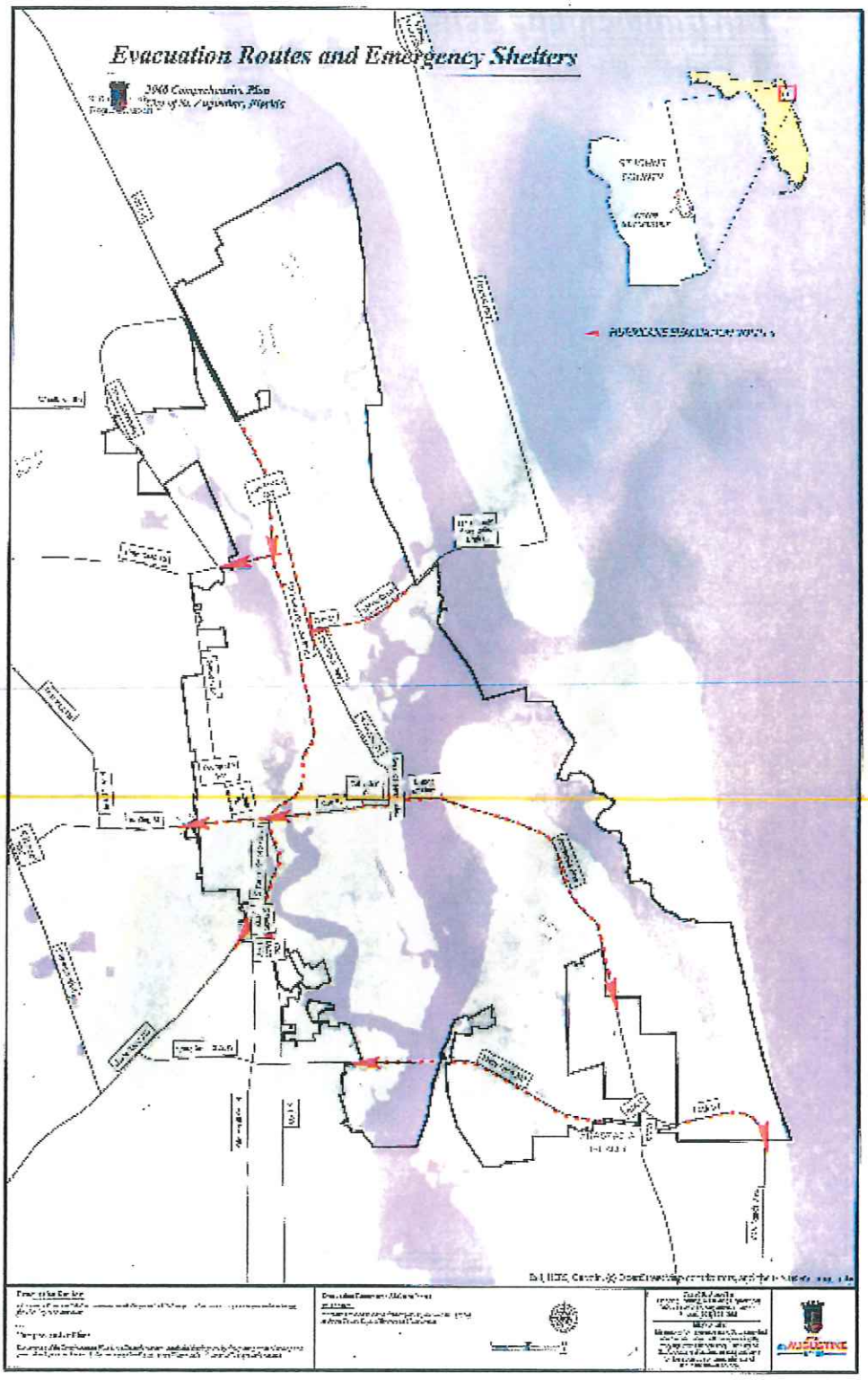


Figure 8. Environmentally Sensitive Lands

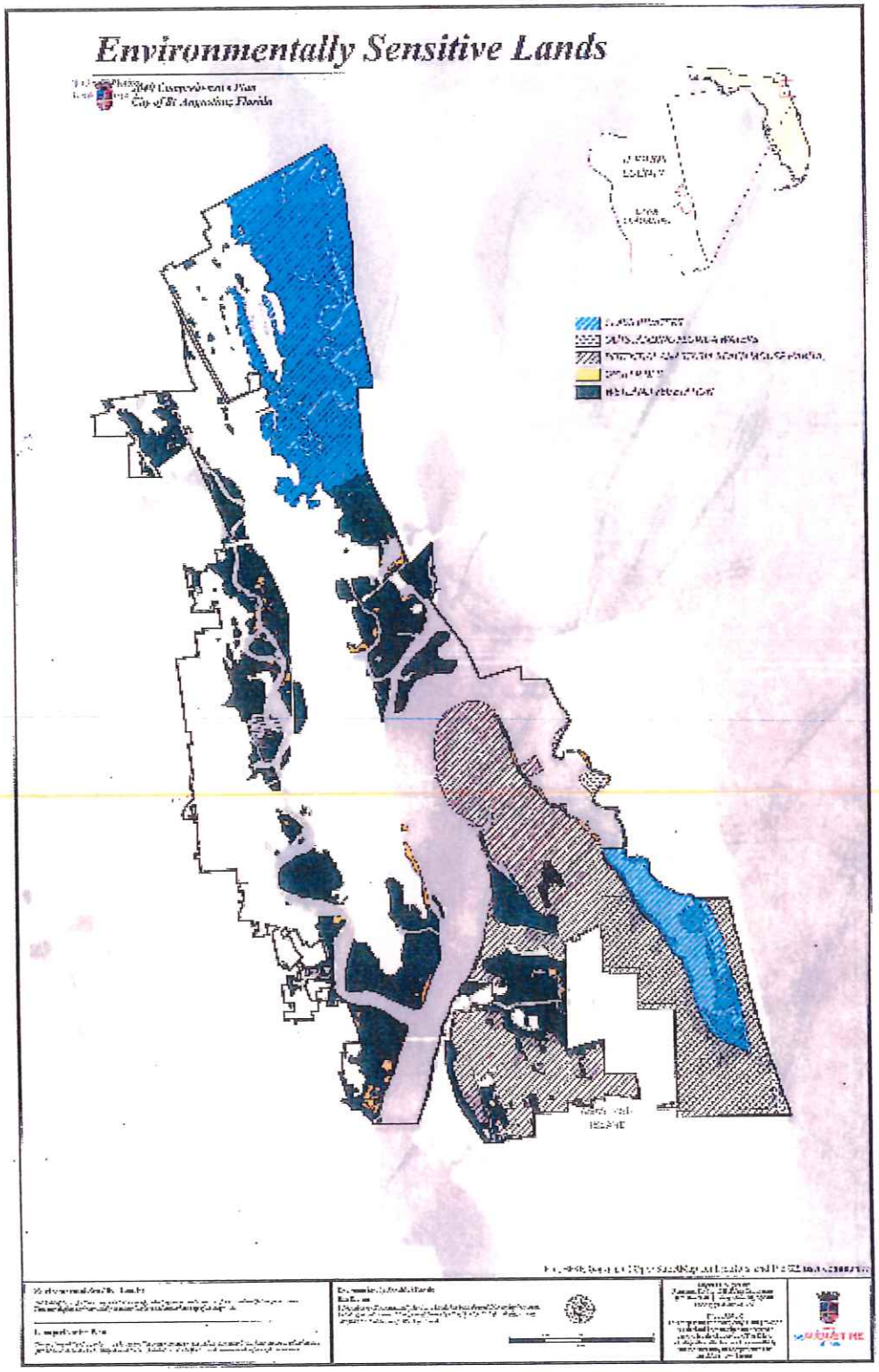


Figure 9. Coastal High Hazard Areas

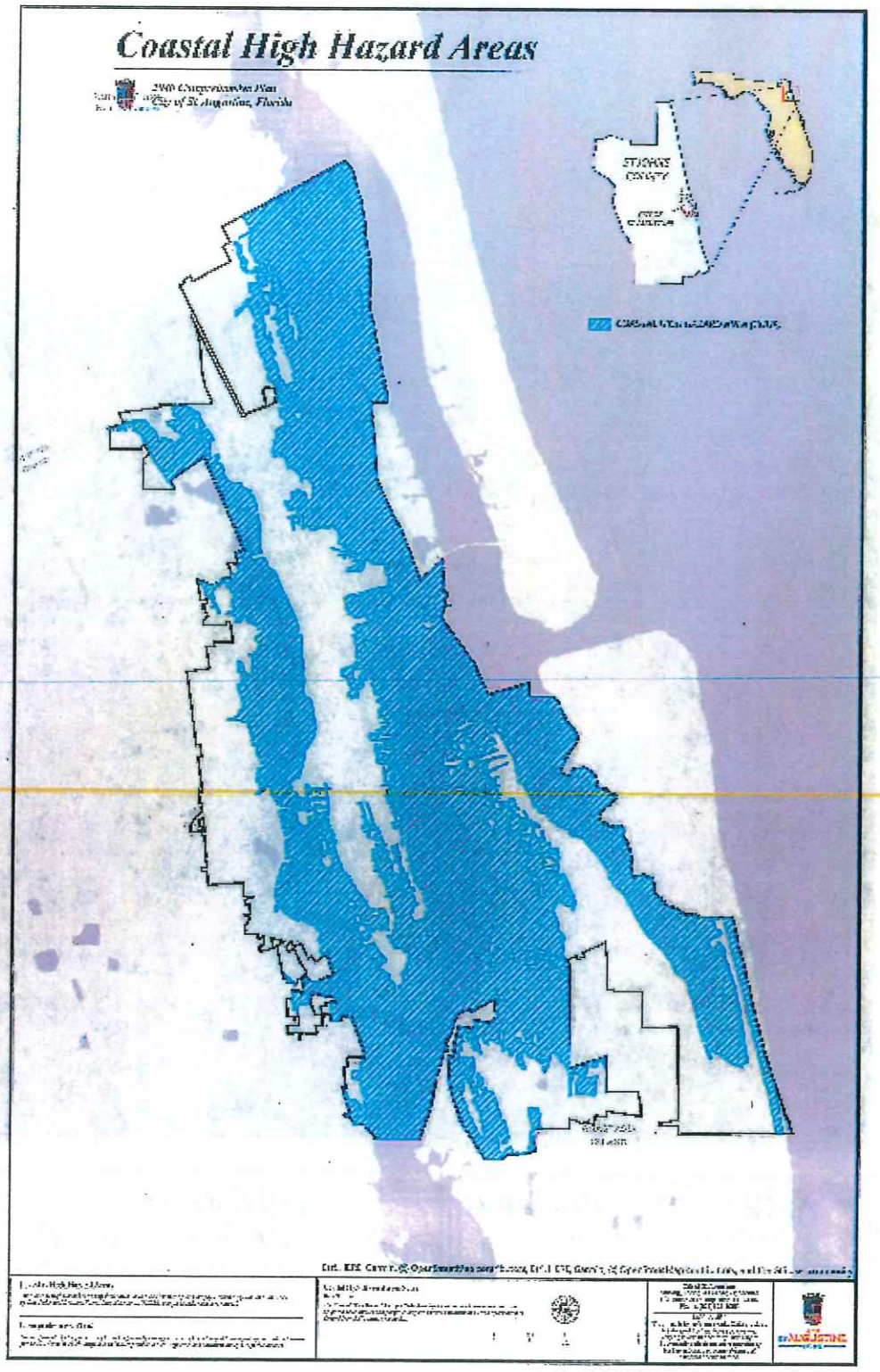
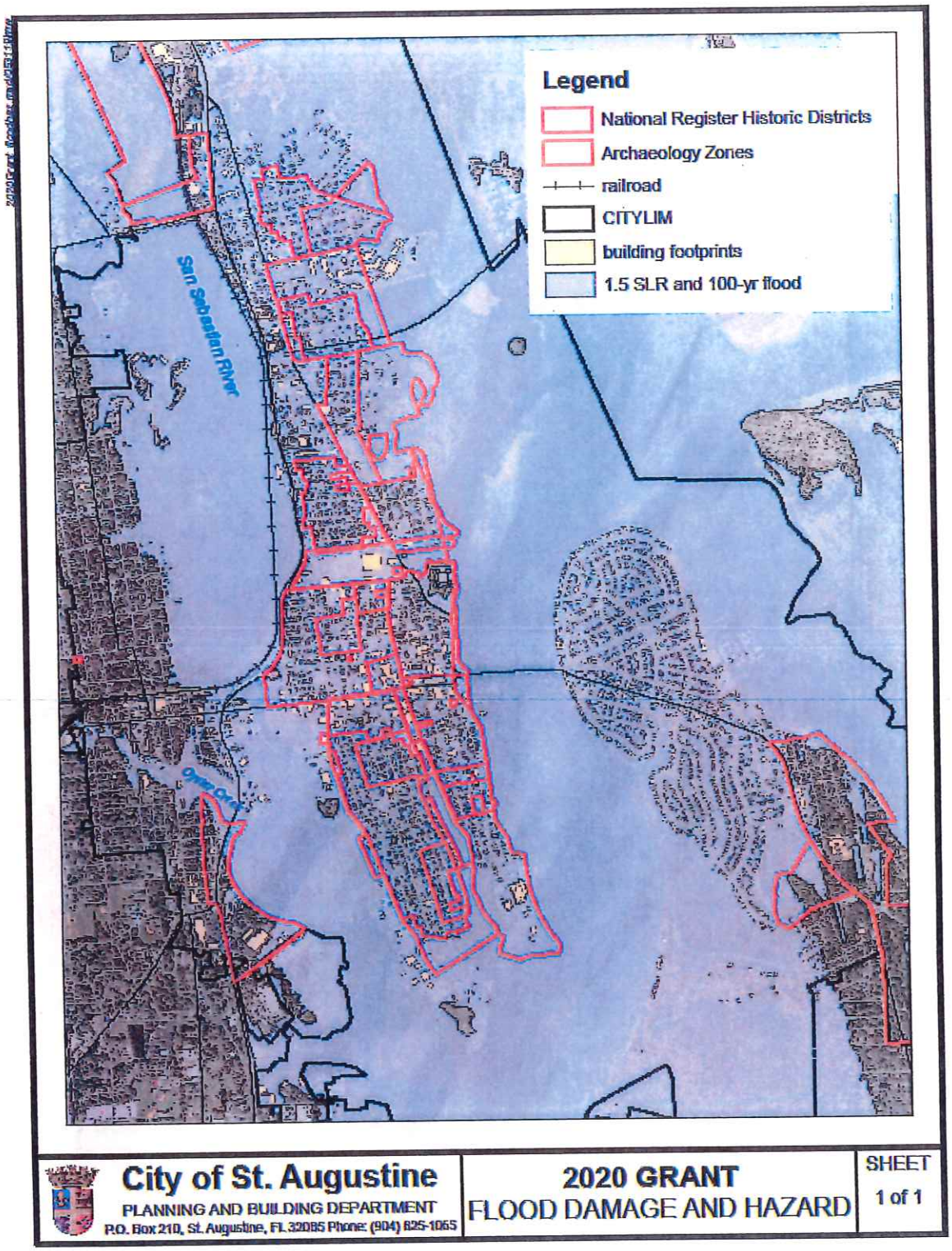


Figure 10. Historic Resources and Sea Level Rise Hazard



Army Corps of Engineers October 2024 Back Bay Presentation including Large Scale View Study

St. Augustine, Florida Back Bay Coastal Storm Risk Management (CSRM) Feasibility Study

SEMI-ANNUAL PUBLIC WORKSHOP #3

Presented by:
U.S. Army Corps of Engineers
Jacksonville District

October 23, 2024

Non-Federal Sponsor: City of St. Augustine, Florida

U.S. ARMY

CITY OF ST AUGUSTINE. EST. 1565

AGENDA

The **purpose** of this workshop is to provide residents and key stakeholders with the latest study information and get input on potential alternatives.

- Welcome/Opening Remarks
- Study Overview
- City Projects Overview
- Recap of Study Analysis to Date
- Initial Array of Alternative Features
  - Walls & Levees
  - Surge Barrier Systems
  - Non-Structural
  - Natural & Nature Based Features
- Closing Remarks
- Adjourn Meeting

Ways to provide your input…

- Discussion Portions of Tonight's Meeting
- Comment Cards at the Sign In Table
- E-mail to…

cesaj-st.augbackbaycsrm@usace.army.mil

STUDY OVERVIEW

Study Authority: House Resolution 2646 (June 21, 2000): St. Johns County, Florida

Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That in accordance with Section 110 of the River and Harbor Act of 1962, the Secretary of the Army, acting through the Chief of Engineers, is ***requested to survey the shores of St. Johns County***, Florida, with particular reference to the advisability of providing beach erosion control works in the area north of St. Augustine Inlet, the shoreline in the vicinity of Matanzas Inlet, and adjacent shorelines, as may be necessary in the interest of ***hurricane protection, storm damage reduction, beach erosion control, and other related purposes***.

Non-Federal Sponsor: City of St. Augustine (COSA)

POC: Jessica Beach, P.E., Chief Resilience Officer, jbeach@citystaug.com

Study Area

- Entire COSA Municipal Boundary
- 17 Distinct Neighborhoods
- 3 Separate Land Masses
- Interconnected Water Bodies

Objectives to be achieved within the City of St. Augustine over a 50-year period of analysis from 2035-2085 are to…

1. Manage risk of coastal flood damages.
2. Manage risk to health and life-safety.
3. Manage risk to cultural and natural resources.
4. Manage flooding impacts to the local economy.

STUDY OVERVIEW

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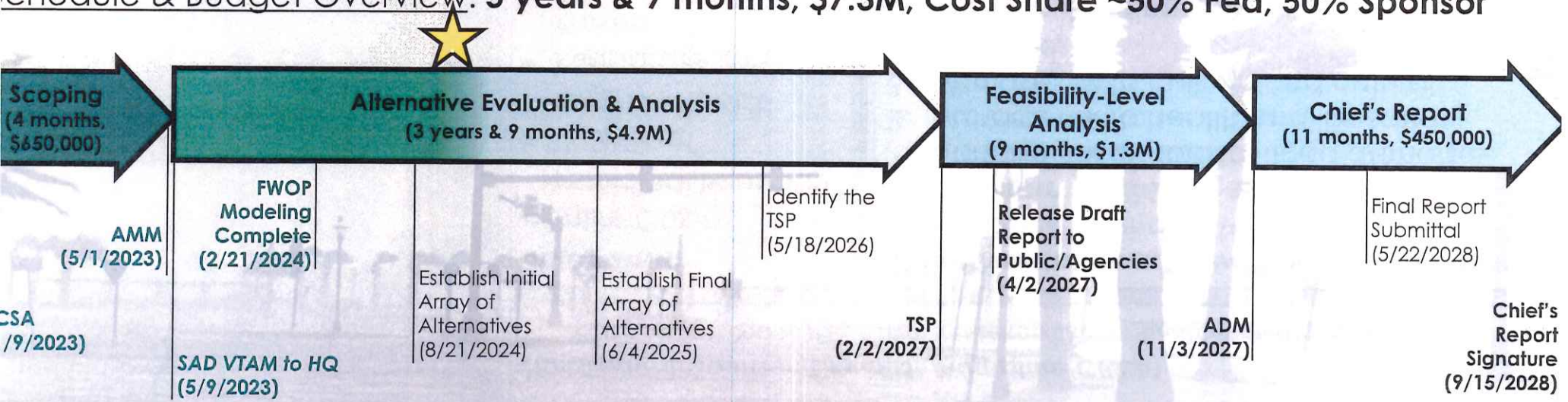
We Are Here

Schedule & Budget Overview: **5 years & 9 months, $7.3M, Cost Share ~50% Fed, 50% Sponsor**



