



Virtual Public Workshop #1 - Tuesday, September 20, 2022

# Introduction from Secretary Nicole Majeski



**SRT COASTAL CORRIDOR RESILIENCY STUDY**

# Introductions

## ■ Presenters:

- DelDOT recently formed Division of Transportation Resiliency & Sustainability
  - Jim Pappas, P.E. – Director
  - Stephanie Johnson – Assistant Director
- AECOM – Planning and Design Consultant
  - Joe Hofstee, P.E. – Project Manager
  - Kira Murphy – Marine Structural Engineer
  - Marge Quinn – Planning Manager
- Remline – Public Outreach Consultant
  - Danielle Lloyd – Outreach and Engagement Director



# Agenda

- Expectations for the Workshop and the Study
- Study's Purpose and Need
- Study Areas
- Coastal Model
- Flood Mitigation/Protection
- Evaluation Criteria
- Path Forward
- How to Stay Involved
- Questions and Answers



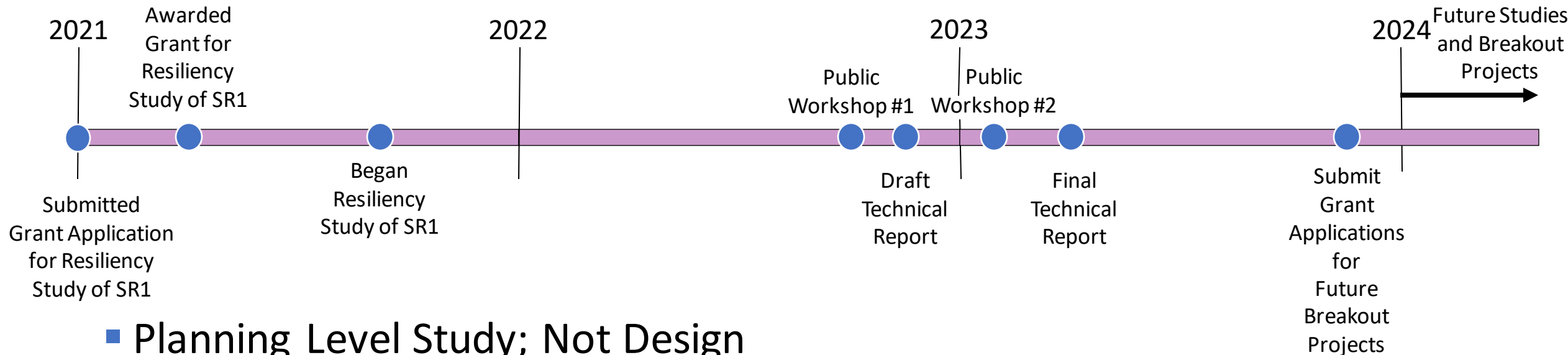
# Workshop Expectations

- First Workshop – there will be more to follow
- Why Are We Here?
  - Kick-off the study
  - Begin public engagement
  - Start conversations
  - Understand community needs
- How to Provide Comments or Ask Questions?
  - Tonight, use the meeting's Q&A function, anytime during the presentation and during the question-and-answer period, to offer comments or ask a question
  - Anytime, fill-out a comment form on the project's website <https://de.gov/sr1coastalcorridor>
  - Anytime, send an e-mail [dotpublic@delaware.gov](mailto:dotpublic@delaware.gov)



# Study Expectations

## ■ SR1 Coastal Corridor Resiliency Study Timeline



- Planning Level Study; Not Design
- Future Projects will be identified as part of the Study



**SR1 COASTAL CORRIDOR RESILIENCY STUDY**

# Purpose and Need

- What is the purpose of the Study?
  - Establish existing and future conditions.
  - Identify a range of potential mitigation alternatives.
  - Establish criteria to evaluate the potential mitigation alternatives.
  - Evaluate the conceptual mitigation alternatives.
  - Work with public and stakeholders, determine preferred alternatives.



