

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

**USACE PLANNING TEAM PRESENTATION
JULY 2023**

**PLEASE MUTE YOUR PHONE AND COMPUTER
TO AVOID BACKGROUND DISRUPTIONS.**

WE WILL START PROMPTLY AT 1:05

Presented by:

Jason Harrah, Senior Project Manager (Jacksonville District, USACE)

Marty Durkin, Planning Technical Lead (Jacksonville District, USACE)

Jessica Beach, Chief Resiliency Officer (City of St. Augustine)





AGENDA



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- Opening Remarks
- Study Overview/Local Considerations
- Alternatives Overview
- G2CRM Model Setup
- Discipline Specific Study Updates
- Schedule Updates (90-Day Window)
- Upcoming Public Engagements
- Sponsor Remarks
- Agency Questions/Comments
- Public Comments
- Closing Remarks



Environmental
Justice (EJ)
Communities

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.

Local Considerations include...

1. Avoid or minimize adverse effects to cultural resources.
2. Consideration of local affordability.
3. Consider local responsibilities for technical operations and maintenance.
4. Avoid or minimize designs that do not conform to the city's historic character.
5. Avoid or minimize encroaching on navigational or recreational features.
6. Avoid environmental impacts.
7. Avoid or minimize impacts to community cohesion.





INITIAL ALTERNATIVES



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Measure Function

Initial Array of Alternatives

Wall/Levee/Dune features stop flooding at the back bay shoreline.

Surge Barrier/Gate features stop flooding before it gets into the back bay waters.

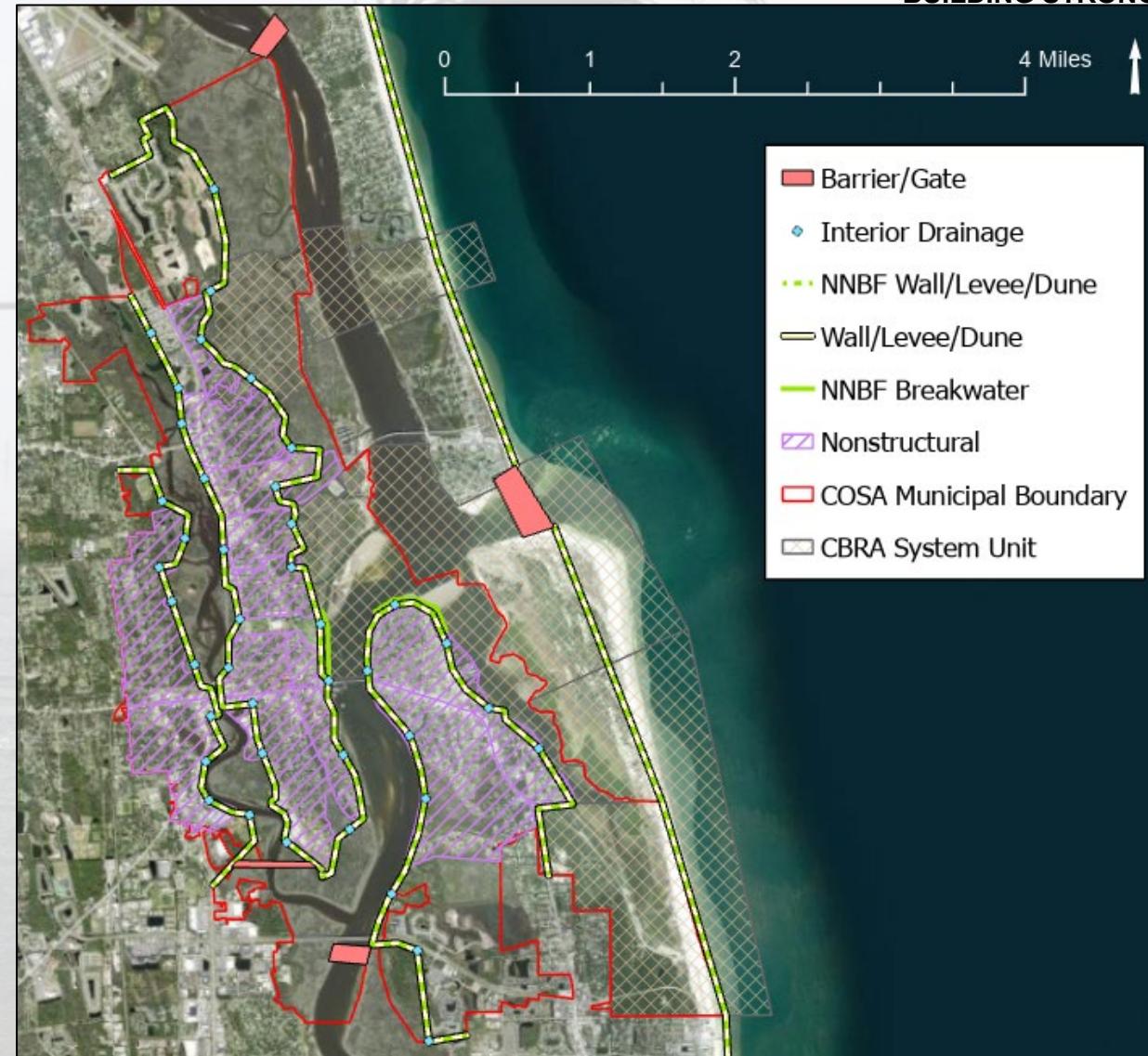
Interior Drainage features get flooding out of upland areas.