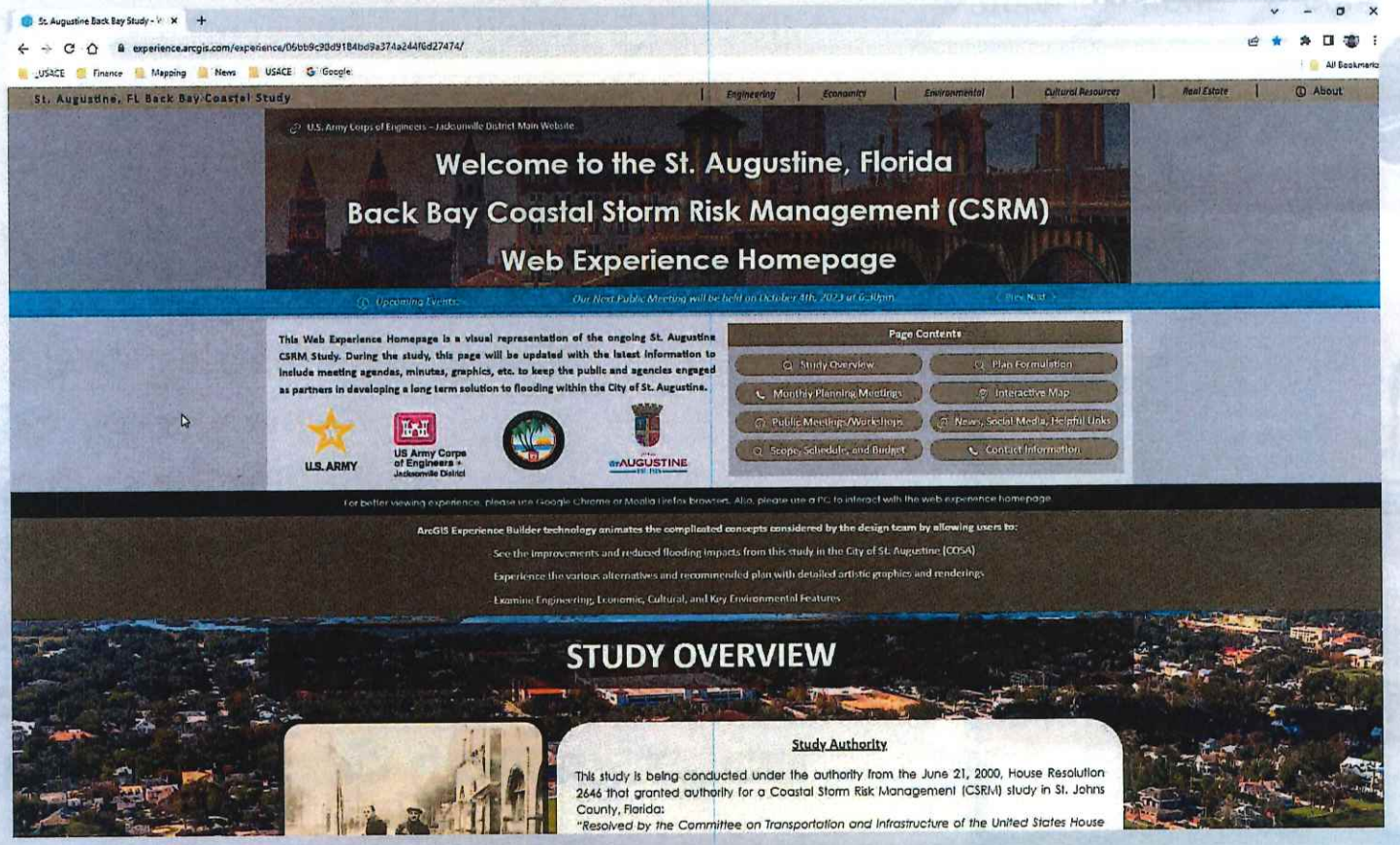
Key Components of the Study Scope:

- Entire City of St. Augustine (COSA)
- Compound Flooding
- Full Array of Alternatives & Comprehensive Benefits
- Environmental Impact Statement (EIS) Likely
- Robust Community Outreach

Acronyms

FCSA = Feasibility Cost Share Agreement
AMM = Alternatives Milestone Meeting
FWOP = Future Without Project
SAD = South Atlantic Division
VTAM = Vertical Team Alignment Memo
HQ = Headquarters
TSP = Tentatively Selected Plan
ADM = Agency Decision Milestone

PUBLIC OUTREACH (STUDY WEBSITE)

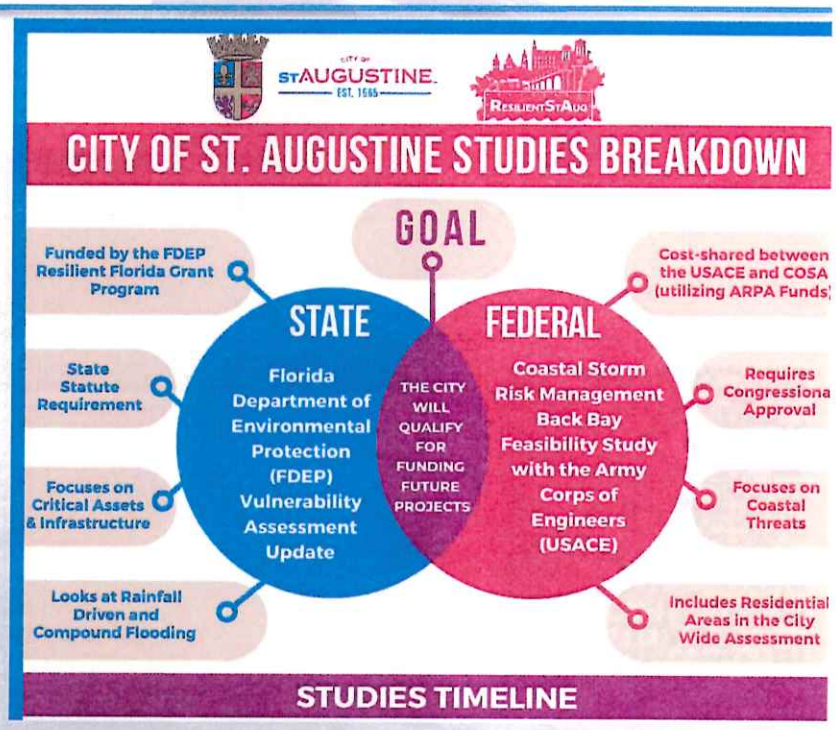


https://experience.arcgis.com/experience/06bb9c98d9184bd9a374a244f6d27474/

CITY OF ST. AUGUSTINE

- **Other On-Going Coordination Efforts**
  - USACE Back Bay Study
  - State Funded Vulnerability Assessment:
    - City of St. Augustine
    - St. Johns County
    - City of St. Augustine Beach
  - FL Dept of Transportation (FDOT) Seawall Rehabilitation
  - National Park Service (NPS) Seawall Rehabilitation
  - Northeast Florida Regional Council – Resilient First Coast Collaborative

www.citystaug.com/Resiliency



RECAP OF STUDY ANALYSIS TO DATE

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Step Planning Process

ompleted | Ongoing | Next Step

1. IDENTIFY PROBLEMS AND OPPORTUNITIES
2. INVENTORY AND FORECAST CONDITIONS
3. FORMULATE ALTERNATIVE PLANS
4. EVALUATE ALTERNATIVE PLANS
5. COMPARE ALTERNATIVE PLANS
6. SELECT RECOMMENDED PLAN

valuation of initial alternative
eatures is ongoing...

- Walls & Levees
- Surge Barrier Systems
- Nonstructural Measures
- Nature Based Solutions

Established Study Objectives & Benefits Metrics
Compound Flooding Driver Analysis.

Data collection and analysis associated with the key resources throughout the COSA.

Modeling and analysis to forecast future without project conditions. By 2085 under the USACE intermediate sea level change, on average, the COSA could see...

- Over $4 Billion (present value) in Damage to Structures, Content, & Vehicles.
- Potential Life Loss.
- Over 1,000 Residential Displacements.
- 80 Nuisance Flood Days Per Year.
- Over 100 Instances of Damage to Critical Infrastructure.
- Over 600 Acres of Saltwater Marsh Lost.
- Damage to 3,700 Historical Structures.
- Over $400 Million in Lost Tourism Expenditures.

WALLS & LEVEES

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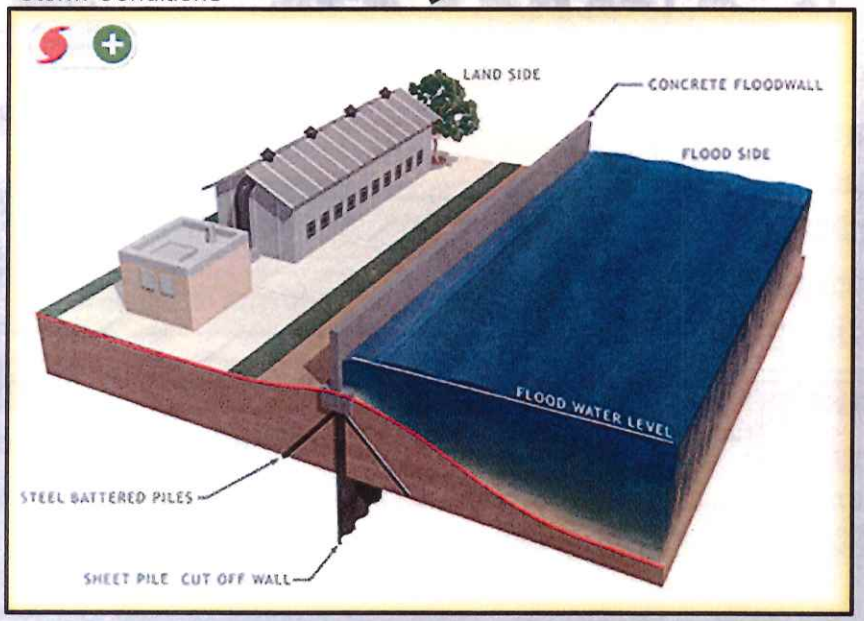
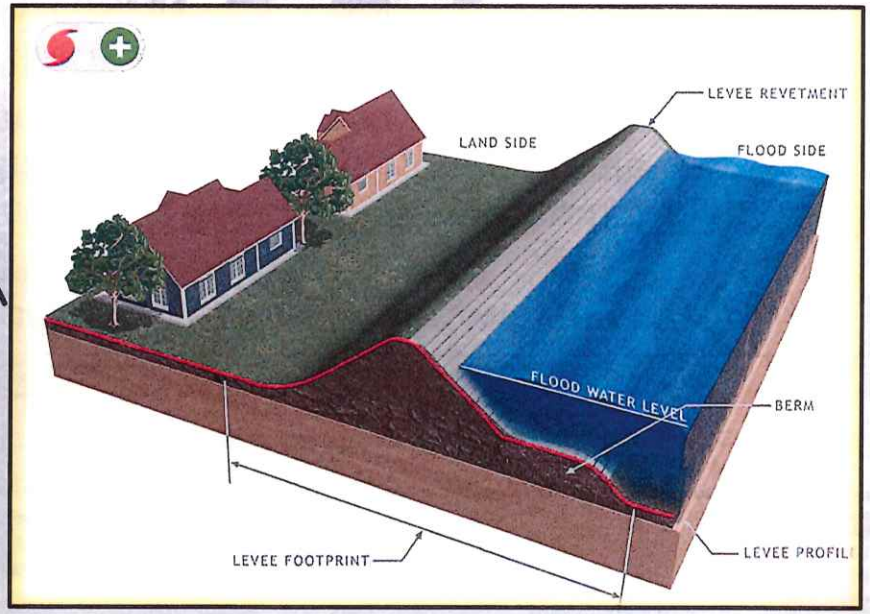
What are Walls and Levees?

Walls are structures used to prevent flooding and to protect relatively small areas with limited space for construction. Levees are embankments constructed along a waterfront to prevent flooding in relatively large areas. Both wall and levee features function to reduce the risk of coastal flooding at the back bay shoreline.

Conceptual Wall in Storm Conditions



Conceptual Levee in Storm Conditions



WALLS & LEVEES

- Existing walls would be elevated.
- Land adjacent to deep water would need to be protected by a wall.
- Levees would be used for areas with more available real estate while walls would be used in land restricted areas.
- Potential Options…
  - Using roads as levees
  - Deployable Walls
  - Integration of Nature Based Features (NBF)
  - Integration of recreational features

WALLS & LEVEES

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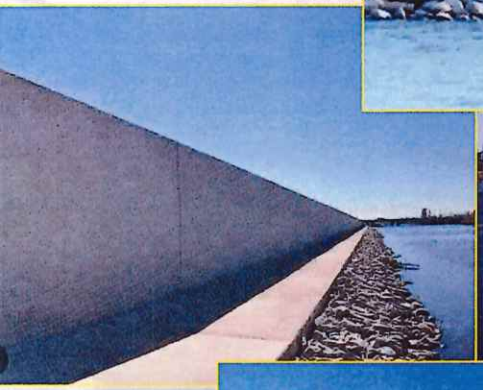
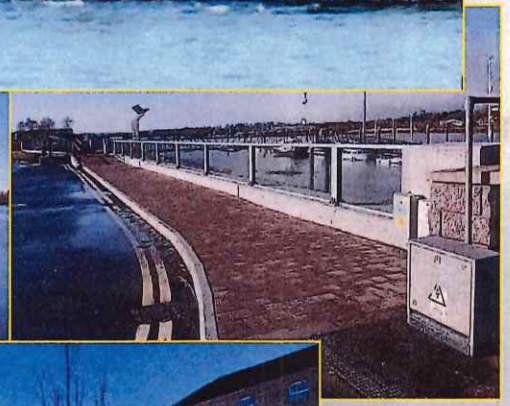
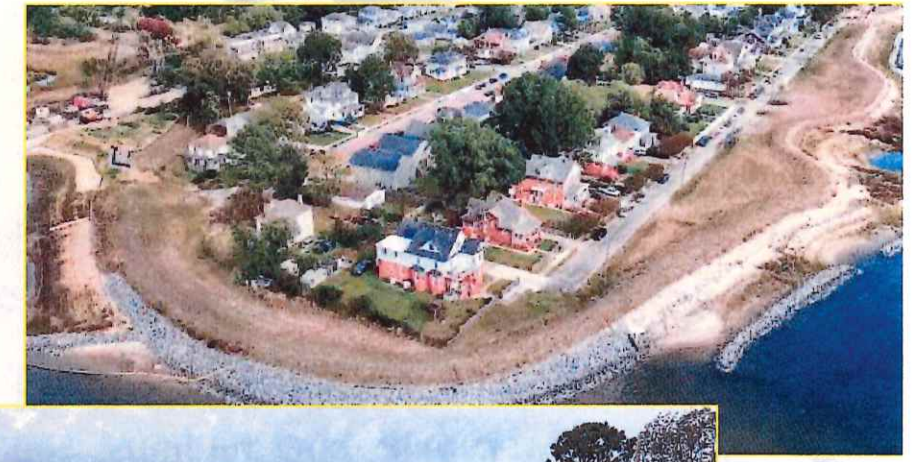
Various Wall Examples





Ohio Creek Levee, Virginia



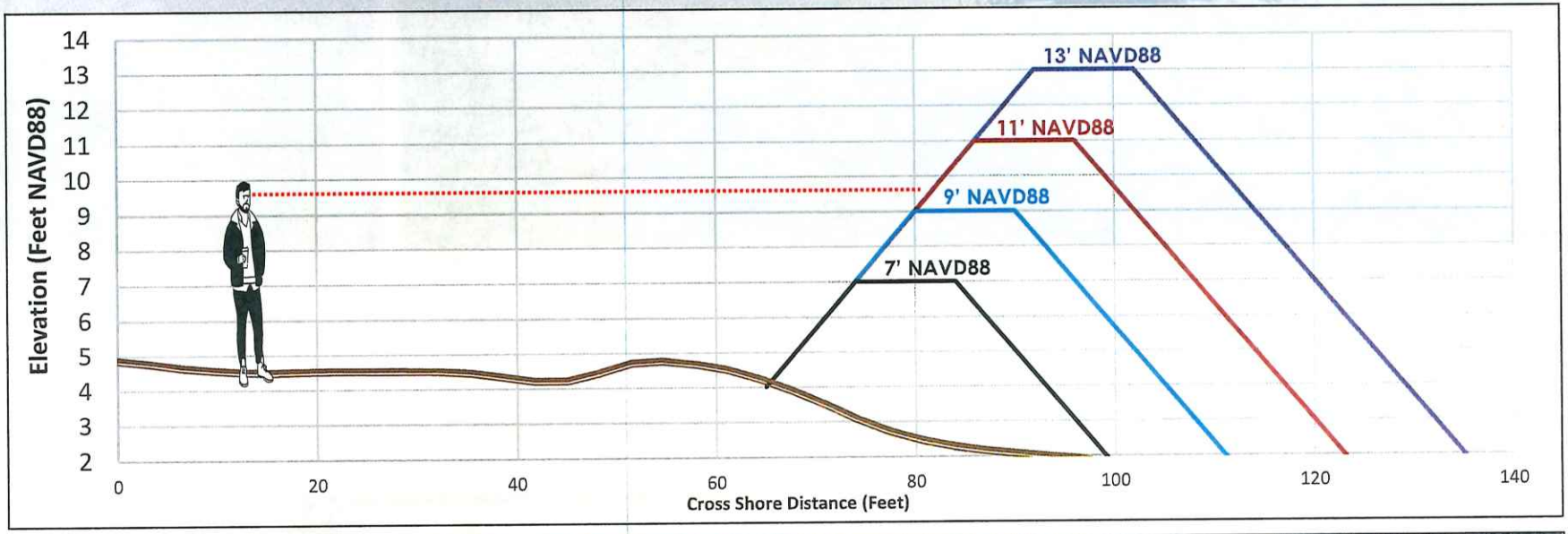
WALLS & LEVEES Helen Street (Ravenswood)

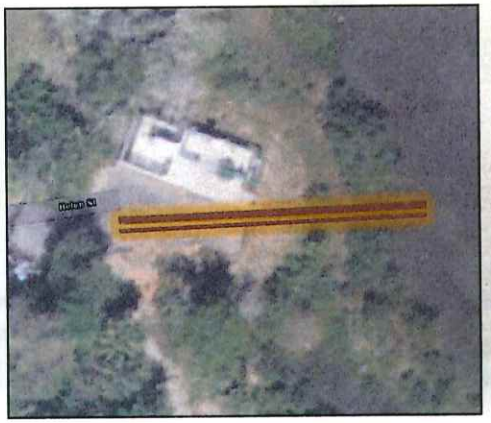
ARMY

Existing Ground
7' Levee
9' Levee
11' Levee
13' Levee

~5'5"

ot 1V:1H Scale





1

WALLS & LEVEES River Road (Oyster Creek)

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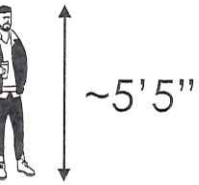
Existing Ground

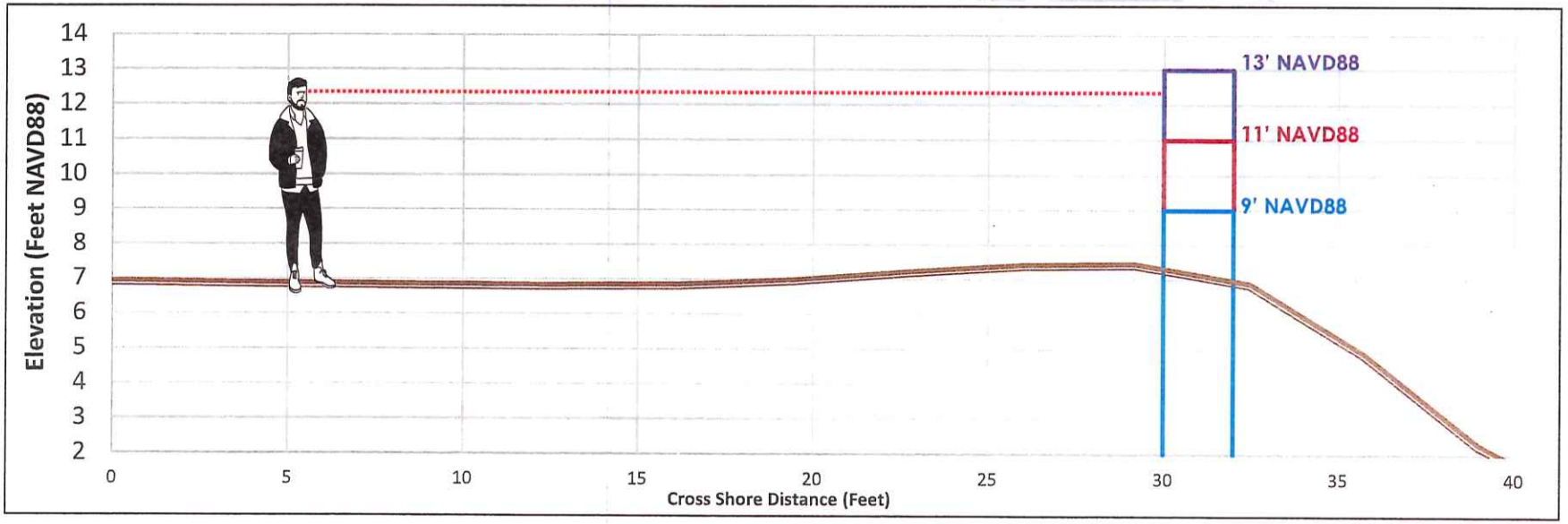
9' Wall

11' Wall

13' Wall



Not 1V:1H Scale



1:

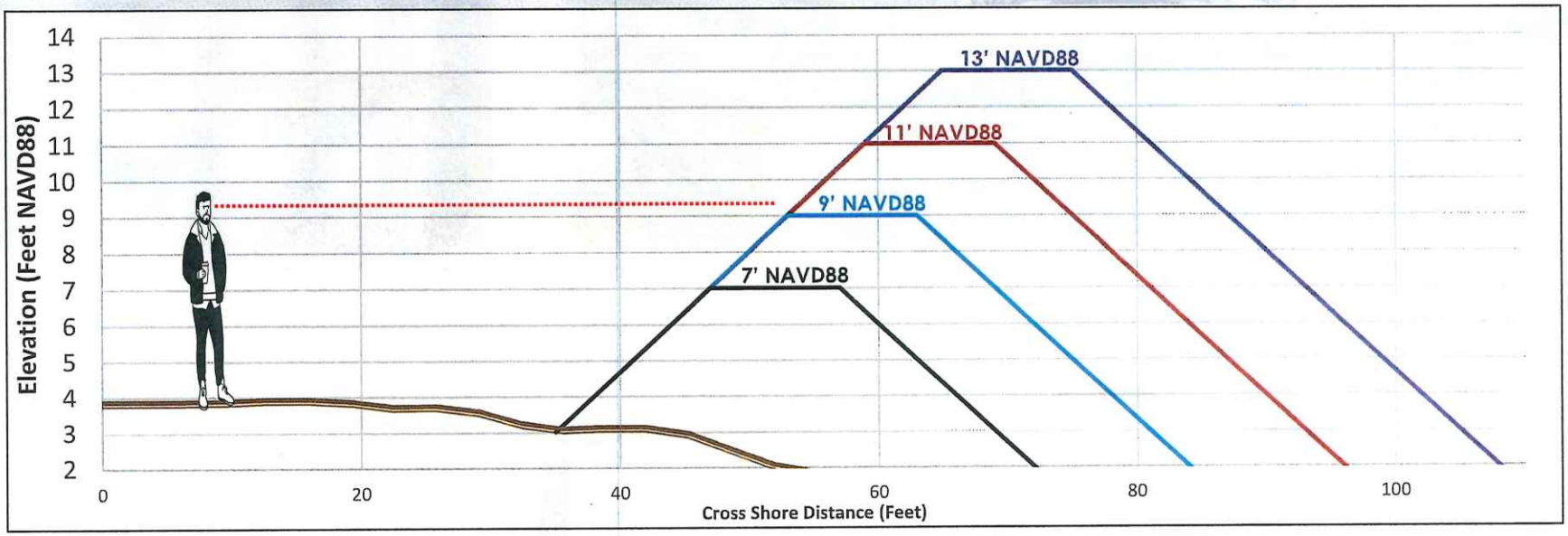
WALLS & LEVEES Fern Street (Greater Fullerwood)