# Purpose and Need

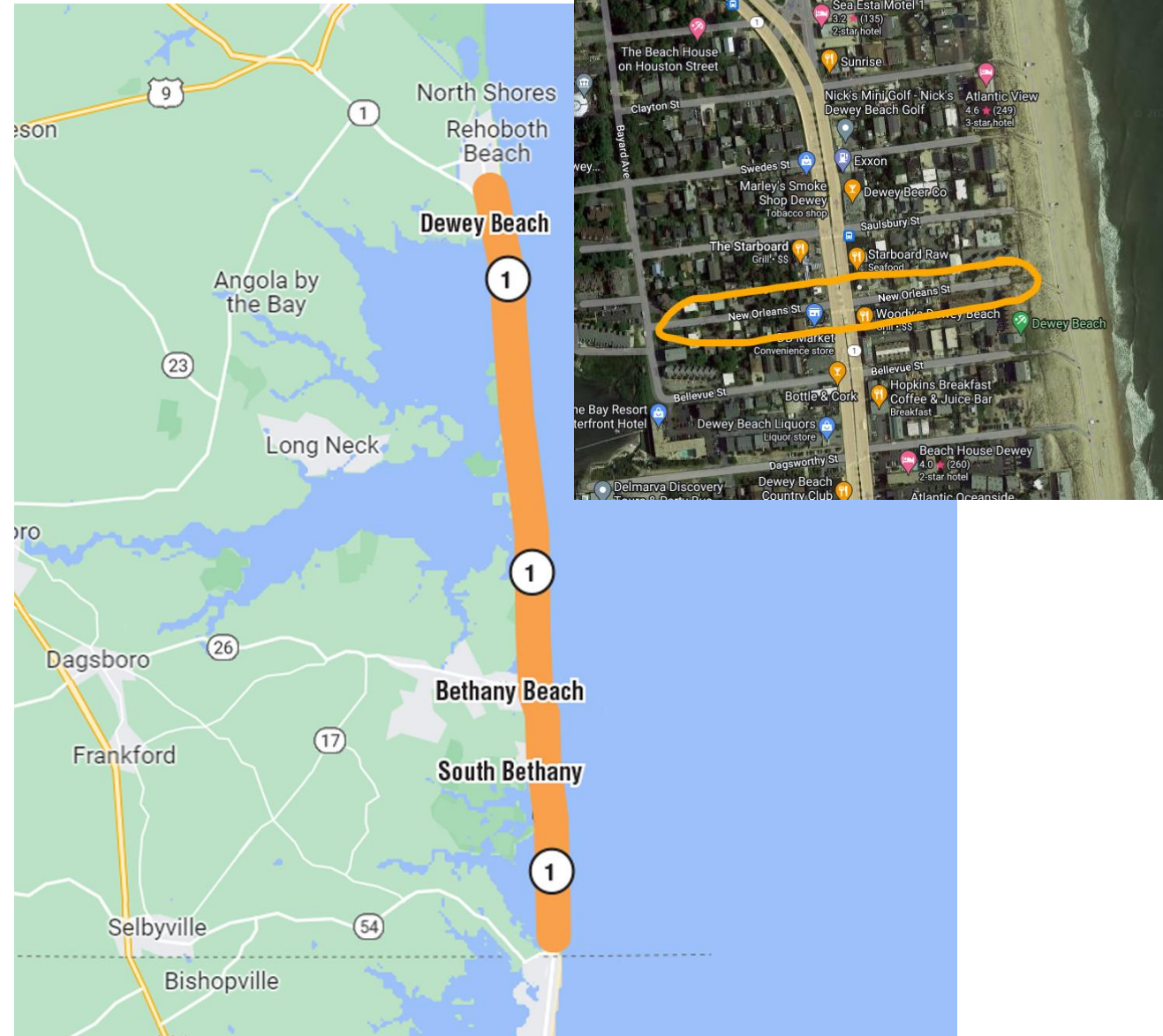
- Why is this Study needed?
  - SR1 is the Primary Evacuation Route for Bethany Beach, South Bethany Beach, Fenwick Island, and Ocean City Maryland.
  - Closure of SR1 between Indian River Bridge and Dewey Beach results in a 18 mile detour.
  - Improve the overall resiliency of SR1 to reduce maintenance cost and ensure a direct route of travel.
  - Supports the 2016 Multi-Jurisdictional All Hazard Mitigation Plan and the 2018 State of Delaware All Hazards Mitigation Plan.
  - SR1 is vital to the economic well-being of the area and the State as a whole.
  - SR1 provides the link for those looking to visit the Delaware beaches and provides year-round travelers and residents ease of access to coastal communities.



