Highlands, NJ
Vulnerability to Sea-Level-Rise and Coastal Storm Damage

October 7, 2024

Agenda

- Introductions
- Highlands' Vulnerability to:
  - Sea-level-rise
  - Coastal storms
  - Stormwater flooding (precipitation)
- Potential Projects to Address Vulnerability:
  - Highlands & Monmouth Hills Flood Mitigation & Green Infrastructure Project
  - US Army Corps of Engineers (USACE) Coastal Storm Risk Management Project
- Recap
- Q&A

Introductions

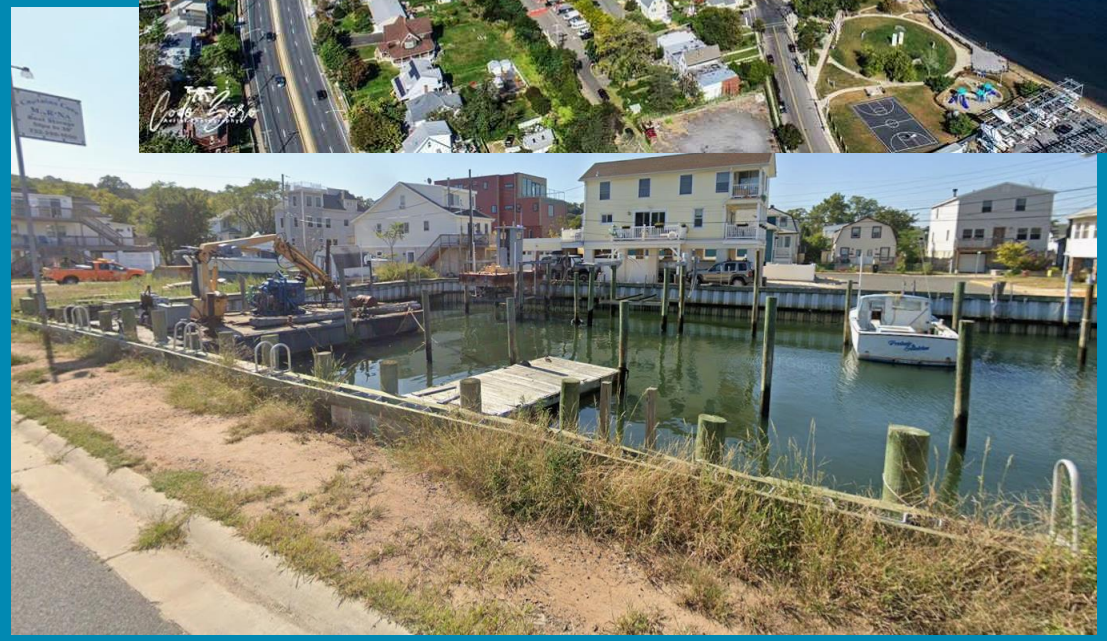
- Carolyn Broullon
  - Mayor, Borough of Highlands

- Shawn LaTourette
  - Commissioner, NJDEP
- Jenn Moriarty
  - Assistant Commissioner, NJDEP Watershed & Land Management
- Vince Mazzei
  - State Floodplain Administrator, NJDEP

- Colonel Alexander Young
  - Commander, USACE NY District
- Bethany McClanahan
  - Project Manager, USACE NY District

Why is Highlands vulnerable to flooding?

- The land is naturally low-lying
- Inadequate/inconsistent bulkhead heights
- Backup of stormwater drains



What types of flooding is Highlands vulnerable to?