ARMY

Existing Ground
7' Levee
9' Levee
11' Levee
13' Levee

~5'5"

ot 1V:1H Scale



1:

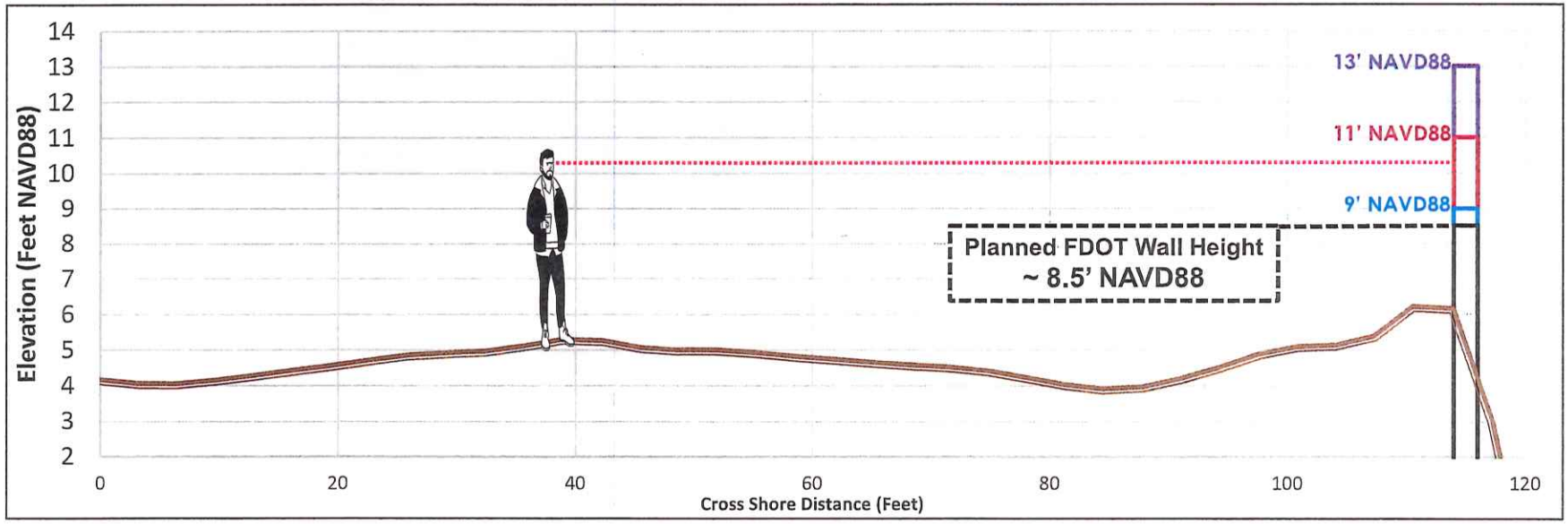
WALLS & LEVEES Avenida Menendez (Spanish Quarter)

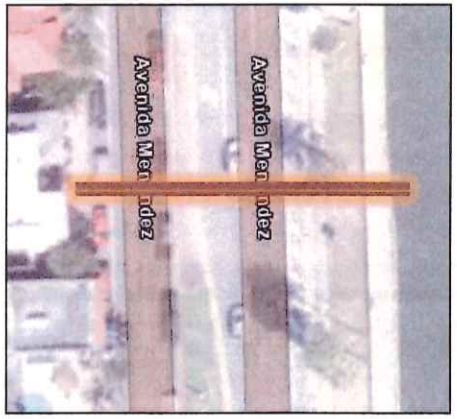
S. ARMY

Existing Ground
8.5' Wall
9' Wall
11' Wall
13' Wall

~5'5"

Not 1V:1H Scale





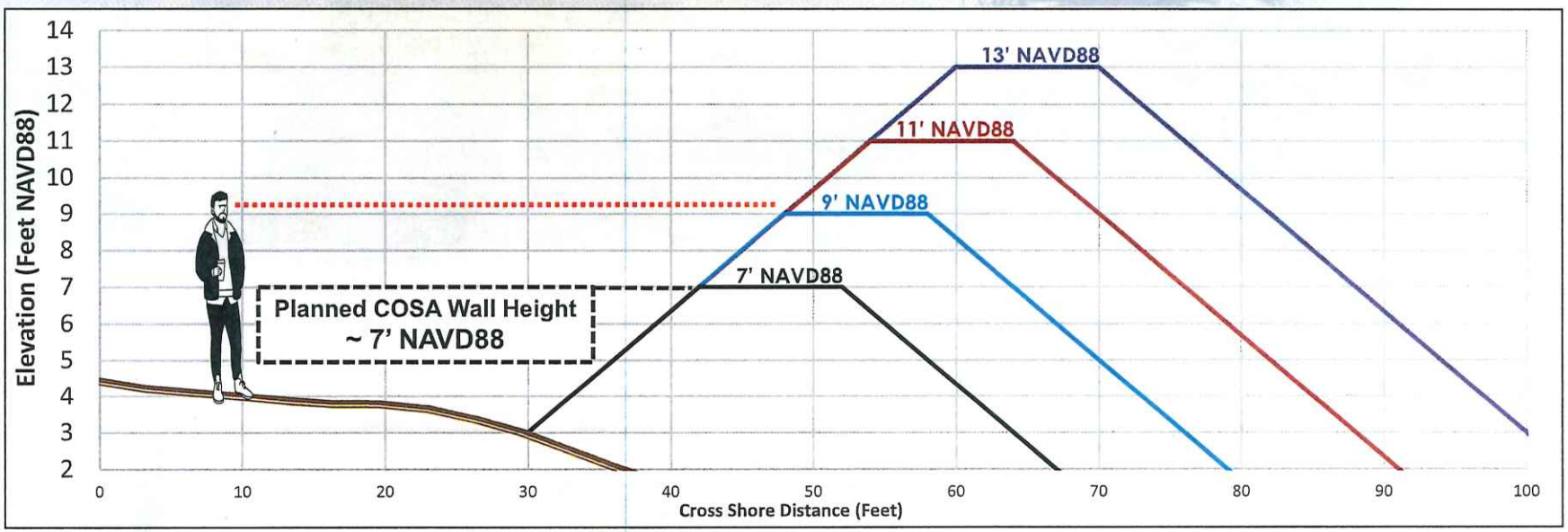
WALLS & LEVEES Washington Street (Lincolnville)

ARMY

Existing Ground
7' Levee
9' Levee
11' Levee
13' Levee

~5'5"

ot 1V:1H Scale



1

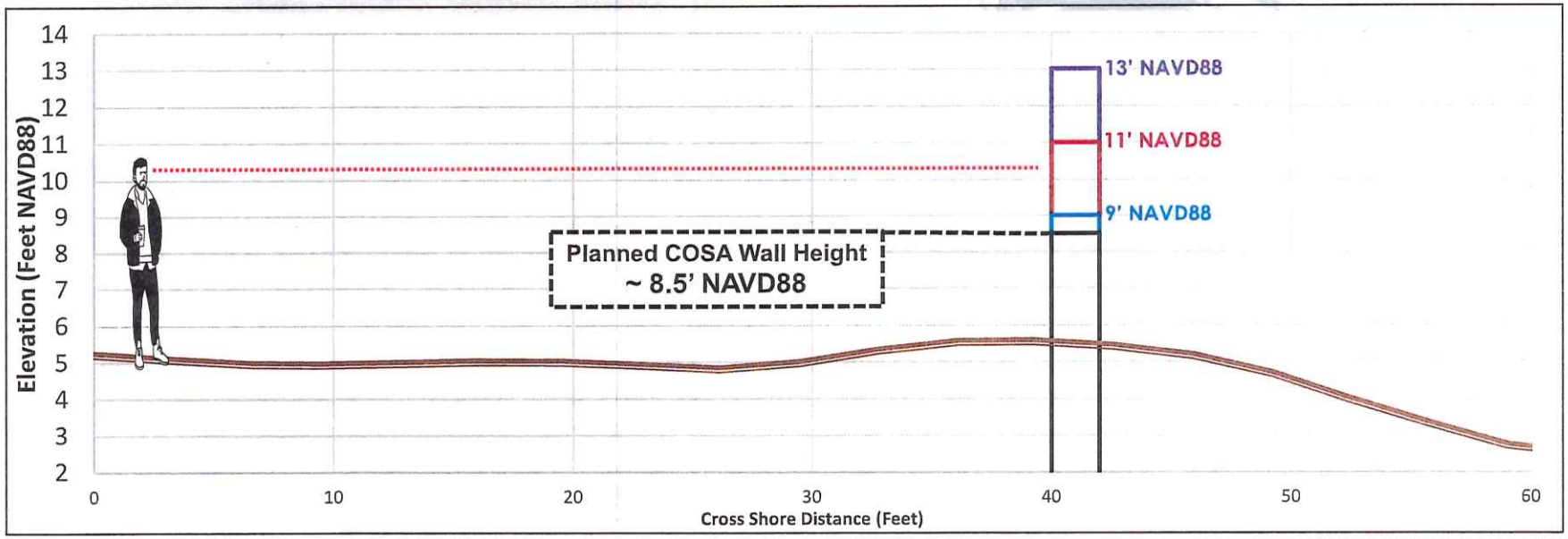
WALLS & LEVEES Inlet Drive (North Davis Shores)

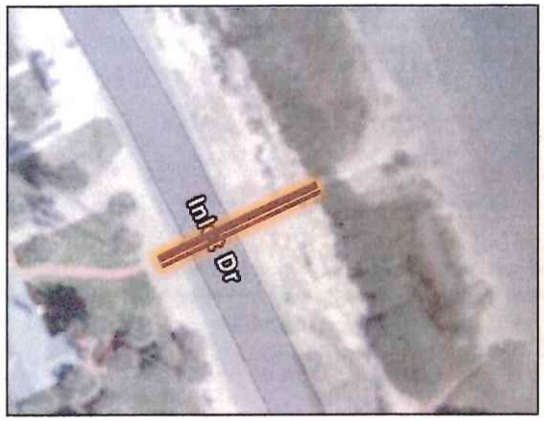
S. ARMY

Existing Ground
7' Wall
9' Wall
11' Wall
13' Wall

~5'5"

Not 1V:1H Scale





WALLS & LEVEES

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What benefits do walls and levees provide?

- Reduced coastal storm damages from both small and large storm events.
- Reduced nuisance flooding days and impacts.
- Potential for incorporating nature-based features.
- Potential for recreation enhancement.

What resources could walls and levees impact?

- Saltwater marsh habitat
- Visual aesthetics
- Existing interior drainage infrastructure

Implementation considerations and potential options to avoid/minimize/mitigate impacts of walls and levees?

- Minimize direct overlap with existing habitat.
- Avoid/Minimize alignments across creeks.
- Maintain public and private water access.
- Minimize footprint on private property.
- Minimize closure gates.

SURGE BARRIER SYSTEMS

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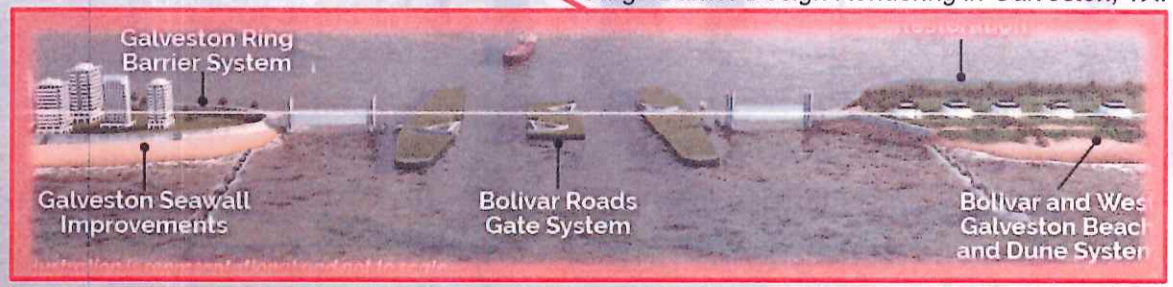
What are Surge Barrier Systems?

Surge Barrier Systems would combine gates across inlets and/or rivers that would close during large storms along with walls, levees, and/or dunes to tie the system into high ground. Surge Barriers reduce the risk of coastal flooding before it gets into the back bay waters

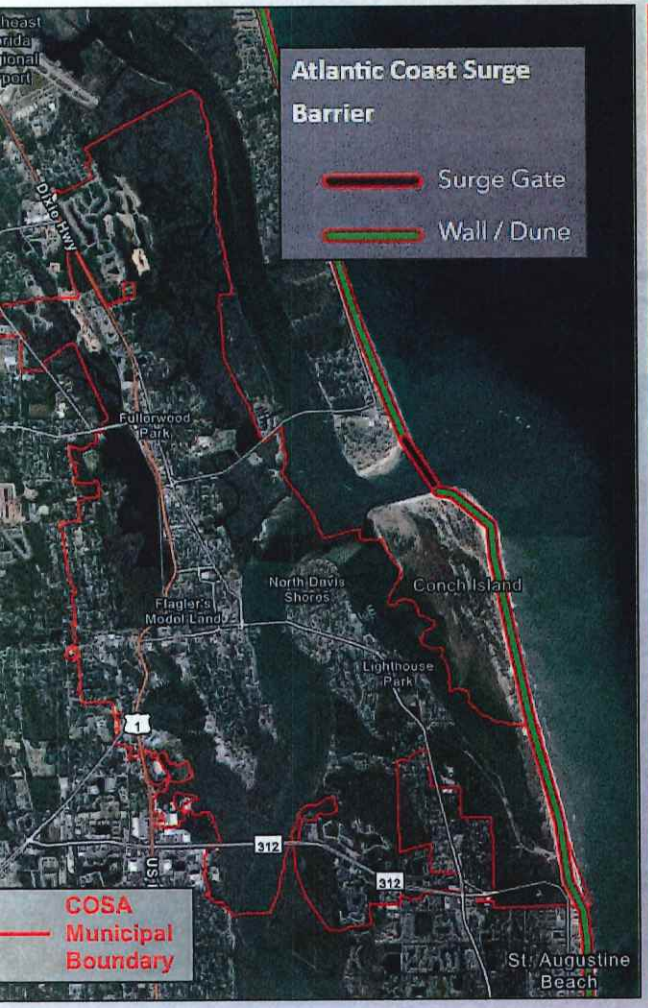
Conceptual Surge Barrier System

Surge Barrier Design Rendering in Galveston, TX.



SURGE BARRIER SYSTEMS

ARMY



SURGE BARRIER SYSTEMS

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New Orleans Sector Gate

SURGE BARRIER SYSTEMS

ARMY

Rotterdam Surge Barrier, Netherlands

SURGE BARRIER SYSTEMS

I. ARMY

What benefits do surge barrier systems provide?

- Reduced coastal storm damages from large storm events.
- Maintain inlet access
- Minimize in-city footprint

What resources could surge barrier systems impact?

- Water quality (Matanzas and San Sebastian Rivers, Salt Run)
- Saltwater marsh habitat
- Marine/estuarine animal transit and habitat
- Essential Fish Habitat
- Visual aesthetics
- Beach access (St. Augustine, Porpoise Point)
- Sediment transport (Porpoise Point)

Implementation considerations and potential options to avoid/minimize/mitigate impacts of walls and levees?

- Time to implement
- Operations & Maintenance
- Footprint / Real Estate
- High ground tie in
- Likely not closed for "sunny day" flooding
- Rainfall drainage

SURGE BARRIER SYSTEMS

ARMY

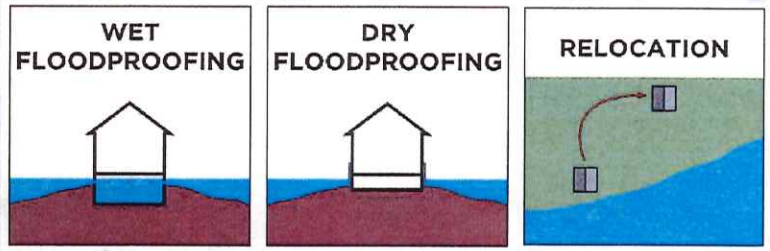
Coastal Barrier Resources Act (CBRA)

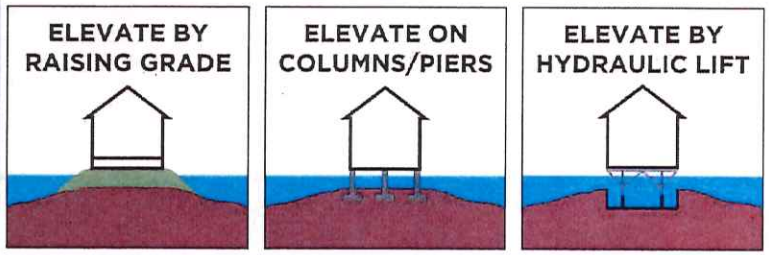
- 3 purposes of CBRA:
  - Minimize loss of human life
  - Minimize wasteful expenditure of federal revenues
  - Minimize damage to fish, wildlife, and other natural resources associated with coastal barriers
- System Units
  - Most new federal expenditures and financial assistance, including federal flood insurance, are prohibited
  - Consultation with USFWS required
- Otherwise Protected Areas
  - Only prohibition is on federal flood insurance, and there is an exception for park-related structures
  - Consultation with USFWS not required
- Federal VS Private Funding

NONSTRUCTURAL MEASURES

WHAT ARE NONSTRUCTURAL MEASURES?

- An array of options used to **adapt to** existing and future coastal flood risks and damage without major modification to floodplain characteristics
- Often, physical and permanent measures retrofitted into existing structures and incorporated into new designs
- Examples:
  - Elevation of Structures
  - Buyout/Relocation of Structures
  - Dry Floodproofing
  - Wet Floodproofing

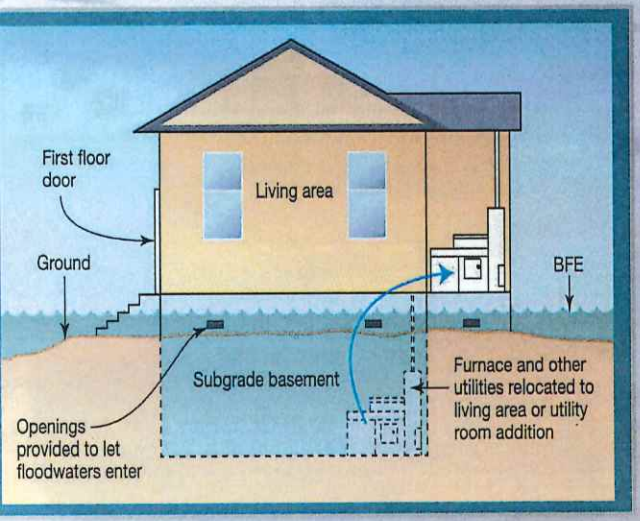




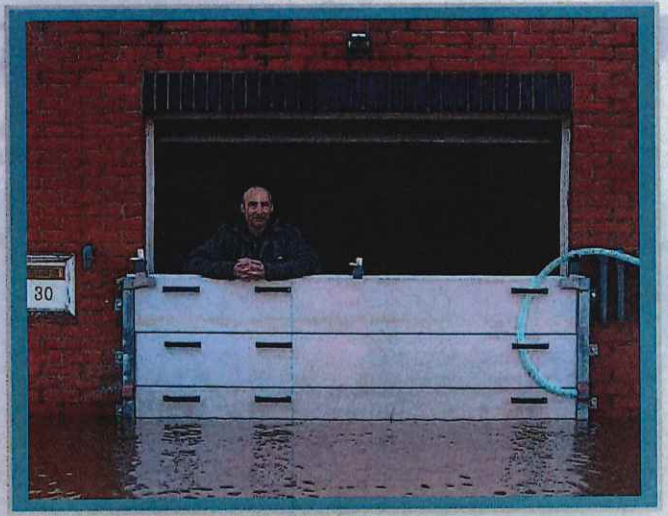
NONSTRUCTURAL MEASURE EXAMPLES

ARMY

Wet Floodproofing: allowing floodwaters to enter/exit with minimal damage



Dry Floodproofing: sealing portion of building, making it impermeable to floodwater



Buyout/Relocation: moving structures from location with flood risk

Examples of Nonstructural Measures, including structure relocation, dry and wet floodproofing

NONSTRUCTURAL MEASURE EXAMPLES

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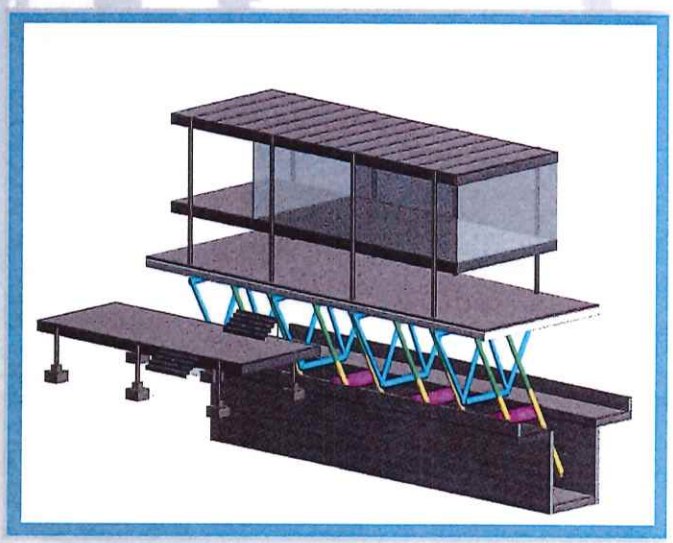
Elevation
By Raising Grade

Elevation By
Columns/Piers/Slab

Elevation
By Hydraulics



Different Approaches to Elevating Structures

NONSTRUCTURAL MEASURES

Elevation for Residential Structures

- Lift an existing structure to an elevation greater than a perceived flooding elevation.
- For example, a **residential** structure with a first-floor elevation below the flooding elevation.