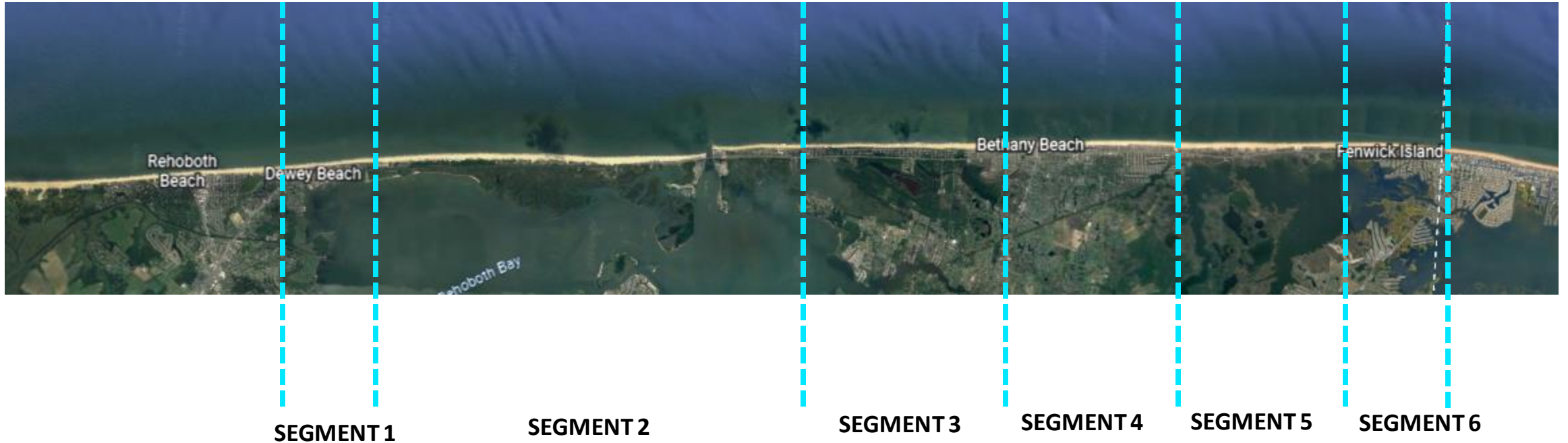


# Study Area

- Sixteen (16) miles of State Route 1 (SR1) - Coastal Highway
- Northern Limits
  - Dewey Beach – New Orleans Street
- Southern Limits
  - Maryland State Line