Nonstructural features reduce flood risk without directly effecting flooding processes.

Breakwaters/NNBFS can reduce wave energy before it gets to the back bay shoreline.

0. No Action

1. Wall/Levee with Interior Drainage Features & Breakwaters/NNBFS
2. Storm Surge Barrier at Inlet(s)/IWW with Wall/Levee/Dune tiebacks
3. San Sebastian River Flood Gate with Wall/Levee & Interior Drainage Features & Breakwaters/NNBFS
4. All Nonstructural
5. Wall/Levee with Interior Drainage Features & Breakwaters/NNBFS & Nonstructural
6. Storm Surge Barrier at Inlet(s)/IWW with Wall/Levee/Dune tiebacks & Nonstructural





G2CRM MODEL SETUP

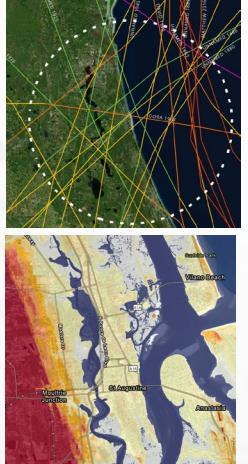
ENGINEERING AND ECONOMIC MODELS WORKING TOGETHER



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The **Generation II Coastal Risk Model (G2CRM)** is a probabilistic life-cycle model used to evaluate the interaction between the driving forces (storms) and economic assets (infrastructure) over the 50-year period of analysis:

ENGINEERING



Database of storms, along with tide, waves, and sea level change

Existing physical conditions (shorelines, ground elevations, first floor elevations of structures)



Spatial location of critical infrastructure, structures, vehicles with estimated values
Image: <https://staug.maps.arcgis.com/>



Array of Proposed Alternatives

CONCEPTUAL MODELING FRAMEWORK

PROBABILISTIC LIFE-CYCLE MODEL – G2CRM

Economic Damages:
Without Project Alternative &
With Project Alternatives

Final Array of Alternatives

Tentatively Selected Plan



DISCIPLINE SPECIFIC UPDATES/ACTIONS



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- **Planning Technical Lead:** Marty Durkin
- **Engineering Technical Lead:** Patrick Snyder
- **Environmental Lead:** Darren Pecora
- **Economics Lead:** Vongmony Var
- **Cultural Resources Lead:** Zuzana Chovanec
- **Real Estate Lead:** Chris Bukolt
- **Office of Counsel:** Katie Gwin