Residential structure **pre-elevation**

Residential structure **post-elevation**

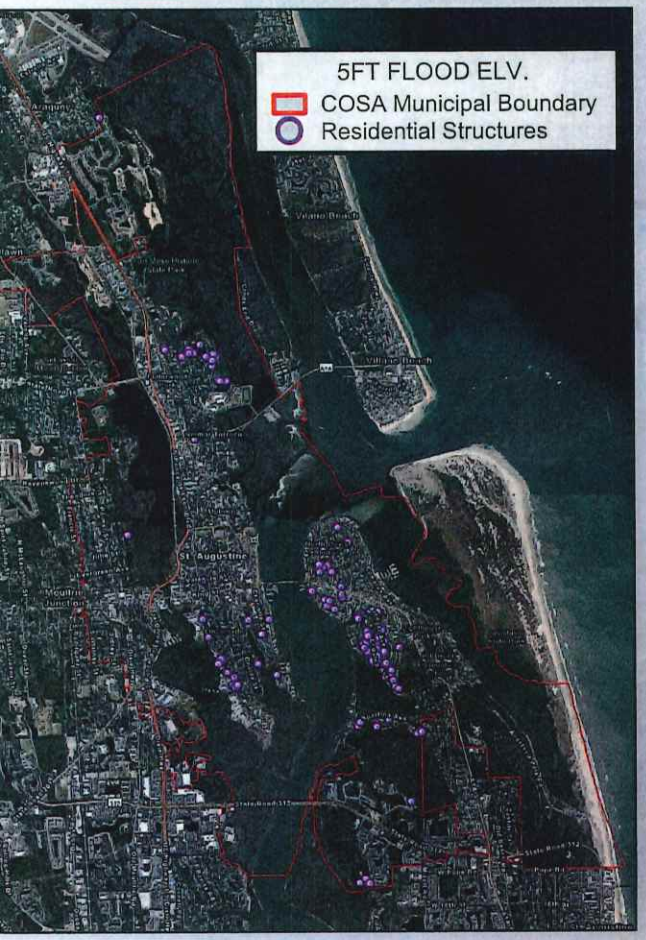
NONSTRUCTURAL MEASURES

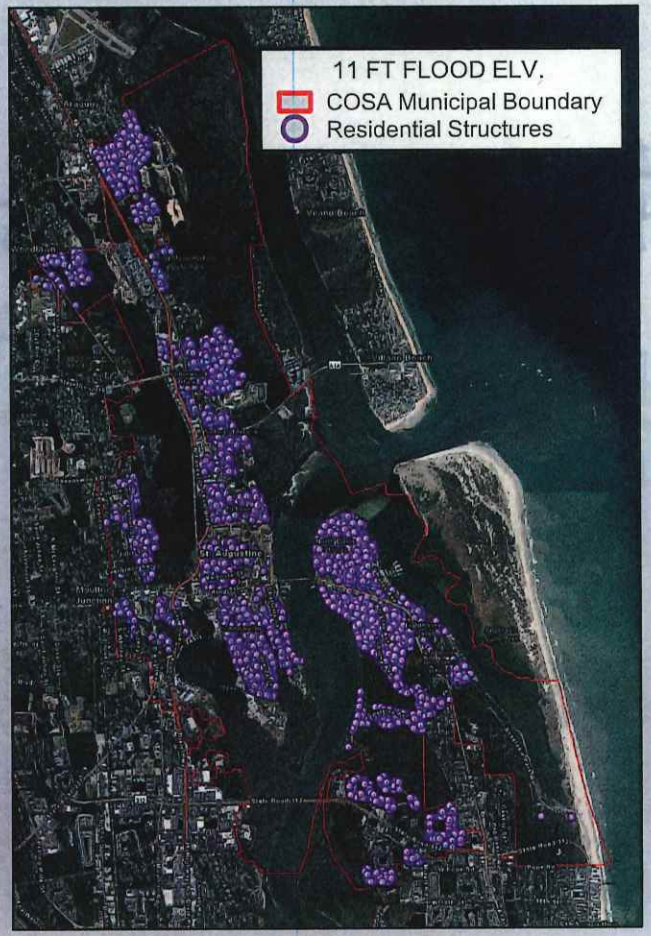
Dry Floodproofing for Commercial/Public Structures

- Waterproofing the structure to prevent floodwater from damaging contents.
- For example, **commercial/public** structure that experiences shallow flooding.

NONSTRUCTURAL MEASURES

Examples of locations of **residential** structure elevation potential at 5 ft, 11 ft, and 15 ft design (no other protective measures considered).





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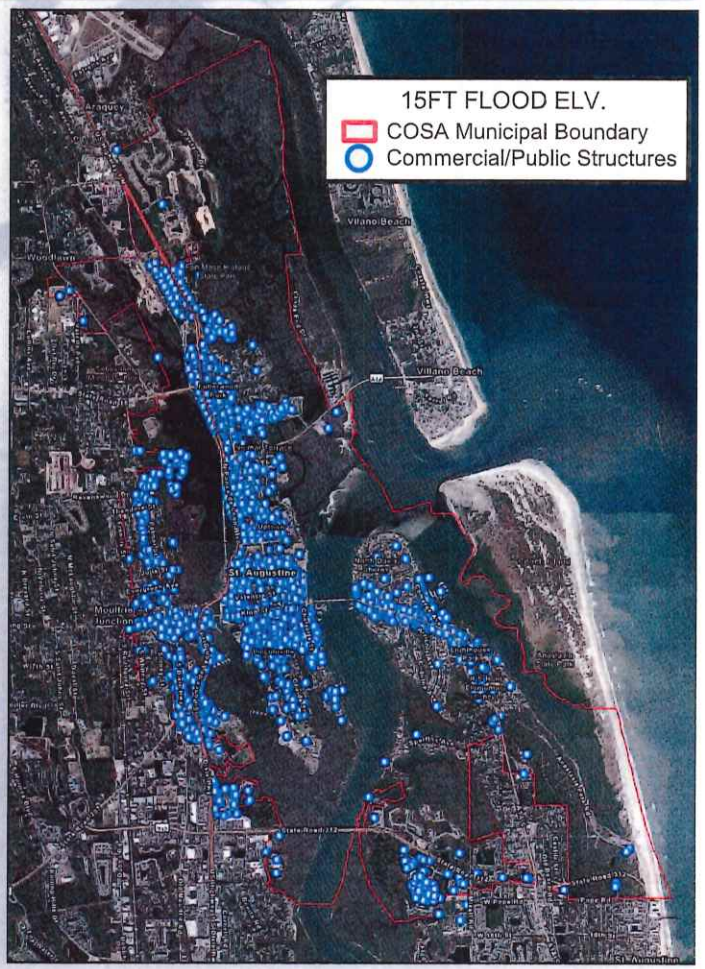
NONSTRUCTURAL MEASURES

Examples of locations of **commercial/public** structure floodproofing potential at 5 ft, 11 ft, and 15 ft design (no other protective measures considered).



NONSTRUCTURAL MEASURES

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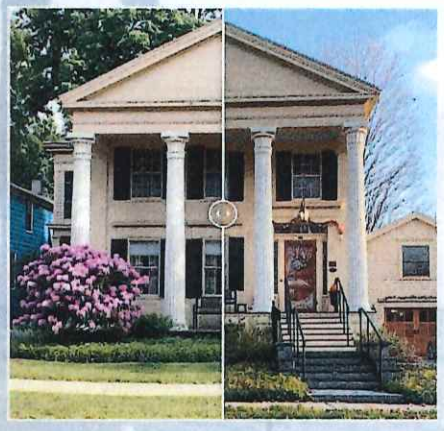
What benefits do nonstructural measures provide?

Reduces risk of coastal flood damage to structure and its contents
Reduces risk of community displacement due to coastal flooding

What resources may nonstructural measures impact?

- Cultural resources eligible for listing in the NRHP
- Visual or aesthetic resources

Potential options to avoid/minimize/mitigate impacts of implementing nonstructural measures?



- Evaluate impacts to eligible cultural resources
- Adhere to NPS guidelines for flood adaptation for historic properties
- Maintain visual aesthetics
- Use of temporary/deployable structures

ENGINEERING WITH NATURE: NATURE BASED FEATURES

. ARMY

EWN...the intentional alignment of natural and engineering processes to efficiently and sustainably deliver economic, environmental and social benefits through collaboration.

What are Nature Based Features?
Landscape features used to provide engineering function relevant to coastal flood risk management, while producing additional economic, environmental, and/or social benefits.

Long Beach Island Coastal Storm Damage Reduction

Galveston Beach Nourishment at 61st Street

MacDill Oyster Reef Shoreline Stabilization

West Bay River Diversion Project

Evia Island Bird Habitat

Bayou La Batre (Lightning Point)

ENGINEERING WITH NATURE: NATURE BASED FEATURES

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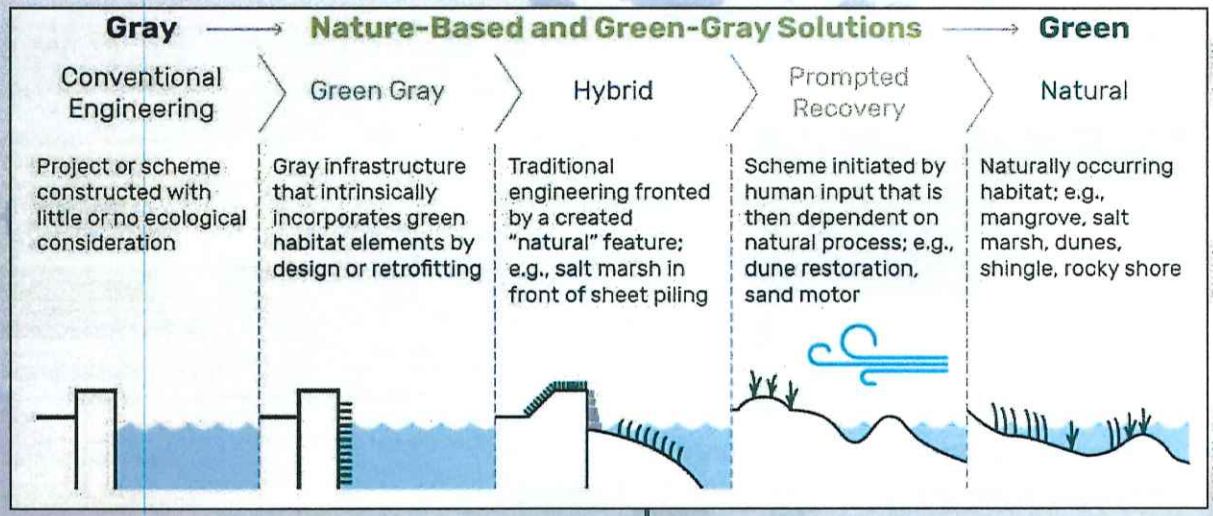
How do Nature Based Features deliver Coastal Storm Risk Management benefits?

Coastal Flood Risk Management through:

- Attenuate the energy and height of waves
- Attenuate storm surge water levels along the shoreline
- Provide storage of floodwater in the upper tidal reaches of estuaries
- Reduce erosion of sediments and soils
- Attract and stabilize sediments
- Attract and sustain flora and fauna, which can stabilize structures such as coastal levees



Nature Based Features Considerations:

- Wetland or shoreline location and geometry
- Space constraints (reducing water levels requires more extensive widths than reduction of waves)
- Vegetation constraints (native types and performance)
- Expected storm characteristic

ENGINEERING WITH NATURE: NATURE BASED FEATURES

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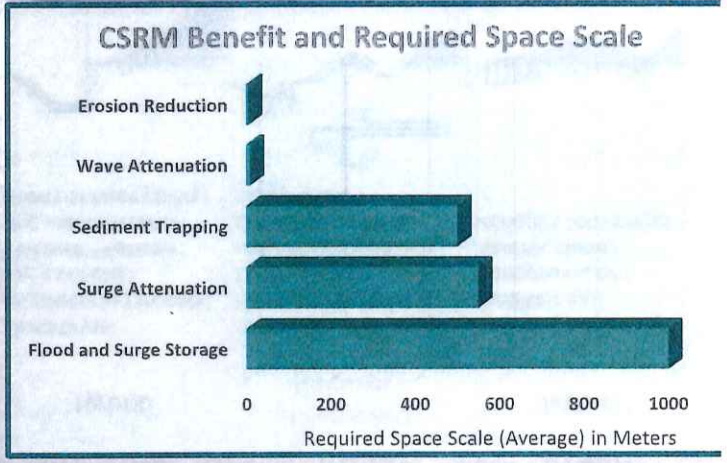
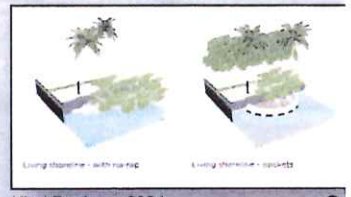
Nature Based Features Potential Benefits and Required Space Scale for Implementation?

CSRM Benefit	Benefit Description
Erosion Reduction Required Space Scale: 1 to 10 meters	Potential to lower shoreline recession rate
	Potential to prevent erosion at toe of landward structural features
	Potential to reduce maintenance costs of protected structures
	Potential to increases life span of protected structures
Sediment Trapping Required Space Scale: 1 to 1,000s of meters	Potential to maintaining or increasing wetland elevation and extent
	Potential to prevent erosion at toe of landward structural features
	Potential to reduce maintenance costs of protected structures
Wave Attenuation Required Space Scale: > 10s of meters	Potential to reduce flooding by wave overtopping and run-up
	Potential to reduces required height of structural measures
	Potential to reduce maintenance costs of protected structures
Surge Attenuation Required Space Scale: > 100s to 1,000s of meters	Potential to reduce flooding from storm surge (wetland must occupy large proportion of total flow area to provide measurable benefit)
	Potential to reduce required height of structural measures
Flood and Surge Storage Required Space Scale: > 1,000s of cubic meters	Potential to reduces water level
	Potential to provides flood and surge storage
	Potential to store runoff during coastal storms



Adapted from USACEs International Guidelines on Natural and Nature-Based Features for Flood Risk Management



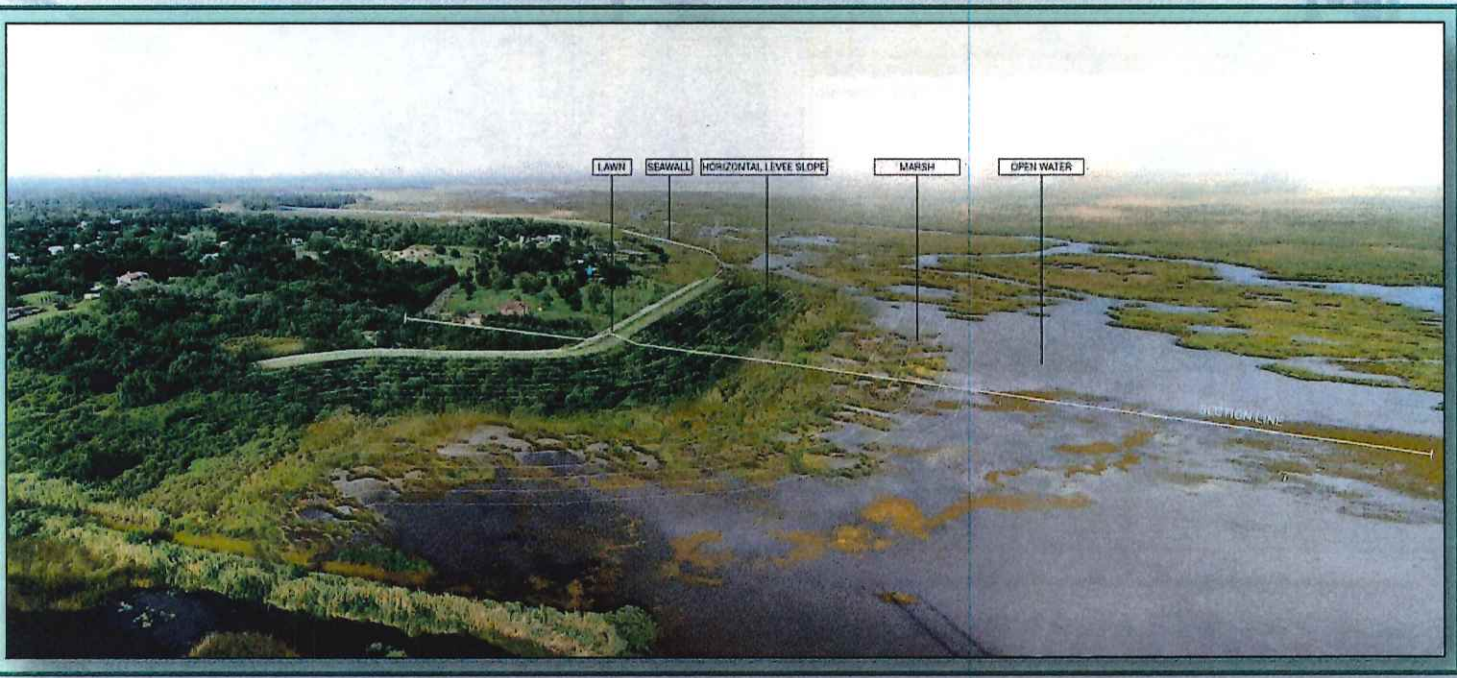
Kind Designs, 2024

ENGINEERING WITH NATURE: NATURE BASED FEATURES

ARMY

HORIZONTAL LEVEE

A Nature Based Feature composed of a traditional flood-control levee core with a seaward ecotone slope, grading smoothly to a low marsh elevation. The slope is planted with native wetland and transitional species, restoring habitats, as well as providing adaptive capacity allowing wetlands to adjust landward as sea levels rise.



CSRM Benefits:

- Storm surge attenuation and protection
- Wave attenuation, reduction of wave energy impacts seaward of the shoreline
- Reduce shoreline erosion
- Adaptable to sea level rise
- Possible flood storage

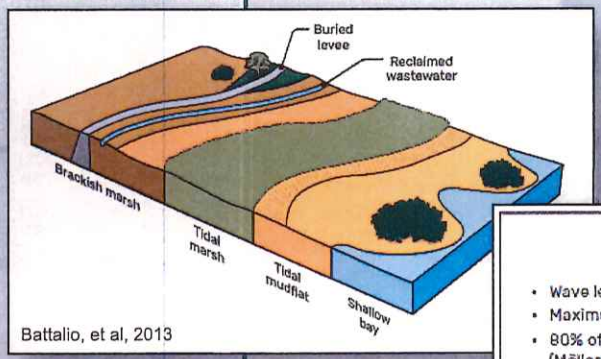
Challenges:

- Greater cost than traditional grey infrastructure
- Larger footprint required
- Easement challenges

ENGINEERING WITH NATURE: NATURE BASED FEATURES

S. ARMY

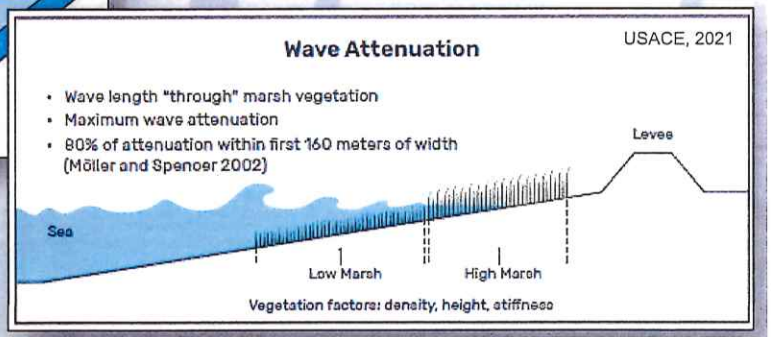
Horizontal Levee – Implementation in the City of St. Augustine Back Bay Coastal Storm Risk Management

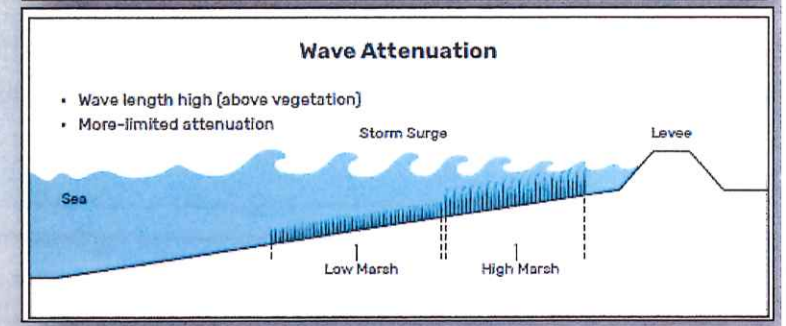


Battalio, et al, 2013

Example of Horizontal Levee in San Francisco Bay paired with freshwater discharged

Works in conjunction with structural levee to reduce coastal storm risk. Reduces wave action intercepted by structure. May require thin layer placement to retain or restore salt marsh.