# Study Area – Proposed Segments



- Six (6) Segments – based on surrounding terrain conditions



# Study Area – Dewey Beach to North Bethany Beach



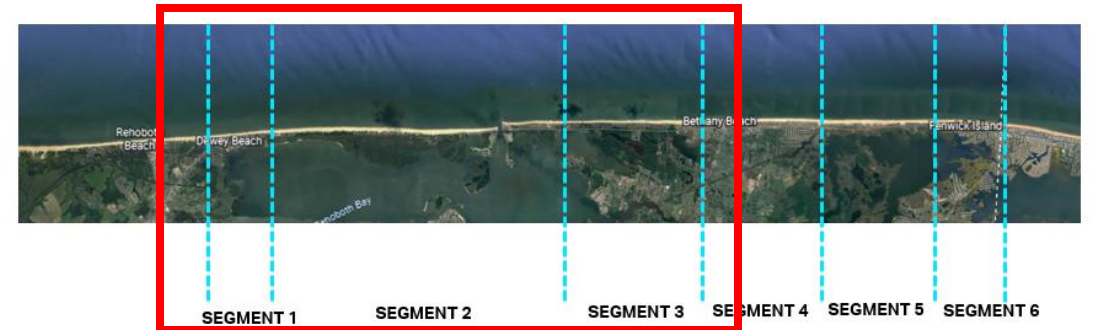
SEGMENT 1



SEGMENT 2



SEGMENT 3



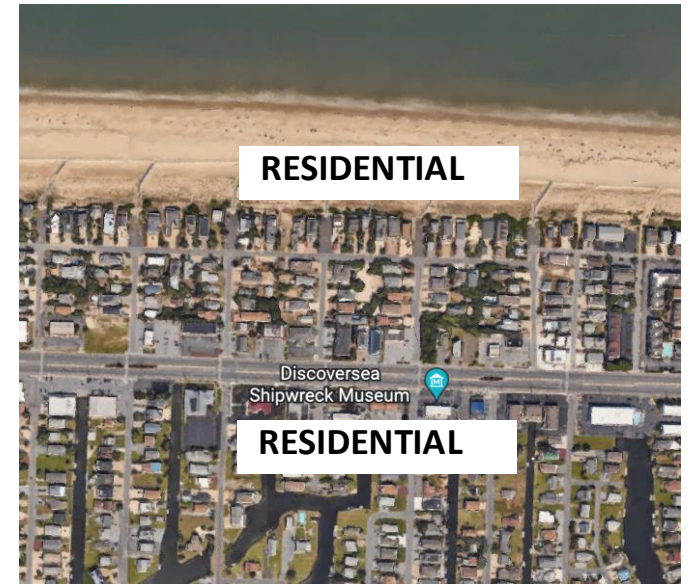
# Study Area – Bethany Beach to Maryland