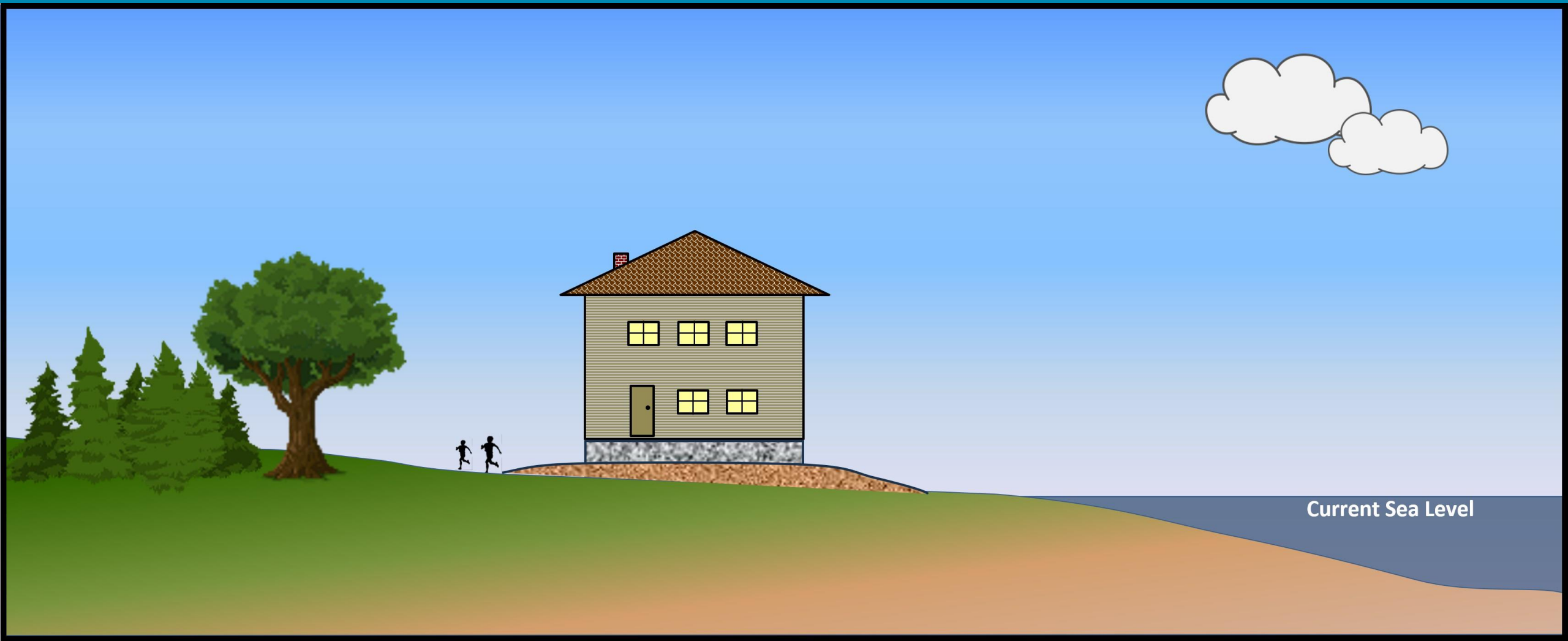

Date: Oct. 29, 2012 (Hurricane Sandy)
Location: Gravelly Point Road
GRAVELLY POINT BEACH
66
BROILMASTER
PREMIUM GAS GRILLS
SHOREGRAFX