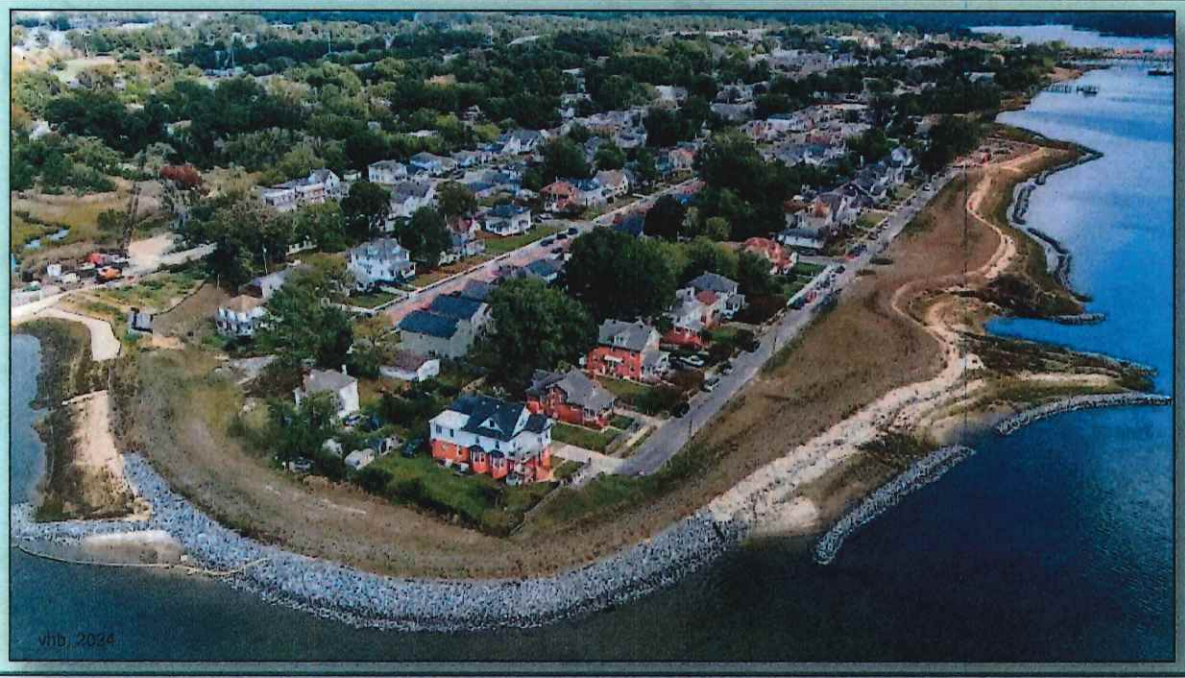


ENGINEERING WITH NATURE: NATURE BASED FEATURES

ARMY

LIVING SHORELINE

A Nature Based Feature that involves the use of native vegetation to protect against shoreline erosion. Living shorelines have a footprint that is dominated by native elements such as tidal flats, intertidal marshes, or mangroves (or a combination of these). In exposed locations, living shorelines often include a structure parallel to and along the waterward edge of the shore to buffer it against incoming wave energy.



CSRM Benefits:

- Wave attenuation, reduction of wave energy impacts seaward of the shoreline
- Reduce shoreline erosion
- Possible cost reduction for traditional grey shore protection structural measures
- Adaptable to sea level rise

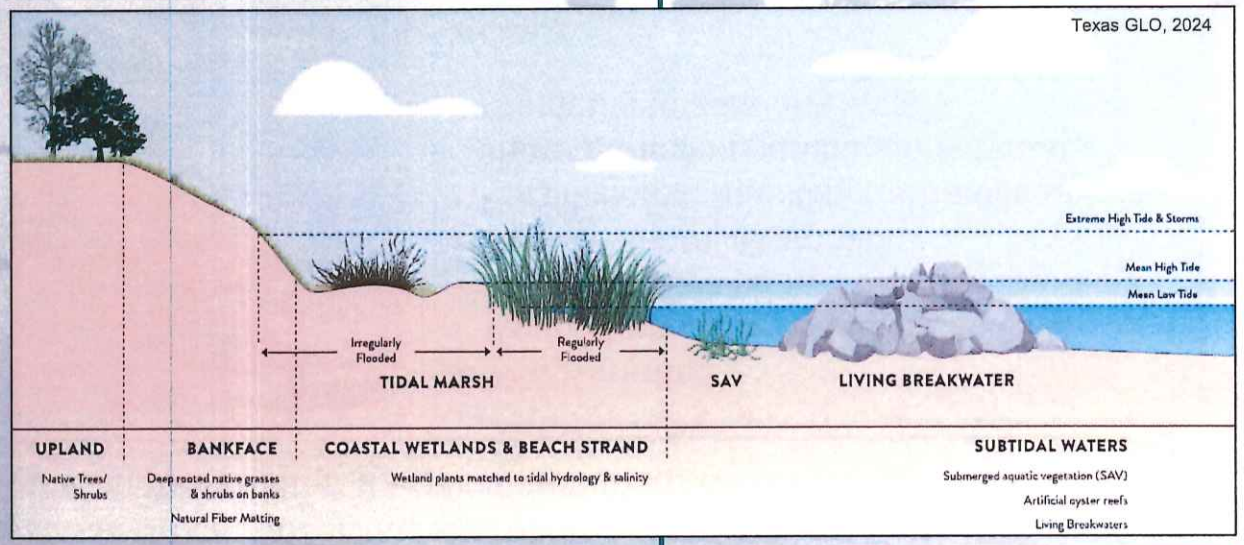
Challenges:

- Not applicable to high energy environments (large waves, high water velocity, high surge)
- Not a standalone CSRM alternative
- Alteration of water and sediment exchange

ENGINEERING WITH NATURE: NATURE BASED FEATURES

S. ARMY

Living Shoreline – Implementation in the City of St. Augustine Back Bay Coastal Storm Risk Management



Shoreline stabilization technique that provides erosion protection and reduction of wave energy fronting existing marsh habitat or marsh habitat with traditional coastal storm risk management structural measures.

ENGINEERING WITH NATURE: NATURE BASED FEATURES

ARMY

HYBRID SEAWALL WITH COASTAL VEGETATION

Combines green and grey infrastructure to achieve both a robust coastal storm protection measure with a seawall while maintaining or restoring ecosystems with implementation of appropriate vegetation. This vegetation buffer offers aesthetic benefits while also fortifying the traditional structural measures.

CSRM Benefits:

- Wave attenuation, reduction of wave energy impacts seaward of the shoreline
- Reduce shoreline erosion
- Possible cost reduction for traditional grey shore protection structural measures.

Challenges:

- Not applicable to high energy environments (large waves, high water velocity, high surge)
- Higher cost than traditional seawalls
- Requires more space than traditional seawalls

ENGINEERING WITH NATURE: NATURE BASED FEATURES

.ARMY

HYBRID SEAWALL WITH COASTAL VEGETATION – Implementation in the City of St. Augustine Back Bay Coastal Storm Risk Management

Hybrid seawalls may offer wave attenuation and scour prevention for a traditional structure to improve performance and lifespan.

ENGINEERING WITH NATURE: NATURE BASED FEATURES

S. ARMY

What important resources could these features impact?

- GTMNERR extends through the project area and includes many habitat types, including mangroves, oyster reefs, and salt marsh
- Oyster beds throughout the project area, notably within Salt Run
- Wetlands of various types
  - Tidal flats, a specific type of coastal wetland, are also present in the study area.
- Marine/estuarine animals (e.g., manatees, gopher tortoises, shorebirds, etc.) and habitat

Implementation considerations for potential alternatives

- Coastal Barrier Resources Act (CBRA)
- Endangered Species Act
- Essential Fish Habitat
- Cultural Resources
- Aesthetics
- Recreation
- Environmental Justice
- Climate Change/Sea Level Rise
- Space
- Cost

CLOSING REMARKS

Please check out the study website…

https://experience.arcgis.com/experience/06bb9c98d9184bd9a374a244f6d27474/

E-mail questions or comments at anytime to…

cesaj-st.augbackbaycsrm@usace.army.mil

Turn in your comment cards tonight

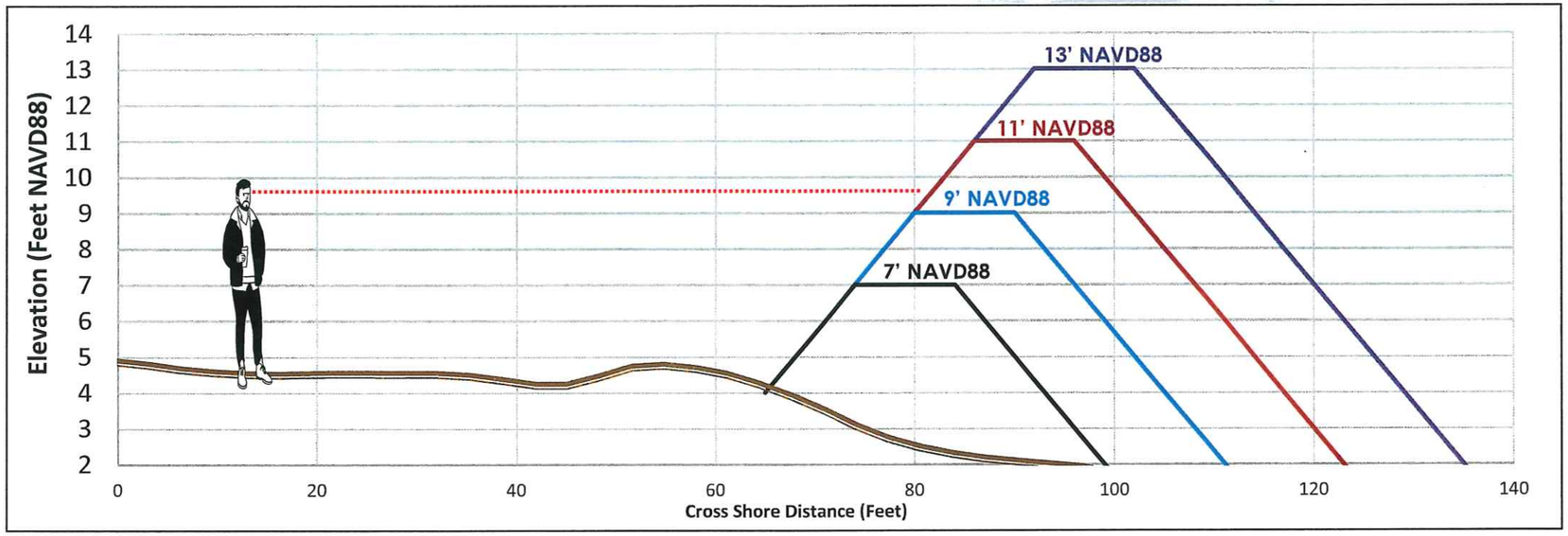
Thank You!!!

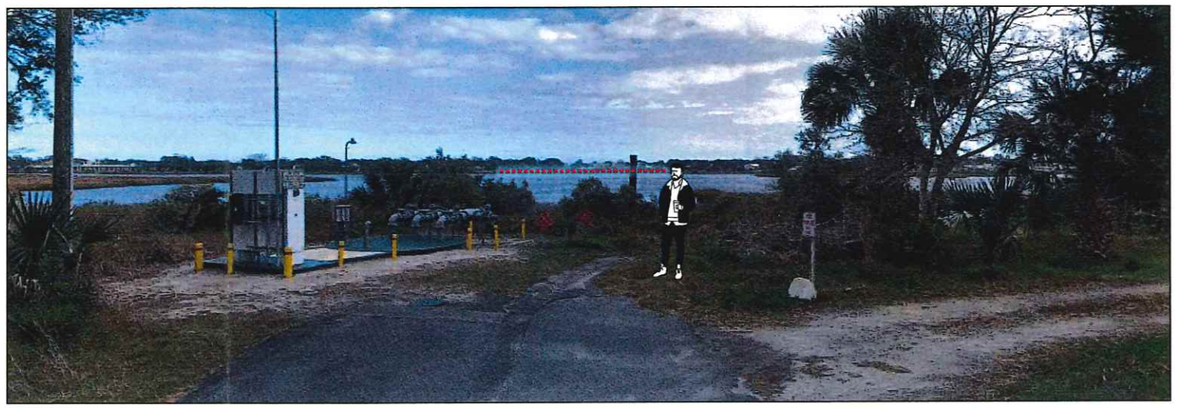
U.S. ARMY

WALLS & LEVEES Helen Street (Ravenswood)

Existing Ground
7' Levee
9' Levee
11' Levee
13' Levee

Not 1V:1H Scale





WALLS & LEVEES River Road (Oyster Creek)

U.S. ARMY

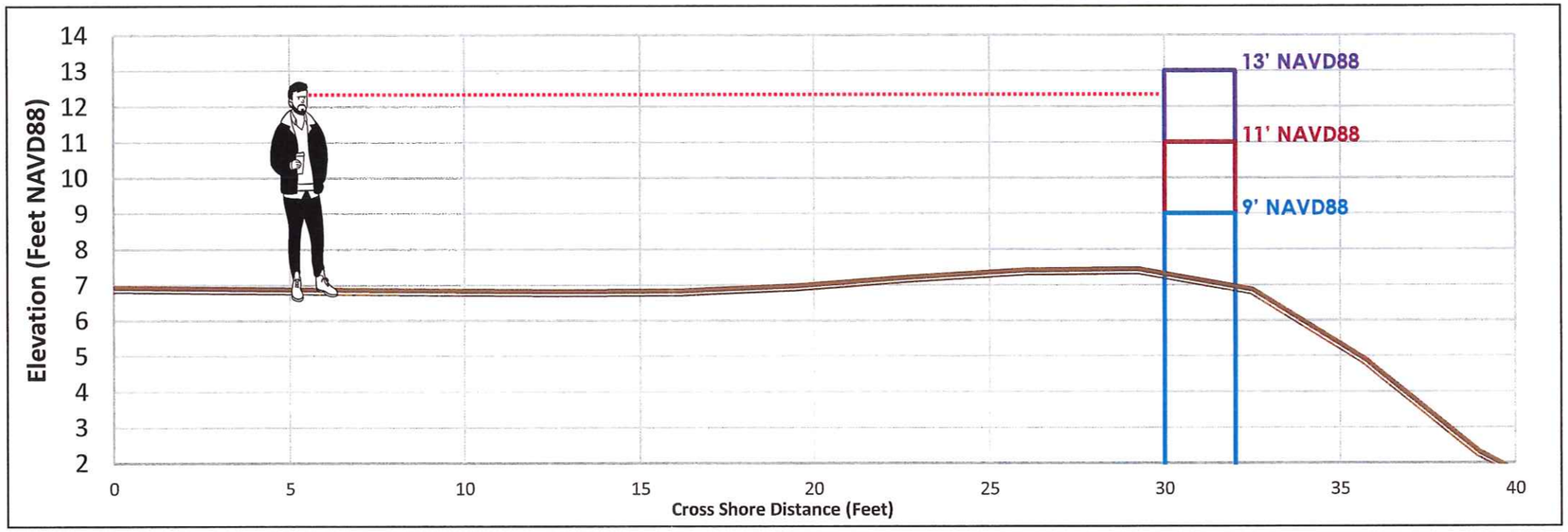
Existing Ground

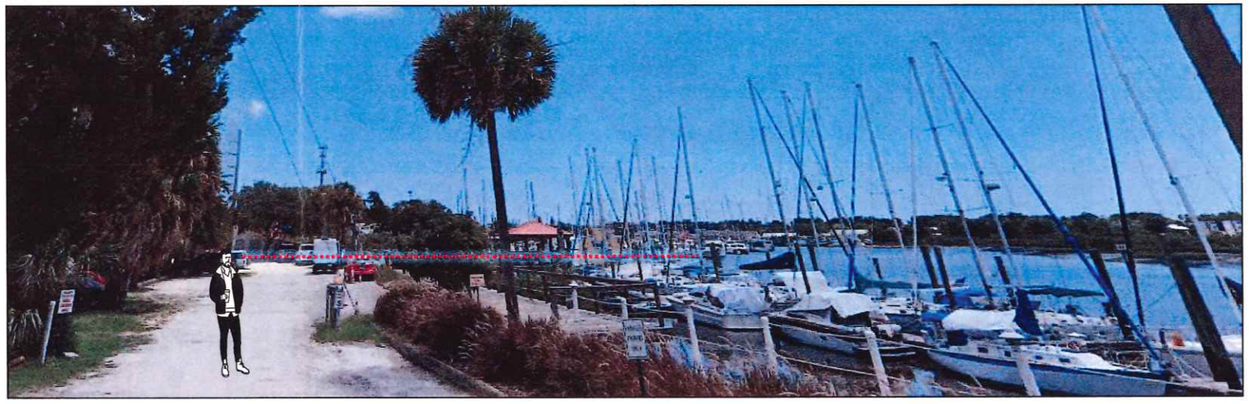
9' Wall

11' Wall

13' Wall

Not 1V:1H Scale



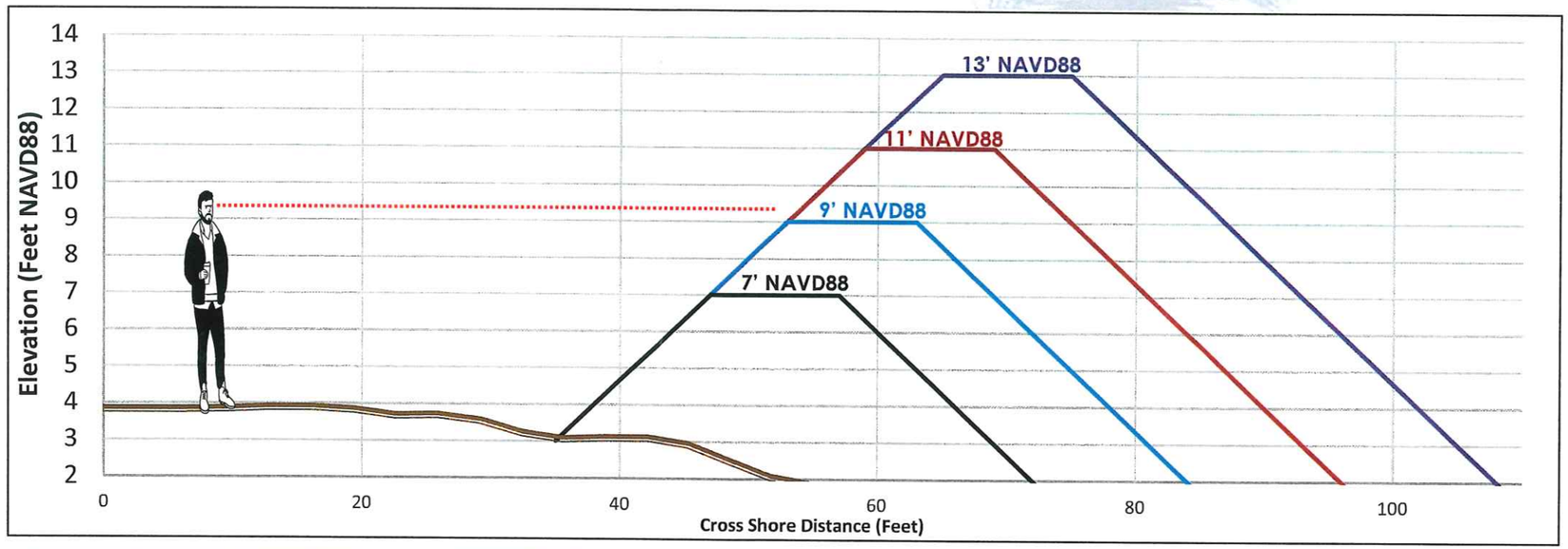


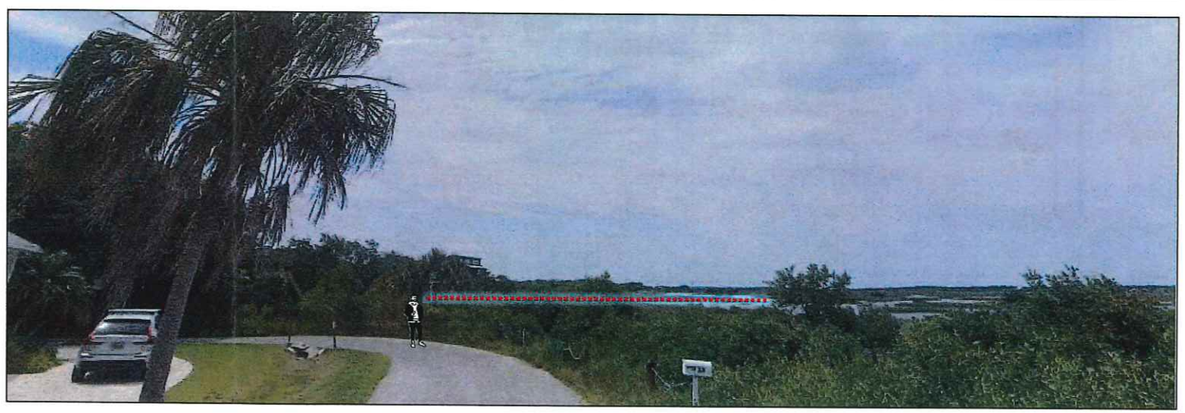
WALLS & LEVEES Fern Street (Greater Fullerwood)