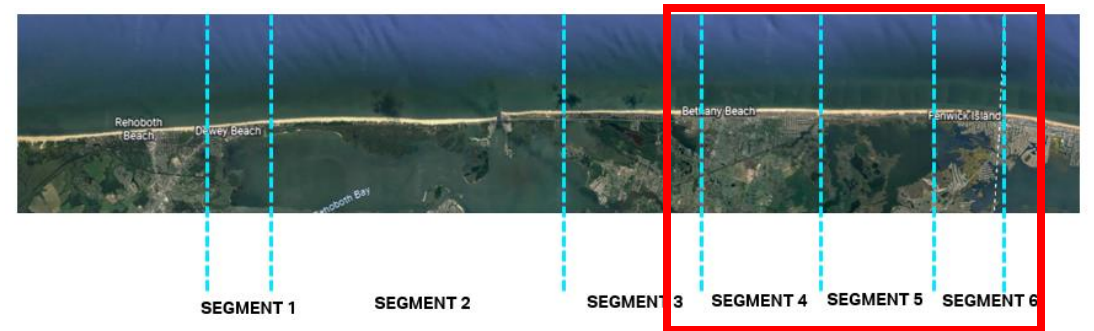
SEGMENT 4



SEGMENT 5

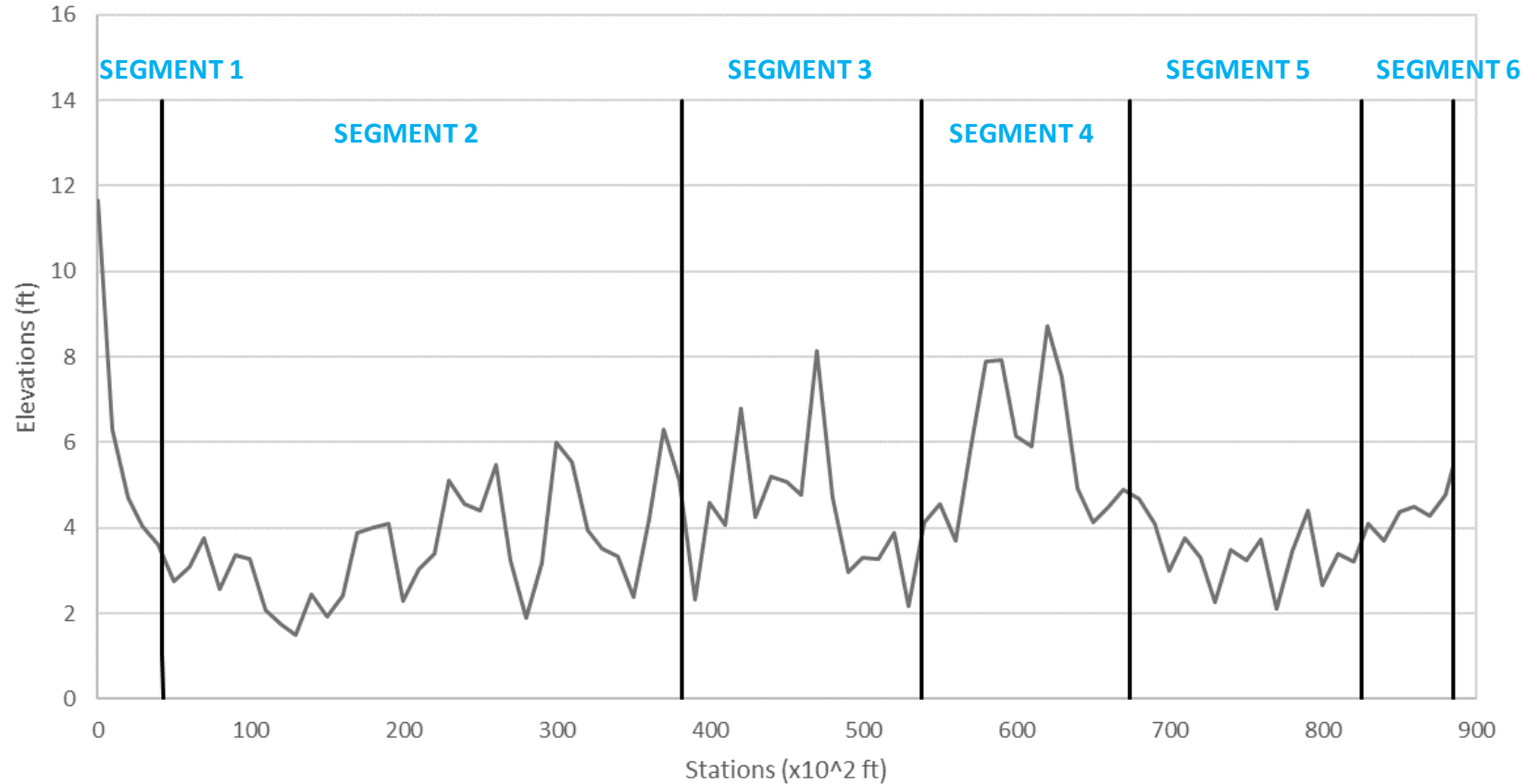


SEGMENT 6



# Study Area – Existing Elevations

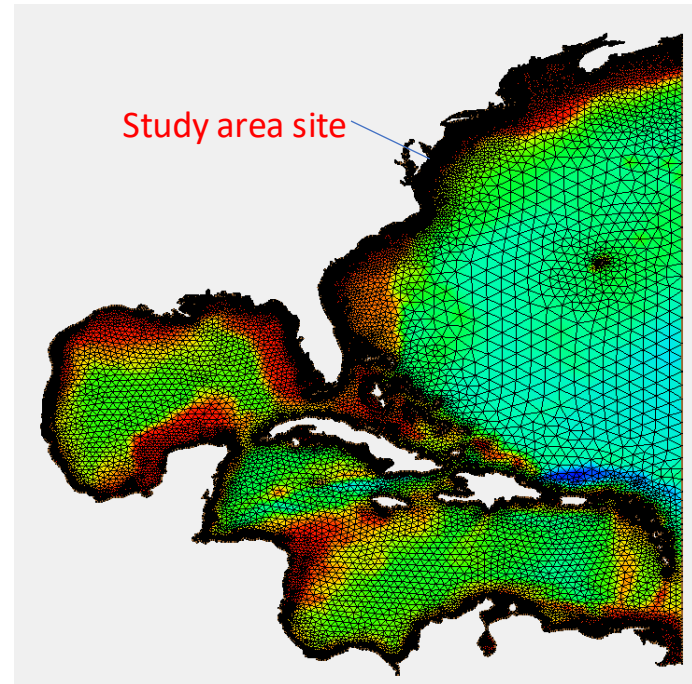
SR1 Bayside Average Grade