Date: Oct. 29, 2012 (Hurricane Sandy)
Location: Sea Drift Ave
SHOREGRAFX

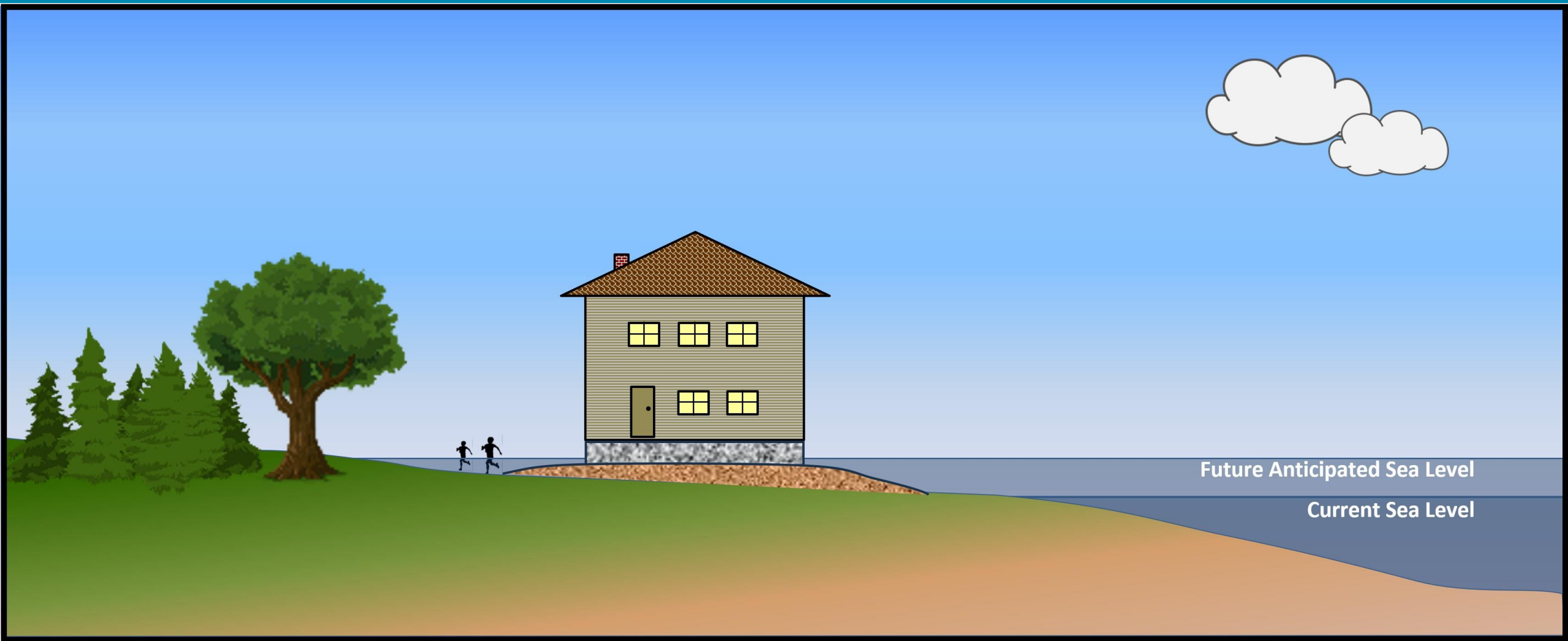
Flooding from Backed-Up Stormwater Drains