U.S. ARMY

Existing Ground
7' Levee
9' Levee
11' Levee
13' Levee

Not 1V:1H Scale





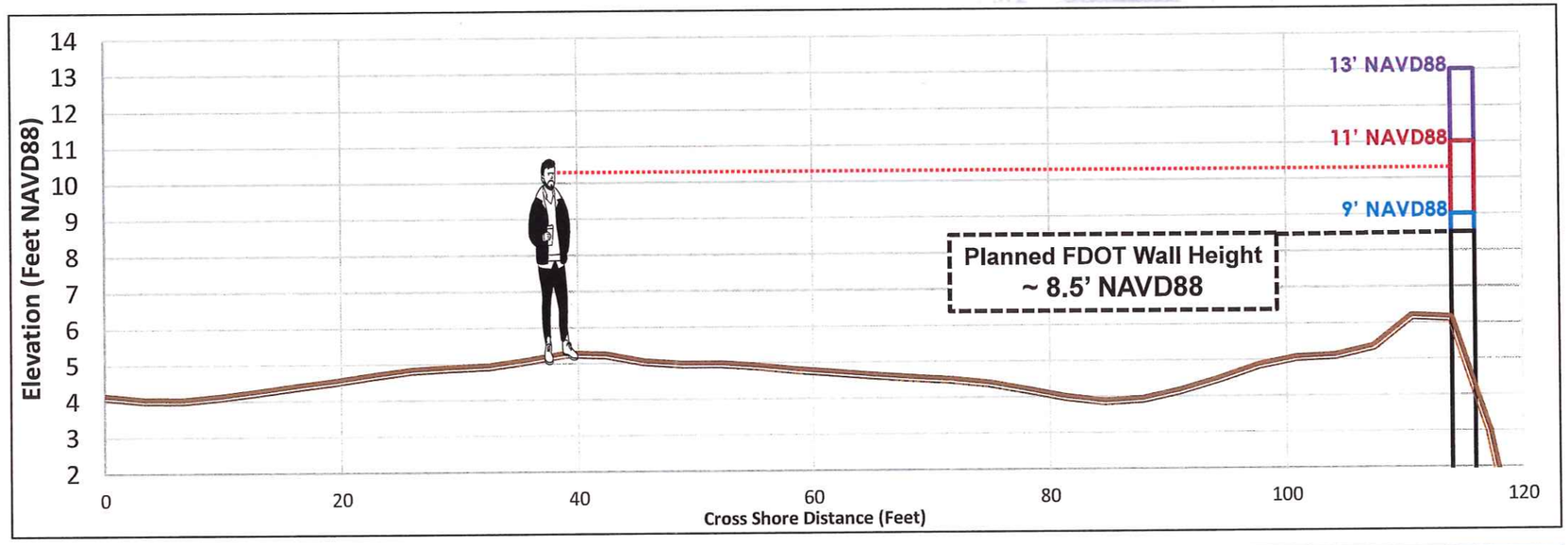
WALLS & LEVEES Avenida Menendez (Spanish Quarter)

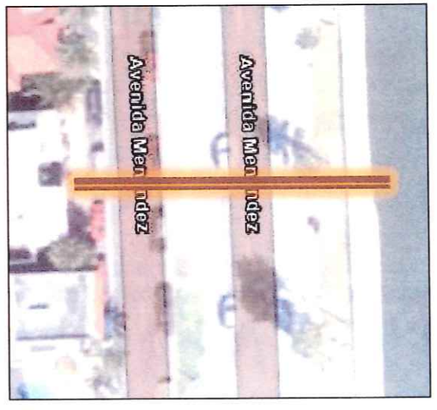
U.S. ARMY

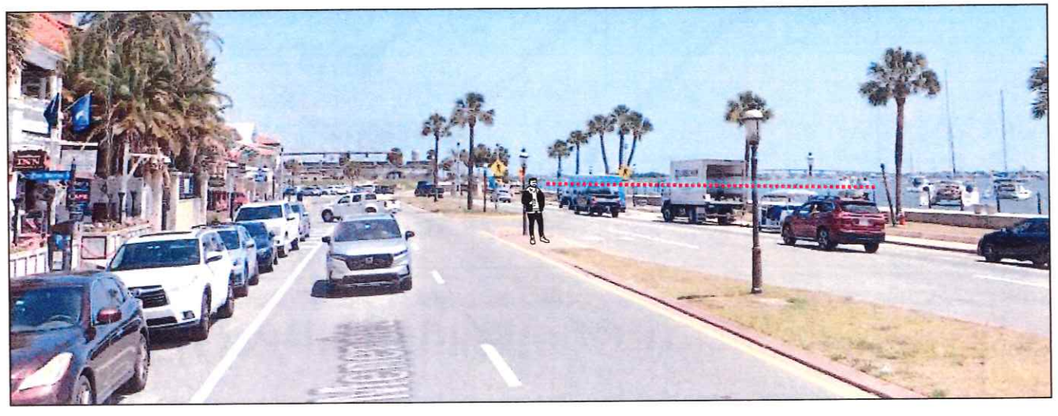
Existing Ground
8.5' Wall
9' Wall
11' Wall
13' Wall

~5'5"

Not 1V:1H Scale







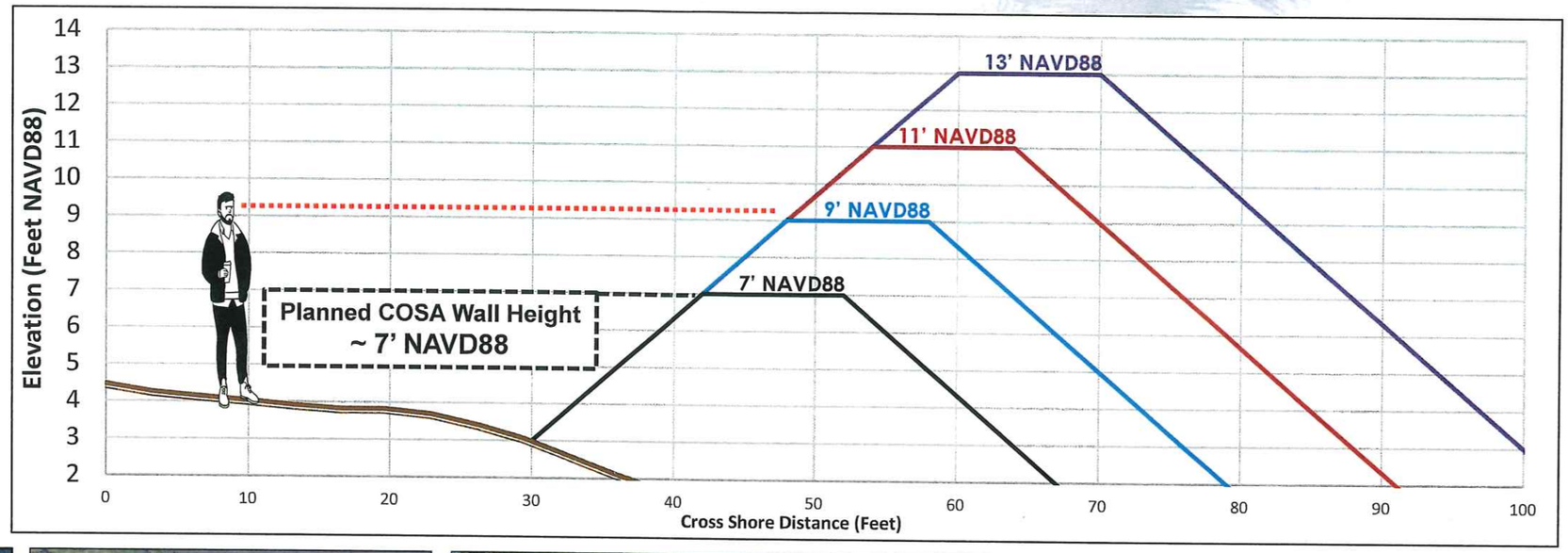
WALLS & LEVEES Washington Street (Lincolnville)

U.S. ARMY

Existing Ground
7' Levee
9' Levee
11' Levee
13' Levee

~5'5"

Not 1V:1H Scale



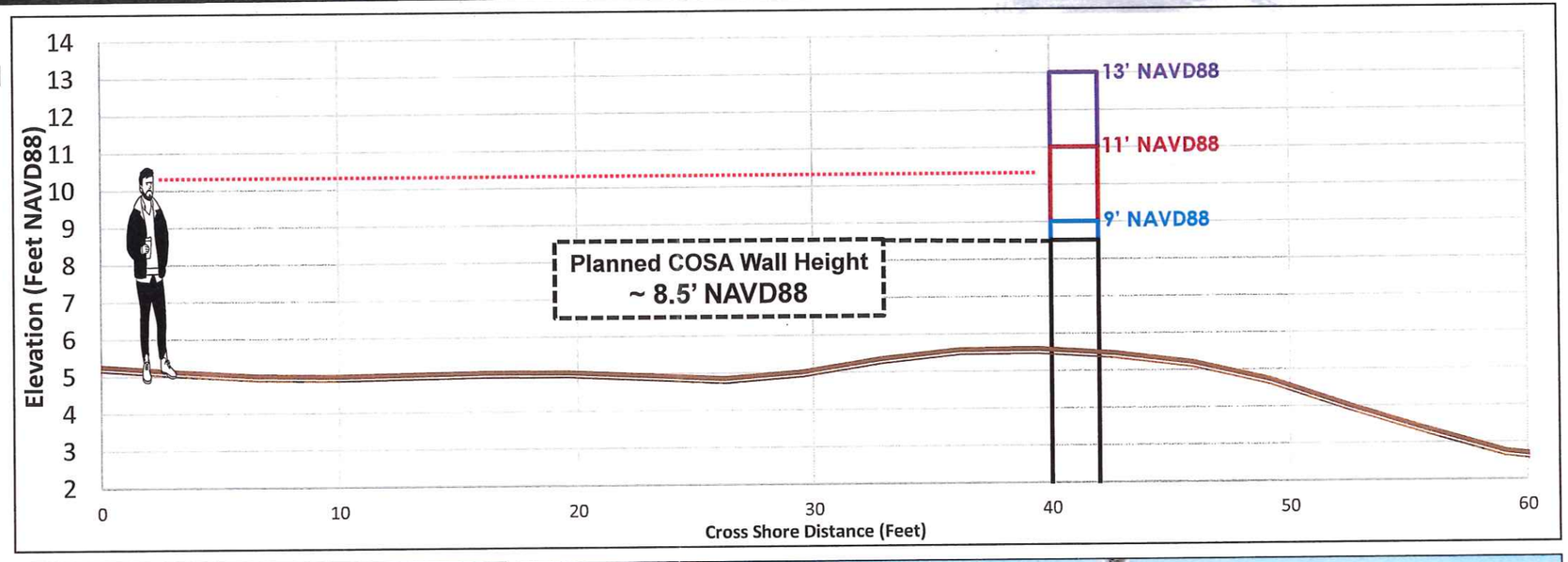
WALLS & LEVEES Inlet Drive (North Davis Shores)

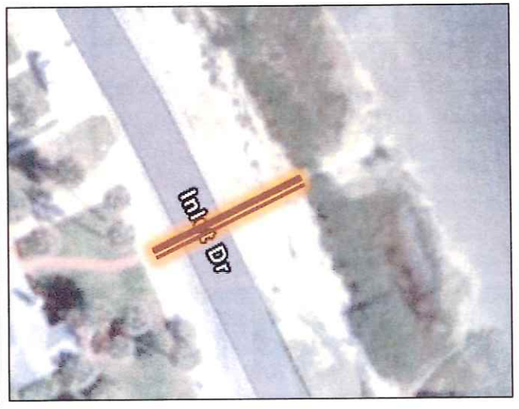
U.S. ARMY

Existing Ground
7' Wall
9' Wall
11' Wall
13' Wall

~5'5"

Not 1V:1H Scale





Related Definitions

Initiative to Develop more Resilient Criteria for Building for Flood Prevention

Relevant Terms

A. **Terms Currently Defined in Land Development Code**
B. **Terms Defined in Draft Resilient Shoreline Ordinance**
C. **Terms Beneficial to Define for Flood Prevention**

Summary:

A list of relevant terms already defined in code, proposed to be defined in code, or may need to be defined to have a productive conversation about and the implementation of flood prevention strategies. This list should not be considered exhaustive but rather a collection of terms useful for flood prevention.

A. Currently Defined in Land Development Code

Chapter 8- Building and Building Regulations- Article III Coastal Construction

Coastal or *shore protection structure* means shore-hardening structures, such as seawalls, bulkheads, revetments, rubble mound structures, groins, breakwaters, and aggregates of materials other than beach sand used for shoreline protection; beach and dune restoration; and other structures which are intended to prevent erosion or protect other structures from wave and hydrodynamic forces.

Construction means the carrying out of any building, clearing, filling, excavation, or substantial improvement in the size or use of any structure or the appearance of any land. When appropriate to the context, "construction" refers to the act of construction or the result of construction.

Dune means a mound or ridge of loose sediments, usually sand-sized sediments, lying landward of the beach and deposited by any natural or artificial mechanism.

Chapter 8- Building and Building Regulations- Article V. Floodplain Management

Base flood elevation. The elevation of the base flood, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other

datum specified on the flood insurance rate map (FIRM). [Also defined in Florida Building Code, Building, Section 202.]

Basement. The portion of a building having its floor subgrade (below ground level) on all sides. [Also defined in Florida Building Code, Building, Section 202; see "Basement (for flood loads)".]

Coastal construction control line. The line established by the State of Florida pursuant to F.S. § 161.053, and recorded in the official records of the city, which defines that portion of the beach-dune system subject to severe fluctuations based on a 100-year storm surge, storm waves or other predictable weather conditions.

Coastal high hazard area. A special flood hazard area extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. Coastal high hazard areas are also referred to as "high hazard areas subject to high velocity wave action" or "V Zones" and are designated on flood insurance rate maps (FIRM) as zone V1-V30, VE, or V.

Design flood. The flood associated with the greater of the following two (2) areas: [Also defined in Florida Building Code, Building, Section 202.]

(1) Area with a floodplain subject to a 1-percent or greater chance of flooding in any year; or
(2) Area designated as a flood hazard area on the city's flood hazard map, or otherwise legally designated.

Design flood elevation. The elevation of the "design flood," including wave height, relative to the datum specified on the city's legally designated flood hazard map. In areas designated as zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as zone AO where the depth number is not specified on the map, the depth number shall be taken as being equal to two (2) feet. [Also defined in Florida Building Code, Building, Section 202.]

Encroachment. The placement of fill, excavation, buildings, permanent structures or other development into a flood hazard area which may impede or alter the flow capacity of riverine flood hazard areas.

Flood or *flooding.* A general and temporary condition of partial or complete inundation of normally dry land from: [Also defined in Florida Building Code, Building, Section 202.]

(1) The overflow of inland or tidal waters.
(2) The unusual and rapid accumulation or runoff of surface waters from any source.

Flood damage-resistant materials. Any construction material capable of withstanding direct and prolonged contact with floodwaters without sustaining any damage that requires more than cosmetic repair. [Also defined in Florida Building Code, Building, Section 202.]

Flood hazard area. The greater of the following two areas: [Also defined in Florida Building Code, Building, Section 202.]

(1) The area within a floodplain subject to a 1-percent or greater chance of flooding in any year.
(2) The area designated as a flood hazard area on the city's flood hazard map, or otherwise legally designated.

Floodplain development permit or approval. An official document or certificate issued by the city, or other evidence of approval or concurrence, which authorizes performance of specific development activities that are located in flood hazard areas and that are determined to be compliant with this article.

Floodway. The channel of a river or other riverine watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot. [Also defined in Florida Building Code, Building, Section 202.]

Floodway encroachment analysis. An engineering analysis of the impact that a proposed encroachment into a floodway is expected to have on the floodway boundaries and base flood elevations; the evaluation shall be prepared by a qualified Florida licensed engineer using standard engineering methods and models.

Highest adjacent grade. The highest natural elevation of the ground surface prior to construction next to the proposed walls or foundation of a structure.

Lowest floor. The lowest floor of the lowest enclosed area of a building or structure, including basement, but excluding any unfinished or flood-resistant enclosure, other than a basement, usable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the structure in violation of the non-elevation requirements of the Florida Building Code or ASCE 24. [Also defined in Florida Building Code, Building, Section 202.]

Special flood hazard area. An area in the floodplain subject to a 1 percent or greater chance of flooding in any given year. Special flood hazard areas are shown on FIRMs as zone A, AO, A1-A30, AE, A99, AH, V1-V30, VE or V. [Also defined in Florida Building Code, Building Section 202.]

Watercourse. A river, creek, stream, channel or other topographic feature in, on, through, or over which water flows at least periodically.

Initiative to Develop more Resilient Criteria for Building for Flood Prevention

Chapter 11 -Environmental Protection

Conservation Overlay Zone 1 comprises the most environmentally sensitive and valuable natural resources within the city. It includes all beaches, shores and dunes seaward of the state's coastal construction control line (F.S. ch. 161), all wetlands within the state's wetlands jurisdiction line (F.S. ch. 403), brackish water, and some habitat areas for species recognized as endangered, threatened, of special concern, or unique by federal, state and local agencies. This zone includes the estuarine/riverine environments created by the San Sebastian and Matanzas Rivers and their tributaries.

Conservation Overlay Zone 2 includes all property one hundred (100) feet landward from the most restrictive boundary line establishing Conservation Overlay Zone 1. Zone 2 is the transition zone or buffer area between Zone 1 and Zone 3, and may include areas recognized as habitat for species considered endangered, threatened, of special concern, or unique by federal state and local agencies. The primary purpose of Zone 2 is to protect the functional integrity of Zone 1, and to protect Zone 3 from extreme high water conditions.

Conservation Overlay Zone 3 is comprised of uplands and urban/residential areas which are inland from Zones 1 and 2, and which require special environmental consideration. Zone 3 is comprised of those undeveloped areas considered to be special flood hazard areas and significant tree canopy areas.

Conservation overlay zone development means any construction or use which requires a permit from the city, physically located or taking place within a conservation overlay zone.

Floodplain means an area inundated during a ten-year flood or designated as flood hazard areas by the National Flood Insurance Program.

Special flood hazard areas means areas which may become inundated during a one hundred-year flood.

Chapter 25 -Trees and Landscaping

Site plan means a scaled plan of the property to be developed, showing the locations of all structures and buildings, required yards, required parking, surface drive areas, loading spaces, stacking spaces, planting areas (both bufferyards and interior), dumpsters, exterior mechanical equipment, storm drainage retention areas, and all trees three (3) inches or larger dbh., by species and dbh. (both to be removed and to be retained), and any other necessary details required for review.

Initiative to Develop more Resilient Criteria for Building for Flood Prevention

Chapter 28 - Zoning

Buildable area means the portion of a lot remaining after required yards have been provided. Buildings may be placed in any part of the buildable area, but limitations on percentage of the lot which may be covered by buildings may require open space within the buildable area.

Building means any structure used or intended for supporting or sheltering any use or occupancy.

Developable land means all of a parcel of land except lands lying within proposed public rights-of-way; marshlands, swamps, floodplains or other environmentally sensitive lands where local, state or federal regulations otherwise prohibit development; and bodies of water such as ponds, lakes and reservoirs, either natural or manmade.

Fence means an artificially constructed barrier of any material or combination of materials erected to enclose or screen areas of land.

Floodplain means either riverine or inland depressional areas. Riverine floodplains are those areas contiguous with a lake, stream, or stream bed whose elevation is greater than the normal waterpool elevation but equal to or lower than the projected one-hundred-year flood elevation. Inland depressional floodplains are floodplains not associated with a stream system but which are low points to which surrounding lands drain.

Height, building, means the vertical distance measured from the mandatory freeboard requirement of one (1) foot above the base flood elevation as determined by the Federal Emergency Management Agency to the top of the highest point of the roof or parapet, exclusive of chimneys or other building accessories or ornamental features, for buildings constructed within known flood zones and delineated on the Federal Emergency Management Agency Insurance Rate Map; provided, however, that in instances of buildings outside of such known flood zones, vertical distance shall be measured from the average contact ground level at the front wall of the building.

Impervious surface means those surfaces which do not absorb water. They consist of all buildings, parking areas, driveways, roads, sidewalks, any areas of concrete or asphalt and other surfaces not pervious to water. Including any hard surface that prevents or restricts the flow of water into the soil.

Impervious surface ratio means a measure of the intensity of land use which is determined by dividing the total area of all impervious surfaces on a site by gross site or lot area.

Lot means a parcel of land of at least sufficient size to meet minimum zoning requirements for use, coverage and area, and to provide such yards and other open spaces as are herein required, provided that certain nonconforming lots of record ("non-conforming lots of record"),

at the effective date of this chapter (April 29, 1975), or any amendment to the zoning atlas of the city increasing the dimensional requirements of lots within the zoning district in which the lots are located, are exempted from certain of its provisions under the terms of this chapter (see section 28-119). Such lot shall have frontage on a public or private street and may consist of a single lot of record; a portion of a lot of record; a combination of complete lots of record, or complete lots of record and portions of lots of record, or of portions of lots of record; or a parcel of land described by metes and bounds; provided, that in no case of division or combination shall any residual lot or parcel be created which does not meet the requirements of this chapter. As of the effective date of this article, any two or more nonconforming lots of record located in single-family residential districts RS-1 and RS-2 on which a residential or commercial structure exists, excluding accessory structures as defined by section 28-348 of this Code, are considered combined and may not thereafter be divided into nonconforming lots by the removal or destruction of the structure or any portion thereof by any means whatsoever. Such lots, however, may be replatted so long as the replatted lots conform to the requirements of this chapter.