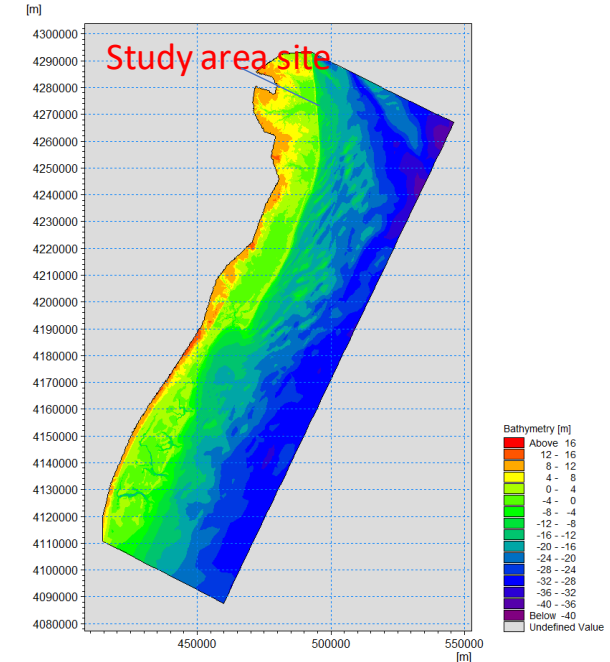
NOTE: ELEVATIONS ARE PRELIMINARY AND BASED ON LIDAR DATA

# Coastal Models

- Will establish existing and future conditions
  - Regional and Local Model
  - Sediment Transport Model
- Analyze bayside and oceanside