PATH FORWARD

90-DAY SCHEDULE WINDOW



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TASK	START	END
Initial Flood Driver Screening (Scope Decision Point)	3/10/2023	5/17/2023
Coordination for Collecting and Compiling Data for Inventory	3/10/2023	10/27/2023
Refined Existing Data Inventory & Analysis / New Data Collection & Analysis	3/10/2023	10/27/2023
Inventory of Existing & Future Cultural Resources with Mapping	3/13/2023	4/5/2023
Inventory of Existing & Future Environmental Resources with Mapping	3/13/2023	4/5/2023
Inventory of Existing & Future Economic Resources with Mapping	3/13/2023	4/5/2023
Inventory of Existing & Future Flooding with Mapping (just 4-8 flood scenarios to be used for the AMM)	3/13/2023	4/5/2023
Inventory of Existing Geological Conditions with Mapping	3/13/2023	4/5/2023
Inventory of Existing & Future Local Projects with Mapping	3/13/2023	4/5/2023
Initial Entries into Risk Register	3/13/2023	4/5/2023
Review Plan (Complete Draft) Sent to PCX-CSRM for Review & Endorsement	3/13/2023	4/7/2023
Coastal Barrier Resources Act (CBRA) Coordination w/USFWS	3/13/2023	4/24/2023
GIS & Inventory of Baseline Structure Elevations & Properties Built Prior to 1978 (Cultural, Real Estate, GIS)	3/13/2023	11/20/2023
Identify Initial Area of Potential Effect (APE)	3/14/2023	4/24/2023
SAJ Vertical Team Alignment Memo (VTAM) to South Atlantic Division (SAD)	3/20/2023	4/12/2023
Pre-IPR Discipline Specific VT Coordination Meetings As Needed	3/27/2023	4/12/2023
Web Map Viewer	4/3/2023	5/1/2023
Parametric Costs for Initial Array of Alternatives	4/5/2023	4/24/2023
Real Estate Considerations for Initial Array of Alternatives	4/5/2023	4/24/2023
Environmental Resource Considerations for Initial Array of Alternatives	4/5/2023	4/24/2023
AMM Read Ahead Prep & Presentation Dry Runs	4/5/2023	4/28/2023
Vertical Team (VT) IPR #1 Status Update	4/12/2023	4/12/2023
Pre-AMM Discipline Specific VT Coordination Meetings As Needed	4/17/2023	4/28/2023
Data Gathering and Digital Elevation Model (DEM) creation	4/17/2023	5/30/2023
Develop Environmental Resources Subgroup	4/24/2023	5/26/2023
Develop Cultural Resources Subgroup	4/24/2023	5/26/2023
AMM Milestone Meeting	5/1/2023	5/1/2023

TASK	START	END
Complete/Review/Send SAD VTAM (to cover 3x3x3 exception package) to Headquarters (HQ)	5/2/2023	5/9/2023
TENTATIVELY SELECTED PLAN (TSP) PHASE	5/9/2023	2/2/2027
TSP Phase Supervisor Support	5/9/2023	2/2/2027
General PDT Coordination & Participation	5/9/2023	2/2/2027
Neighborhood Outreach Meetings	5/9/2023	2/2/2027
Ongoing Draft Report Writing and Preparation to have complete draft report and appendices by the TSP.	5/9/2023	2/2/2027
Environmental Surveys	5/9/2023	2/2/2027
GIS Support (Web Mapper, Figures, Story Map, etc) through TSP	5/9/2023	2/2/2027
Future Without-Project (FWOP) Hydrologic Engineering Center's River Analysis System (HEC RAS) Modeling for Generation 2 Coastal Risk Model (G2CRM) Hydrographs	5/17/2023	10/5/2023
Characterize Systems Protective System Elements (PSEs)	5/17/2023	10/19/2023
Coordinate with H&H as needed to characterize storms and any other H&H data	5/17/2023	10/27/2023
Delineate Study Area into Model Areas	5/17/2023	10/27/2023
Develop Modeling Strategy for Comprehensive Benefits	5/17/2023	10/27/2023
Engineering Inputs for G2CRM (including Coastal Hazards System (CHS) based storm suite from Engineer Research and Development Center (ERDC))	5/17/2023	12/5/2023
Characterize Assets	8/1/2023	11/17/2023
Develop First Floor Elevations	8/14/2023	11/17/2023
Develop/Verify/Update Structure & Content Values	9/5/2023	11/17/2023
Develop/ Verify Damage Functions	9/11/2023	11/17/2023
Develop/ Verify Damage Function Matrix	9/18/2023	11/17/2023
Public Input/Discussion Session #1	9/27/2023	9/27/2023
Populate G2CRM Model Representation	10/2/2023	11/17/2023



UPCOMING PUBLIC ENGAGEMENT



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Dates	Events
August 17 th , 2023	Monthly Planning Webinar
September 21 st , 2023	Monthly Planning Webinar
Late-September 2023	Public Workshop (Date & Location TBD)
October 19 th , 2023	Monthly Planning Webinar
November 16 th , 2023	Monthly Planning Webinar
December 21 st , 2023	Monthly Planning Webinar



CLOSING REMARKS/QUESTIONS



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- Sponsor Remarks
- Federal Agency Questions/Comments
- State Agency Questions/Comments
- Local Agency Questions/Comments
- Public Comments