Lot coverage means that portion of the lot, excluding open water bodies determined using the mean high water line, that is covered by buildings and structures, measured from the face of the vertical wall of the building or structure, not including roof overhang, but including awnings, carports, or other unenclosed structures.

Minimum floor elevation means the lowest elevation permissible for the construction, erection or other placement of any floor, including a basement floor.

Pervious surface means any material that permits full or partial absorption of stormwater into previously unimproved land.

Chapter 29 -Stormwater Management

Impervious area means any part of any parcel of land that has been modified by the action of persons to reduce the land's natural ability to absorb and hold rainfall including areas that have been cleared, graded, paved, graveled or compacted, or covered with structures and excluding all lawns, landscape areas, water and other areas designated by the city manager.

Stormwater means any surface flow, runoff and drainage consisting entirely of water from any form of natural precipitation and resulting from such precipitation.

Stormwater management system means all natural and manmade elements used to convey stormwater from the first point of impact with the surface of the earth to a suitable outlet either inside or outside the city. The stormwater management system includes all pipes, channels, streams, ditches, wetlands, sinkholes, detention and retention basins, ponds, and other stormwater conveyance and treatment facilities, whether public or private.

B. Defined in Draft Resilient Shoreline Ordinance

Appurtenant Structure includes boathouses, sheds, gazebos, detached apartments, and pool houses on the same parcel as the principal property.

Bank means the level space separating a waterway from an inland area, often sloped, elevated and constructed of compacted soil.

Berm an earthen mound designed with impermeability to resist the flow of tidal waters through it to an adjacent property or public right-of-way.

Bulkhead a vertical or near-vertical, substantially impermeable structure that provides shoreline protection from waves while retaining upland soils.

Breakwater a structure constructed from rip rap, armor stone or precast concrete units that has a top elevation at or above the Mean High Water Line, with a specified slope and linear geometry, that is placed offshore for the purpose of dissipating wave energy before reaching the shoreline.

Cap means the top of a seawall which is usually formed and poured with concrete and rebar.

Crest means the highest portion of a shoreline feature.

Datum (vertical) means a base elevation used as a reference from which to reckon heights or depths.

Escarpment an area of the shoreline where the elevation changes suddenly. Escarpments are usually caused by erosion and refers to a steep slope (greater than 2:1) and greater than 18 inches in height.

Erosion the process of losing soil to wind, water, through natural processes or anthropogenic means.

Fetch the distance of open water over which wind blows or waves propagate unobstructed.

Floodplain means an area inundated during a ten-year flood or designated as flood hazard areas by the National Flood Insurance Program.

Grade (Slope, incline, gradient, pitch) - a physical feature of a landform which is described by the tangent of the angle the surface makes to horizontal. Typically described by the ratio of "rise over run" or vertical to horizontal distance.

Green-grey infrastructure or green-grey materials a combination of engineered and natural elements that provide environmental qualities, ecosystem value and protective services.

High Tide Flooding refers to king tides or exceptional high tides which occur seasonally around a new or full moon when the Moon and Sun are at their perigee (closest point to Earth).

Living shorelines, a suite of shoreline protection techniques that incorporate habitat restoration alone or in combination with some type of built infrastructure to provide coastal protective services. Living shorelines use native vegetation alone or in conjunction with low sills, encompassing riprap, oyster bag arrays, in front of low elevation Seawalls or Bulkheads to stabilize the shoreline.

Mean High Water Line the average of the high tide water levels over a 19-year time period (tidal epoch). These water levels vary based on the area of tidal influence, the distance from a pass or inlet or distance upstream from the mouth of a river.

Mooring structure a boat dock, slip, davit, hoist, lift, floating vessel platform, mooring pile, or similar structure attached to land or to a seawall, to which a vessel can be secured by ropes or cables.

North American Vertical Datum (NAVD 88) means the vertical control for datum of orthometric height established for vertical control surveying in the United States of America based upon the General Adjustment of the North American Datum of 1988. The National Geodetic Survey (NGS) is working on replacing NAVD 88 with plans to release the new datums in 2022.

Overtopping water levels or waves that are above the crest height of a shoreline treatment or seawall.

Natural and Nature-Based Features (NNBFs) are landscape features that are used to provide engineering functions relevant to flood risk management, while producing additional economic, environmental, and/or social benefits. Examples include beaches and dunes; vegetated environments such as salt marshes, freshwater wetlands and fluvial flood plains, and seagrass beds; coral and oyster reefs, barrier islands and others. NNBFs may occur naturally or be engineered, constructed and/or restored to mimic natural conditions.

Preempted area is the same meaning as Article IV, Sec. 7-82(d).

Public interest determination an analysis that balances criteria for a determination on whether a seawall/bulkhead tidal flood barrier project is not contrary to the public interest.

Public nuisance a condition injurious to the public health or safety of the community or a neighborhood, or injurious to any considerable number of persons, or a condition that

obstructs the free passage or use, in the customary manner, of any public right-of-way or adversely impacts the operation of public infrastructure.

Revetments structures usually made of large, loose, irregularly shaped stone or other material such as limerock or clean concrete rubble and have a specified slope on the waterward face. Revetments are constructed directly on the shoreline on or around the Mean High Water Line.

Rip Rap/Armor Stone generally rounded, limestone or granite that is placed on a slope to interlock and dissipate wave energy. Rip rap is effective at retaining sediment when used in conjunction with geotextile fabric.

Sea level rise projections the projected rise in water level for the Gulf of Mexico without the influence of a storm. Sea level rise projections are defined by the State of Florida in Section 380.093, F.S. to include National Oceanic and Atmospheric Administration 2022 tech report scenarios for Intermediate Low and Intermediate High for 2040 and 2070. Sea level rise projections will be updated approximately every five (5) years, based on updated information produced by the National Oceanic and Atmospheric Administration, the National Climate Assessment, the Florida Flood Hub and other appropriate sources predicting future flood risk.

Seawall a vertical or near-vertical, substantially impermeable structure typically made of concrete, vinyl or steel, that provides shoreline protection from waves while retaining upland soils. The elevation of the top of a seawall must comply with the current minimum finished elevation requirements in the Code as set by the Department of _____ [insert local government building department here] to ensure protection of adjacent property, public right-of-way or other public infrastructure from flooding associated with currently realized and expected future sea level rise.

Seawall Enhancement Project work performed in conjunction with an existing seawall/bulkhead which cannot be removed due to requirements of the immediately adjacent upland infrastructure. Enhancement projects improve water quality, increase soil retention, provide habitat and reduce wave energy impacts to the seawall. Examples of enhancements include installing vegetation, planter tubes and riprap at the wall base to prevent scour.

Seawall height standards the height of seawall structures as prescribed in this Article or by a local building code represented in NAVD 88 or a subsequent vertical datum. Seawall height standards shall incorporate sea level rise projections, seasonal tidal fluctuations and other factors influencing water levels that should be considered for protecting shorelines and property from future flood risk by the year 2070. The elevation of the top of a seawall, bulkhead cap or other protection must comply with the current minimum finished elevation of [undetermined] feet NAVD 88 to ensure protection of adjacent property, public right-of-way or other public infrastructure from flooding associated with currently realized and expected future sea level rise.

Shoreline means a tidally influenced area where land meets water.

Shoreline modification structures or actions that permanently change the physical configuration or quality of the shoreline, particularly at the point where upland areas and tidal waters meet.

Shoreline type the state of the shoreline in terms of environmental or structural elements that presently exist or could exist in the future at that tidally influenced area.

Sill - a low-elevation, shore-parallel structure constructed of precast concrete units with proper pH balance, riprap, oyster bags, oyster domes, or similar material on the waterward side of a created tidal wetland fringe marsh. A sill is typically constructed below the Mean High Water Line.

Storm surge the abnormal rise in the water elevation caused by a combination of effects from a storm including the atmospheric pressure changes, wind effects, the Earth's rotation, shallow water depth and rainfall.

Substantial improvement any repair, reconstruction, rehabilitation, alteration, addition, or other improvement of a building or structure, the cost of which equals or exceeds fifty (50) percent of the market value of the building or structure before the improvement or repair is started. If the structure has incurred "substantial damage," any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either: [Also defined in Florida Building Code, Building, Section 202.]

(1) Any project for improvement of a building required to correct existing health, sanitary, or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions.

(2) Any alteration of a historic structure provided the alteration will not preclude the structure's continued designation as a historic structure.

Substantially impermeable means any shoreline protection constructed, repaired, or reconstructed pursuant to this Section, in a manner that prevents groundwater on the landward side of the structure from being affected by tidal waters on the seaward side of the wall.

Tidal datum a standard elevation defined by measurement of a certain phase of the tide over long time periods. Tidal datums are used as references to measure local water levels and should not be extended into areas having differing oceanographic characteristics without substantiating measurements. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. Tidal datums are also the basis for

establishing privately owned land, state owned land, territorial sea, exclusive economic zone, and high seas boundaries.

Tidal flood barrier means any structure or shoreline feature including, but not limited to, banks, berms, green-grey infrastructure, seawalls, seawall caps, NNBFs, upland stem walls, or other infrastructure that impedes tidal waters from flowing onto a subject and adjacent property or public right-of-way, and located within or along a tidally influenced area.

Tidal waters mean any water that alternately rises and falls in a predictable and measurable rhythm or cycle due to the gravitational attraction of the moon and sun, including seasonal tide events such as King Tides. Extreme tidal elevation changes caused by a storm event (i.e. storm surge) are not to be used as a determining factor of whether or not an existing shoreline protection structure is in violation of the _____'s maintenance requirements.

Tidally influenced area means the real property adjacent to, or affected by, a body of water with water level changes in response to the daily tide.

Toe scour – loss of soil or erosion at the outside toe base of a seawall, breakwater or revetment due to wave action, overflowing flood waters or currents. If the issue is not addressed the area of influence may grow to the point the foundational base is damaged or structural stability is affected.

C. Terms Beneficial to Define for Flood Prevention

Bio-swale or vegetated swale is a form of bioretention used to partially treat water quality, attenuated flooding potential and convey stormwater away from critical infrastructure. These systems are linear, with length to width dimensions much greater than the more typical 2:1 applied to bioretention cells. (Clark)

Existing Grade is the elevation (measured from sea level) of the land before any grading takes place. (Law Insider)

Finished Grade is the final grade elevation (measured from sea level) per approved plans. (Law Insider)

Flood walls are a concrete or steel wall, constructed along the banks of a stream to prevent floodwaters from reaching the area behind the structure. (ACOE)

Rain gardens are less engineered than bioretention areas. Rain gardens are small, shallow, sunken areas with plants that collect stormwater runoff and filter it through a mixture of soil, sand, or gravel. (EPA)

Retaining wall means a structure constructed to hold back or support an earthen bank. (Lake Clarke Shores)

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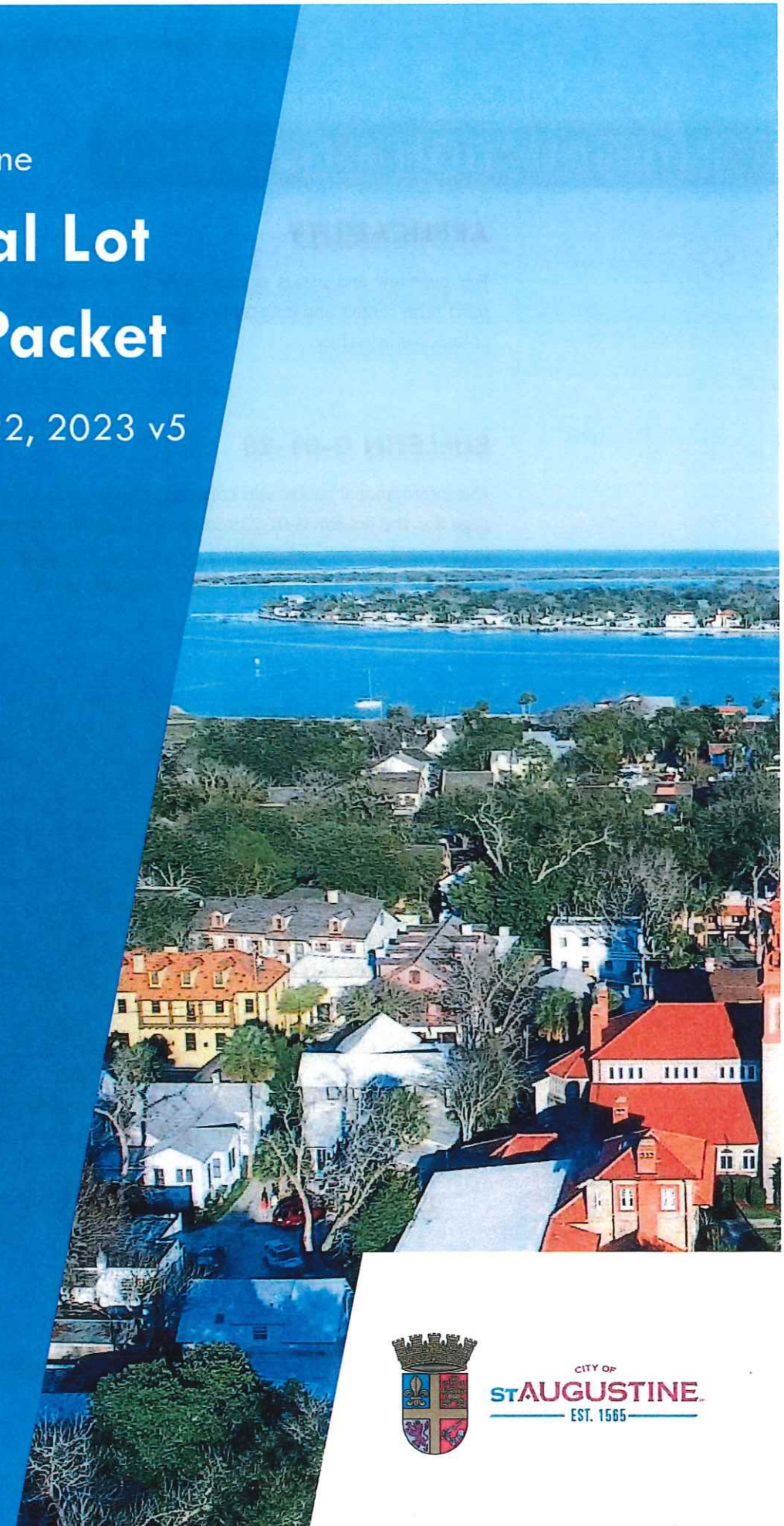
Lot Grading Plan Information

City of St. Augustine

Residential Lot Grading Packet

FINAL February 22, 2023 v5



CITY OF ST AUGUSTINE EST. 1565

INTRODUCTION & OVERVIEW

APPLICABILITY

This overview and packet is specifically for single family or duplex residential structures (inclusive of short term rentals and long term residences) and increases of 500 square feet or more of lot coverage or impervious surface.

BULLETIN G-01-23

This informational packet was created in response to Bulletin G-01-23. The full bulletin can be read on page 4 in the Bulletin G-01-23 section. The bulletin's main concern is ensuring stormwater impact from future residential development is respectful of existing development. To achieve this, the city and applicants need to be able to clearly designate (a) the work to be completed and (b) its impacts to neighboring properties.

PACKET CONTENTS

This packet includes the following:

COVER IMAGE: Accessed through Shutterstock. Royalty-free stock photo ID: 388981021. Licensed for use by Marquis Latimer + Halback, Inc. for web and limited print distribution.

GOALS

GOAL #1 PROTECT

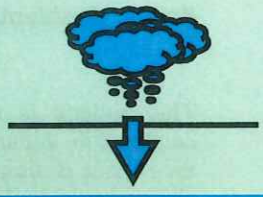
Protect older homes from the flooding impacts of newer homes.

GOAL #2 MAINTAIN

Consider use of building techniques which do not require land filling for new construction.

GOAL #3 RECHARGE

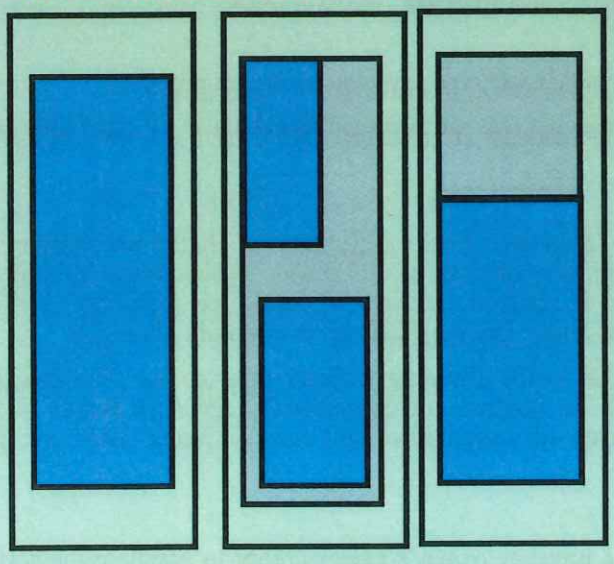
Limit amount of impervious surface area on residential lots.



KEYPOINTS

70%

IMPERVIOUS SURFACE RATIO



10 FEET

PROVIDE SPOT ELEVATIONS OFFSET 10 FEET ON BOTH SIDES OF THE PROPERTY LINE.

PLACE SPOT ELEVATIONS ON A 25 FOOT GRID ACROSS PROPERTY.

SEE EXHIBITS B AND C.

February 8, 2023

Bulletin G-01-23

To: Building Permit Applicants

From: Richard Schauland, CBO, CFM, Building Official

Re: Residential Lot Grading Plan

This bulletin is to inform building permit applicants for residential structures of the requirement of additional construction documents. These additional documents are intended to ensure that the proposed construction complies with the Florida Building Code, Residential, Section R401.3 – Drainage. Applicants will have to provide a lot grading plan for all residential building permits for new single-family residences, an increase of 500 square feet or more of lot coverage or impervious surface, and for all Floodplain Management Permits.

Over the years, residential property owners have brought in fill to elevate their property to mitigate flood damage. This practice has caused flooding onto neighboring properties. Section R401.3 requires surface drainage to be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard. The lot grading plan and approval process are being implemented to ensure that the code is followed, which will help alleviate the flooding onto neighboring properties that is caused by normal rain events.

This new requirement will be implemented on or after January 1, 2024. If an application is submitted on or after this date without the lot grading plan, the application will not be accepted, and the applicant will be notified as to what is needed.

The requirements for the lot grading plan are:

1. Shall have spot elevations, including all roofed areas and impervious surfaces. This includes the site elevations on neighboring properties 10 feet from the boundaries of the subject property. Spot elevations shall be included in the boundary and topographic survey prepared by a Professional Land Surveyor.
2. Shall show existing and proposed ground elevations.
3. Shall show that all stormwaters will not be directed to or add impact onto any adjacent private property.
4. The grading plan must demonstrate that existing drainage patterns are managed according to all applicable legal requirements.

The lot grading plan will be reviewed and approved by the City Public Works Department. If, during the planning and design phase, it is determined that grading is not sufficient or acceptable, the use of gutters, swales, retaining walls or low impact development techniques can be used to divert or manage rainwater on site. These techniques shall be shown on the lot grading plan and will have to be approved by the Building Official (Floodplain Manager).

A post development lot grading plan shall be submitted to the Building Official prior to the final building inspection. The post development lot grading plan will be verified and inspected by the City Public Works Department. The Certificate of Occupancy or Certificate of Completion will not be issued until the post development lot grading plan has been approved.

NOTE: Once the lot grading has been approved, it is the property owner's responsibility to maintain the surface grading in perpetuity.

Applicant Name	
Applicant Phone Number	
Property Owner Name	
Property Owner Phone Number	
Site Parcel No.	
Site Address	

Please also refer to Bulletin G-01-23 issued by the Planning and Building Department.

Pursuant to Bulletin G-01-23, applicants will have to provide a lot grading plan for all residential building permits that will produce an increase of 500 square feet or more of impervious surface and for all Floodplain Management Permits.

Over the years, residential property owners have brought in fill to elevate their property to mitigate flood damage. This practice has caused flooding onto neighboring properties. Section R401.3 requires surface drainage to be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard. The lot grading plan and approval process are being implemented to ensure that the code is followed, which will help alleviate the flooding onto neighboring properties that is caused by normal rain events.

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General questions related to the City permitting, review, approval, construction, and acceptance process should be directed to the Planning and Building Department at (904) 825-1060. Technical questions related to the lot drainage and grading plans should be addressed to Jonathan C. Foster, P.E., Development Supervisor at (904) 209-4273 or jfoster@citystaug.com.

PLAN CHECKLIST

Submittal information and plans should include, but shall not be limited to, the following (examples are provided in Exhibits A, B, and C):

⇨ A **boundary and topographic survey** shall be submitted as prepared by **a registered professional surveyor**. The survey should include at a minimum:

- [X] **Property line.**
- [X] **Spot elevations of the existing parcel** in question—shown on a 25' grid.
- [X] **Spot elevations on all adjacent properties - 10-feet** from the boundaries of the subject property at approximately 25-foot intervals.
- [X] **Limits of structure(s)** with **Finish Floor Elevation (FFE) in NAVD88**.
- [X] Limits of **impervious surfaces** (patios, pool decks, driveways, etc).
- [X] **Jurisdictional lines** (wetlands or easements).