Domain of Regional Model



Domain of Local Model



# Coastal Model – Regional Model

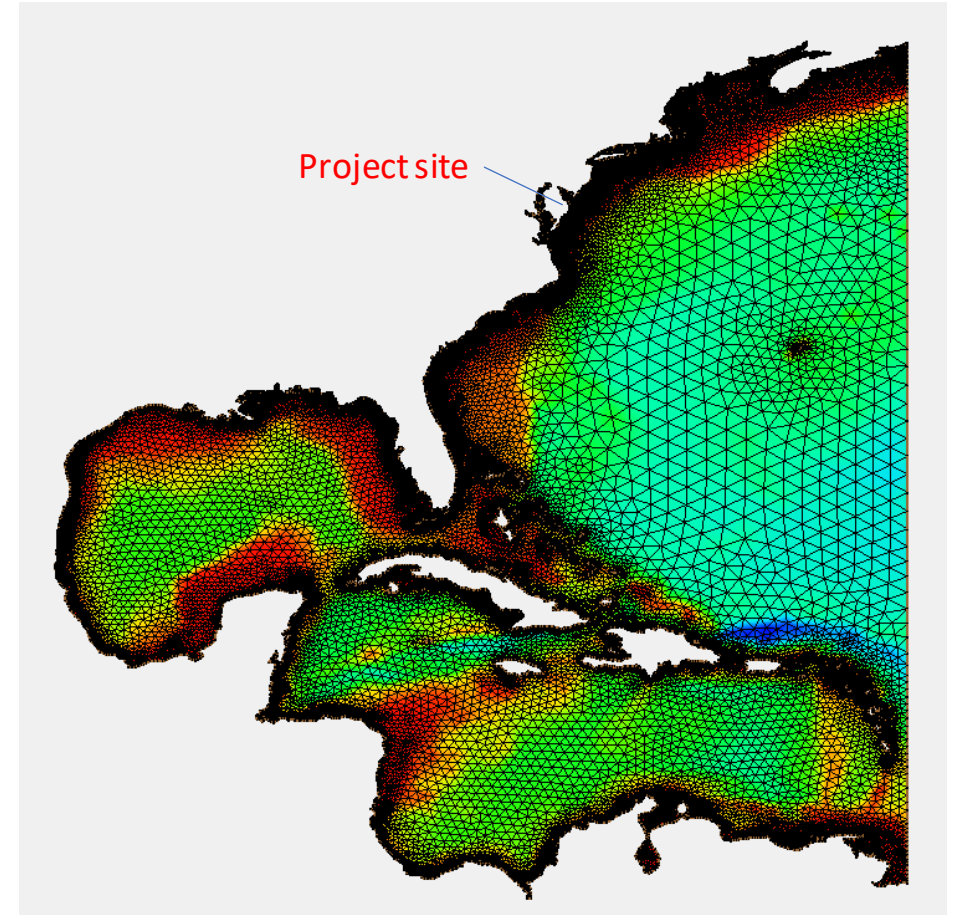
Regional Model is needed to provide information to the local Model

Input:

- Hurricane best track data/synthetic to generate cyclone.
- Tidal information
- Other spatial attributes.

Outputs:

- Water level
- Wave information



Regional Model



# Coastal Model – Local Model

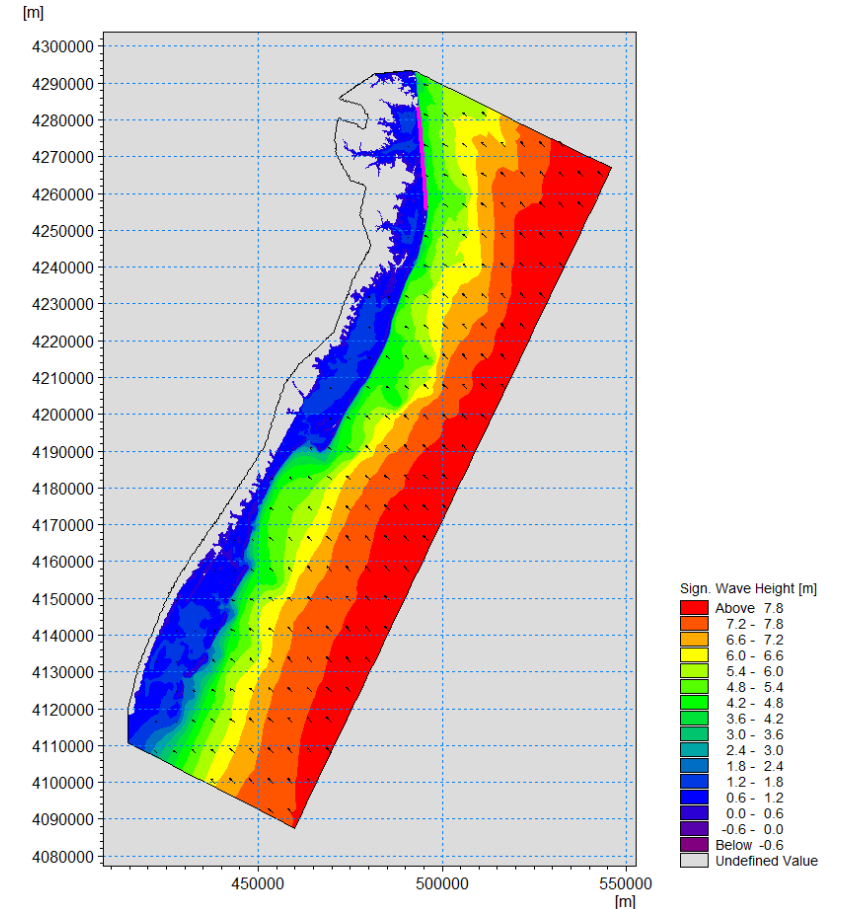
Local Model to simulate wave heights at study area sites under different scenarios