Flooding from Rainfall Runoff

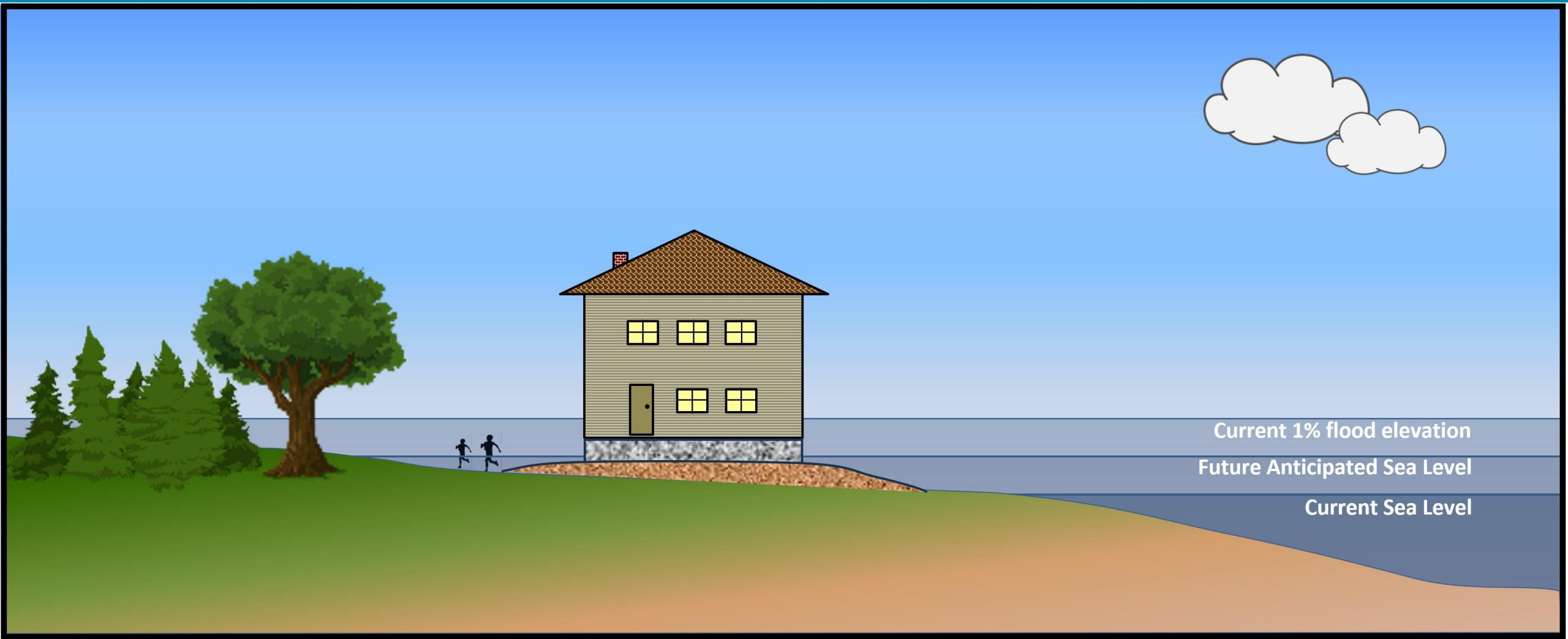
Vulnerability to Sea-Level-Rise



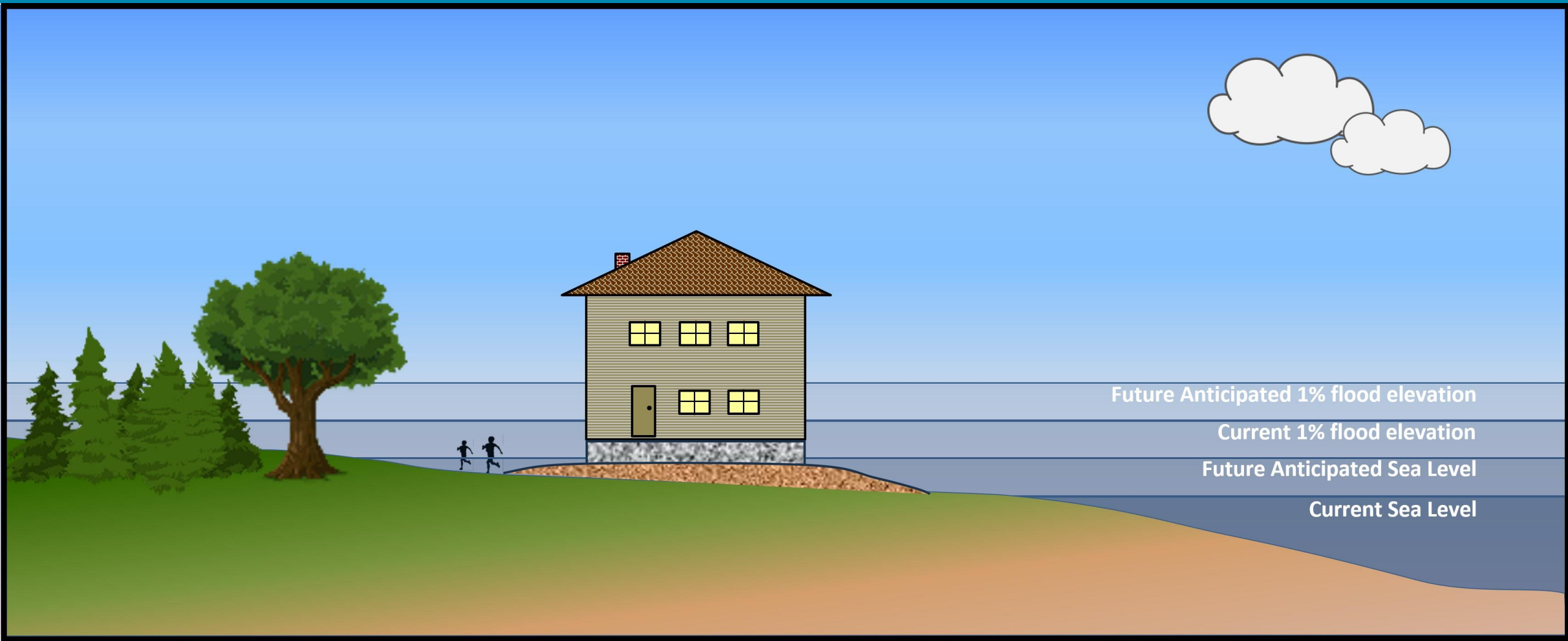