[X] The **proposed grading plan** shall be drawn to a legible conventional engineering scale (1-inch = 20 feet, smallest scale accepted) using the site plan and survey as a base map.

[X] Show that all **stormwater will not be directed to or add impact onto any adjacent private property**.

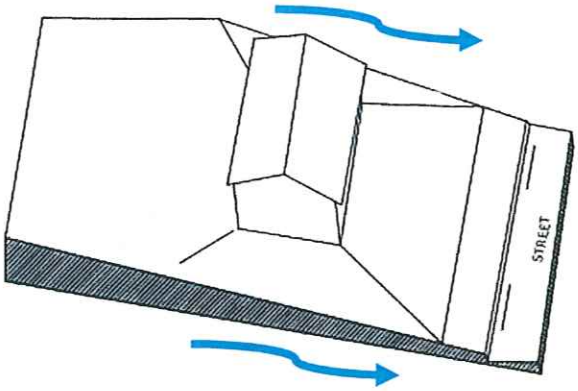
[X] The grading plan must (a) **establish positive drainage** and (b) **not re-direct existing runoff** to an adjacent property unless an existing drainage easement or property owner agreement is provided.

⇨ **The proposed grading plan** shall include, at a minimum, the following features:

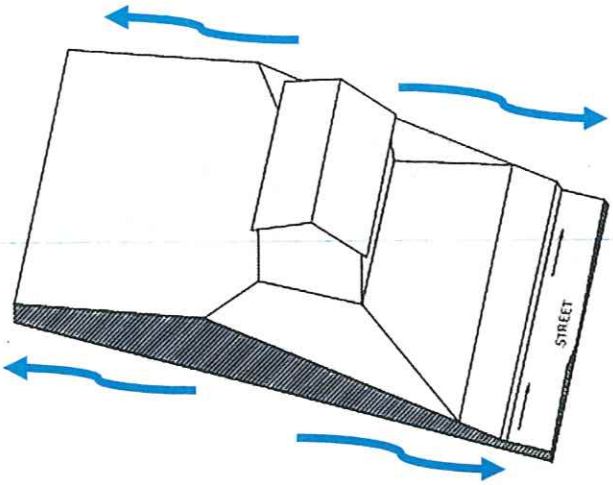
- [X] Provide a **lot drainage plan** with the **finish floor elevation (FFE)** of the building in NAVD 88, along with **flow arrows and spot elevations** of anticipated flow. In general, drainage should be routed along the shortest practicable flow path to the street or other approved point of collection.
- [X] **Spot elevations**, including all roofed areas and impervious surfaces. This includes the **site elevations on neighboring properties** 10-feet from the boundaries of the subject property.
- [X] Show all **existing and proposed ground elevations for new features** (structures, docks, etc).
- [ ] Identify existing drainage features on the lot, adjacent lots and the streets, such as storm **inlets, storm drain pipes, culverts, swales, berms, walls etc.** within 10-feet of the property line.
- [X] **Lot dimensions** (length and width) for each side of the parcel.
- [X] **Identify streets**.
- [ ] Show **limits of fill**.
- [X] Label **proposed and existing buildings** – including distances from **property lines, zoning, setbacks, buffers** etc.
- [ ] Show **proposed impervious areas** with dimensions and square footage (walkways, driveways, sidewalks, garages, buildings, pools, etc.).
- [ ] Show **proposed Lot Grading Type (A, B, C)** as applicable. (See Exhibit A).
- [ ] Show appropriate **erosion control measures** (i.e. silt fence, filter socks, gutter buddies) to be used during construction to prevent impacts to adjacent properties and City infrastructure (streets, storm drains).
- [X] Show **FEMA flood zones**.
- [ ] Show any designed **Low Impact Development (LID) features**.

NOTE: Once the lot grading plan has been approved, it is the property owner's responsibility to maintain the surface grading in perpetuity. The City may, at any time, require maintenance on the surface grading if alterations result in surface drainage problems.

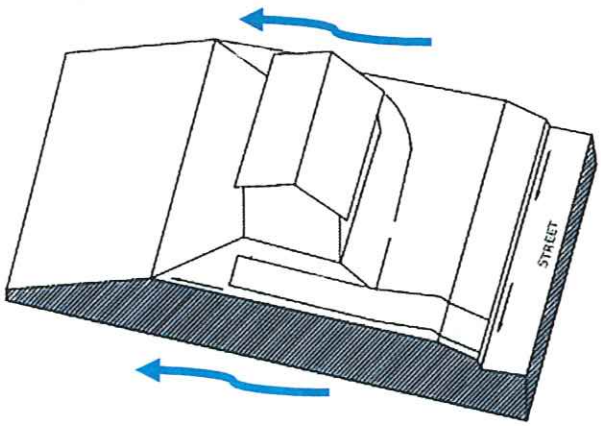
EXHIBIT A
TYPICAL LOT GRADING TYPE



TYPE A | ALL DRAINAGE TO STREET.



TYPE B | DRAINAGE TO STREET AND REAR OF PROPERTY.



TYPE C | ALL DRAINAGE TO REAR OF PROPERTY.

Image by others.

EXHIBIT B

EXAMPLE GRADING PLAN 1

IMPERVIOUS SURFACE RATIO WORKSHEET
(Method of Calculation)

IMPERVIOUS SURFACE - Any hard-surfaced, man-made area that does not readily absorb or retain water, including but not limited to building roofs, parking and driveway areas, sidewalks and paved recreational facilities.

IMPERVIOUS SURFACE RATIO (ISR) - The total area of impervious surfaces divided by the net area (excluding right-of-way) of the lot.

LOT AREA - The total horizontal area included within the lot lines of the lot. No public right-of-way or access easement for a public street or handle of a panhandle lot shall be included in the calculation of the lot area, nor shall the public right-of-way cross the lot area.

Property Address _____

Lot Area _____ square feet

Impervious Surfaces:

1. Existing building(s) footprint _____sq.ft.
2. Existing concrete/paver patios, driveways, walkways, etc. _____sq.ft.
3. Proposed roofed building(s) footprint _____sq.ft.
4. Proposed concrete/paver patios, driveways, walkways, etc. _____sq.ft.

Total Impervious Surfaces _____ sq.ft.

_____divided by _____ = _____

Total Impervious Surface | Lot Area | Impervious Surface Ratio %

I, _____ (Signature) certify that the calculations submitted above for the Impervious Surface Ratio are accurate and complete to the best of my knowledge.

Date _____

A | PROPERTY LINE

B | SETBACKS

Note: setbacks and/or yards vary per zoning; see appendix for residential zoning categories.

C | JURISDICTIONAL LINES

Note: typical examples may include wetlands, utility easements, or access easements.

D| STRUCTURES & FINISHED FLOOR ELEVATIONS

Note: include FFE of each structure at NAVD 88.

E | IMPERVIOUS SURFACES

F | EXISTING TREES

Note: Trees over 3" in diameter may require PZB approval and/or tree removal permit if being removed.

G | SPOT ELEVATIONS

Note: Spot Elevations to be included within 10' of boundaries both on existing and adjacent parcels.

H | DIRECTIONS OF FLOW

I | EXTENTS OF FILL

Note: Piers and/or stem walls may help limit impact

J | STORMWATER MANAGEMENT STRATEGIES

Note: See Stormwater, Resilience, and LID section (Page 10) for examples.

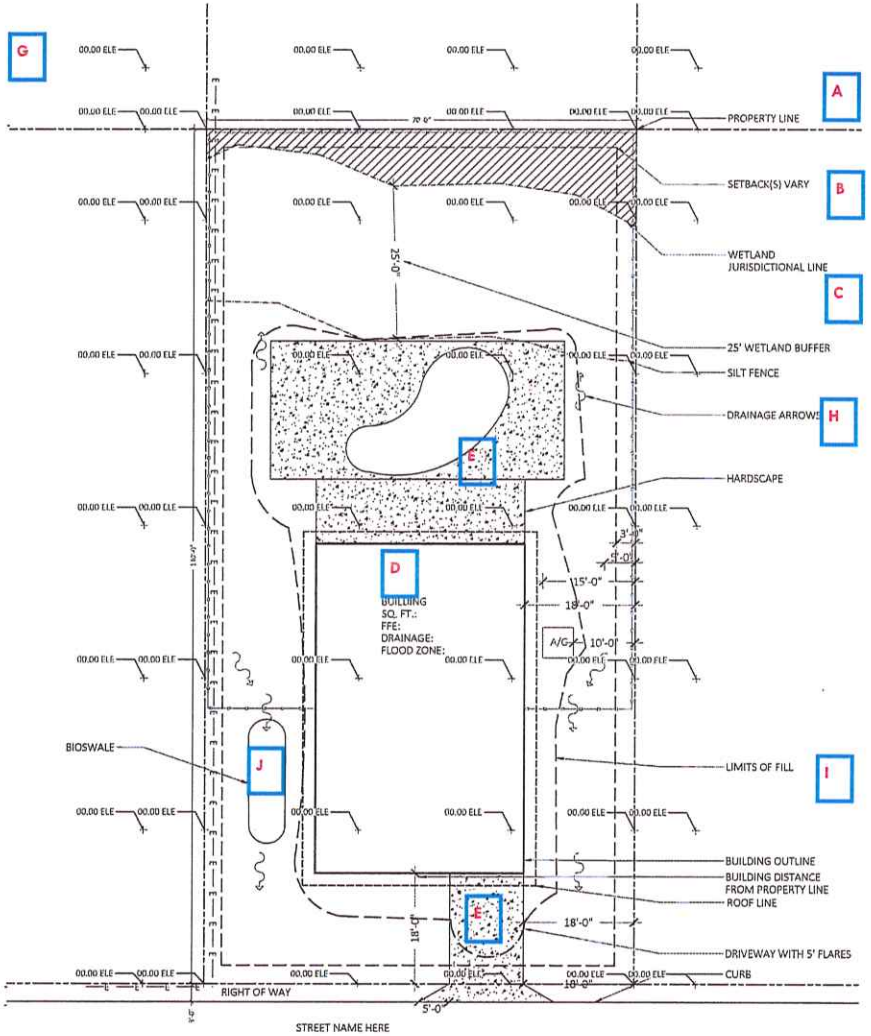


EXHIBIT C

EXAMPLE GRADING PLAN 2

IMPERVIOUS SURFACE RATIO WORKSHEET
(Method of Calculation)

IMPERVIOUS SURFACE - Any hard-surfaced, man-made area that does not readily absorb or retain water, including but not limited to building roofs, parking and driveway areas, sidewalks and paved recreational facilities.

IMPERVIOUS SURFACE RATIO (ISR) - The total area of impervious surfaces divided by the net area (excluding right-of-way) of the lot.

LOT AREA - The total horizontal area included within the lot lines of the lot. No public right-of-way or access easement for a public street or handle of a panhandle lot shall be included in the calculation of the lot area, nor shall the public right-of-way cross the lot area.

Property Address _____

Lot Area _____ square feet

Impervious Surfaces:

1. Existing building(s) footprint _____sq.ft.
2. Existing concrete/paver patios, driveways, walkways, etc. _____sq.ft.
3. Proposed roofed building(s) footprint _____sq.ft.
4. Proposed concrete/paver patios, driveways, walkways, etc. _____sq.ft.

Total Impervious Surfaces _____ sq.ft.

_____ divided by _____ = _____
Total Impervious Surface | Lot Area | Impervious Surface Ratio %

I, _____ (Signature) certify that the calculations submitted above for the Impervious Surface Ratio are accurate and complete to the best of my knowledge.

Date _____

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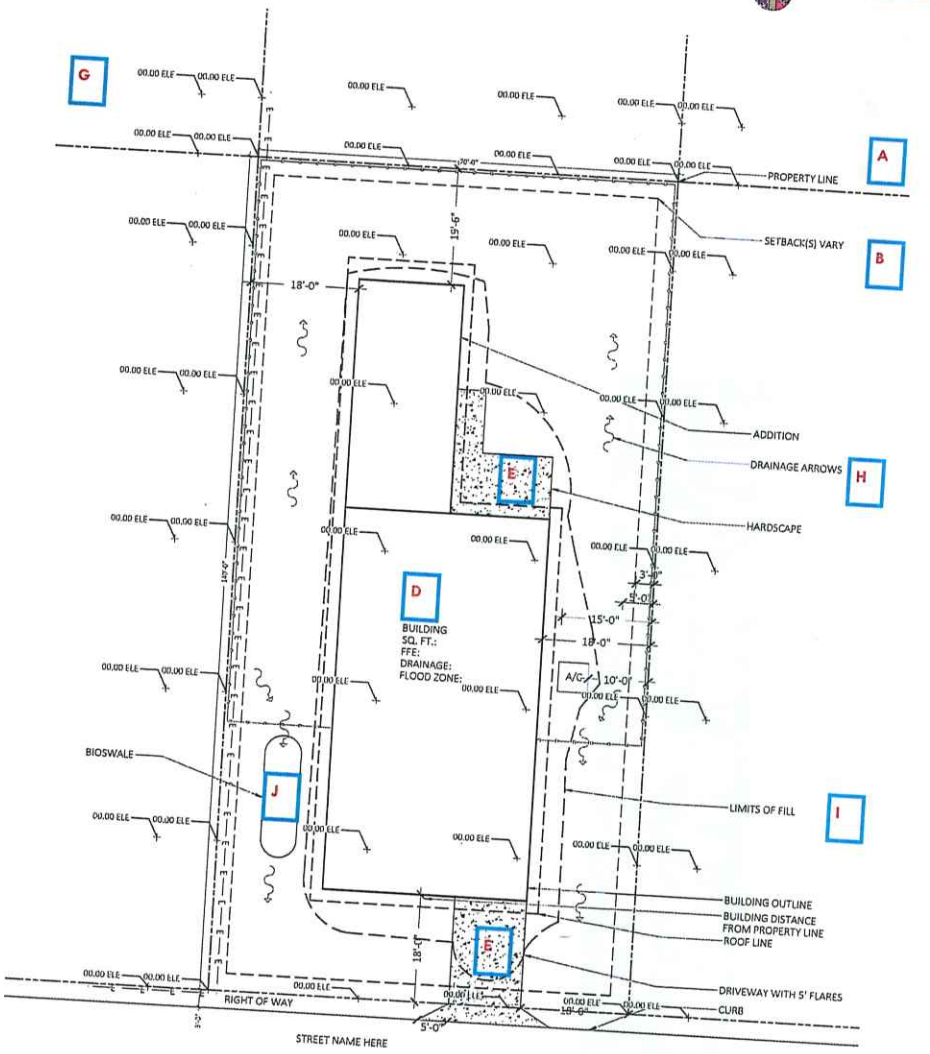


STORMWATER, RESILIENCE, AND LOW IMPACT DEVELOPMENT

STORMWATER DESIGN OVERVIEW

Stormwater is recommended to be incorporated into the overall design of the project as amenities. The goal of encouraging the use of these mechanisms is to reduce stormwater runoff, capture contaminants closer to the source and reduce the use of potable water for irrigation and grey water activities.

LOW IMPACT DEVELOPMENT (LID) STORMWATER TECHNIQUES

It is recommended that projects include **at least two of the following** low impact design concepts, which may be located anywhere on the project (including the front setback):

A. **Raised pier construction for homes** (allowing for movement of stormwater and additional infiltration area)

B. Rain water harvesting (rain barrels, underground cisterns, and similar to assist in water conservation)

C. Green roofs

D. Bio-swales

E. Rain gardens

F. **Pervious pavement** (pervious concrete, pervious pavers, and/or other pervious pavements)

Example of Rainwater harvesting and green roof.

Image from Unsplash and Shutterstock.

Example of rain garden and raised pier construction with porous skirting.

Image from Shutterstock and ML+H.

Examples of Stormwater Facility Design

Sources: The Urban Repor Green and Sustainable Services, LLC.

STREET WALL AS FLOOD PROTECTION

Masonry site walls with floodgates can provide flood protection. Image from ML+H.

1. It is recommended that the street wall be considered as part of flood protection to the site. When used in conjunction with neighboring walls and earthen berms, it is possible to create an initial barrier to storm surge and flooding.

2. Openings in the wall for pedestrian walkways and driveways can be closed during storm events by using temporary barriers.

STREET WALLS

1. Low block / masonry walls may be appropriate. Street walls are recommended to not exceed 36", but four (4) feet is the maximum per Code. Wall height should be measured from the lower elevation of the public sidewalk or final elevation of adjacent interior development.

2.Portions of the wall above 3 feet should not be more than 50% solid.

3. Street walls shall be constructed of brick or masonry. Fencing may be included.

4. When landscaping is provided between the wall and the sidewalk, the landscaping strip is recommended to be a minimum of two (2) feet wide.

A low site wall can help to provide flood protection. Also shown is an open "pier system" for the front porch. Image from ML+H.

FOUNDATION

The relationship of the building floor height to the surrounding context of the neighborhood is important to consider.

Raised Pier Foundations: There are multiple advantages to raising the foundation, including (a) opportunities for stormwater infiltration, (b) movement of storm surge through a site in hurricane events, and (c) cross ventilation.

Design recommendations should consider:

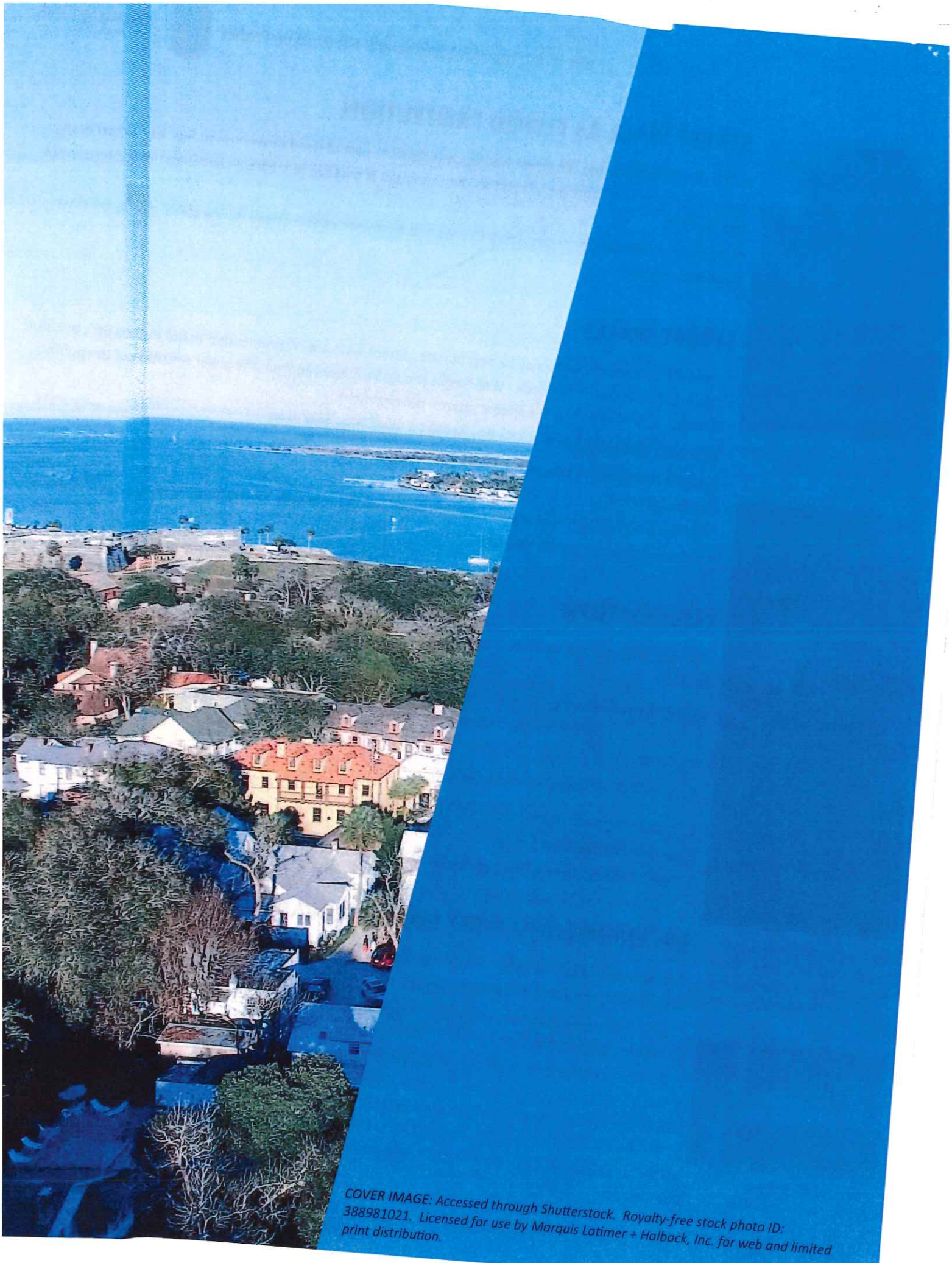
1. Brick, tabby or concrete block (with texture) piers.
2. Spaces between piers left open.
3. Lattice infill between piers is common.

Example of Raised Pier construction with porous skirting (lattice). Image from ML+H.

RECOMMENDED FIRST FLOOR ELEVATIONS

Homeowners may consider further elevating the first floor. General recommendations to keep architectural context of the homes include:

1. Take into consideration maximum heights of FEMA and City required minimum elevations 35' (conforming lot) and 30' (non conforming lot).
2. Do not raise the home more than 4' from existing grade.
3. When raising the home more than 4' from existing grade, consider bringing it up one floor by building a non-occupied space such as garages, storage, and similar under the structure. The inclusion of an exterio porch and first floor entry should be considered in lieu of open "stilt house" base.
4.The City encourages sensitivity to the neighborhood character and sense of place created by the streetscape.



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