Input:

- Output from the regional model
- Water levels from FEMA Flood Insurance Study
- Extreme wave condition based on US Wave Information Study station (NOAA)
- Extreme wind condition based on local airport wind station
- Sea Level Rise incorporated

Outputs:

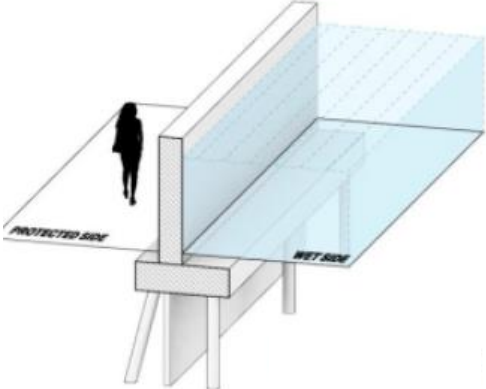
- Local wave conditions for different scenarios.
- Wave information for sediment transport simulation



Local Model



# Examples of Primary Flood Mitigation/Protection



**EXPOSED FLOODWALL**



**BURIED FLOODWALL / STRUCTURAL DUNE**

MANTALOKING, NJ, MOTT MACDONALD



**SHORT-TERM DEPLOYABLES**

TRAP BAGS SARASOTA, FLORIDA



**PERMANENT DEPLOYABLES**

FLIP UP GATES BLOOMSBURG, PENNSYLVANIA



**RAISED & REROUTED ROADWAYS**

STATE ROUTE 54, SUSSEX COUNTY, DELAWARE



# Examples of Secondary Flood Mitigation/Protection



LIVING SHORELINES

ORLEANS, MA



REVTMENTS

MAYPORT, GEORGIA



# Evaluation Criteria

Criteria	Explanation
<b>Level of Flood Protection</b>	The water elevation that the countermeasure would protect up to.
<b>Construction Cost</b>	Estimated \$ to build including right of way acquisition & utility relocation costs.
<b>Operations &amp; Maintenance Cost</b>	Estimated annual \$ to maintain the improved infrastructure over its lifecycle.
<b>Physical Constraints</b>	Estimated amount of time needed, right-of-way needed, and other physical constraints present.
<b>Benefit-Cost Ratio</b>	Compares future risk reduction benefits to its costs.
<b>Environmental Effects</b>	Benefits & impacts to the natural environment (carbon reduction, wildlife habitats, etc.)
<b>Community Effects</b>	Benefits & impacts to the built environment (traffic volumes, travel times, etc.)
<b>Aesthetics/Visual Effects</b>	Visual effects (community impression, aesthetics, etc.)

# Next Steps

- Model the following storm events for each of the six segments:
  - 10-year storm event for existing and future condition
  - 100-year storm event for existing and future conditions
- Perform erosion analysis.
- Apply the evaluation criteria to the various mitigation alternatives.
- Hold the second public workshop in early 2023.
- Prepare report of the findings.
- Prioritize segments and mitigation alternatives.
- Identify and submit grant applications to advance the study recommendations into projects for design.



# How to Stay Involved

Visit

Visit the study's website, <https://de.gov/sr1coastalcorridor>

Complete

Complete the comment form and include your email address

Attend

Attend the next virtual public workshop in the winter



**SRI COASTAL CORRIDOR RESILIENCY STUDY**

# Questions and Answers



**SRT COASTAL CORRIDOR RESILIENCY STUDY**

# **Thank you for joining the Online Informational Meeting!**

The next presentation will begin at 6:00pm.



**SRT COASTAL CORRIDOR RESILIENCY STUDY**