Vulnerability to Sea-Level-Rise



Vulnerability to Sea-Level-Rise

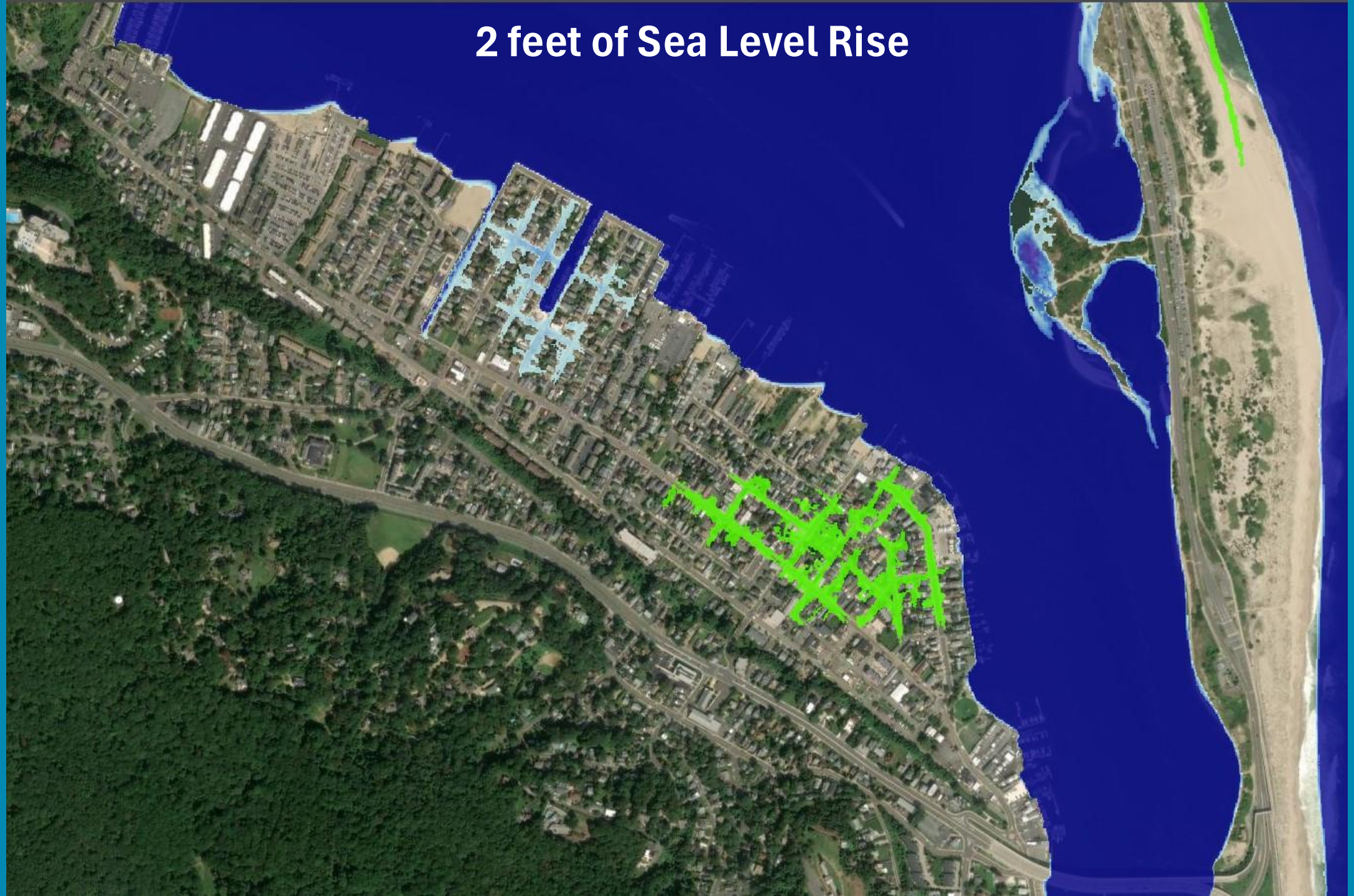


Vulnerability to Sea-Level-Rise

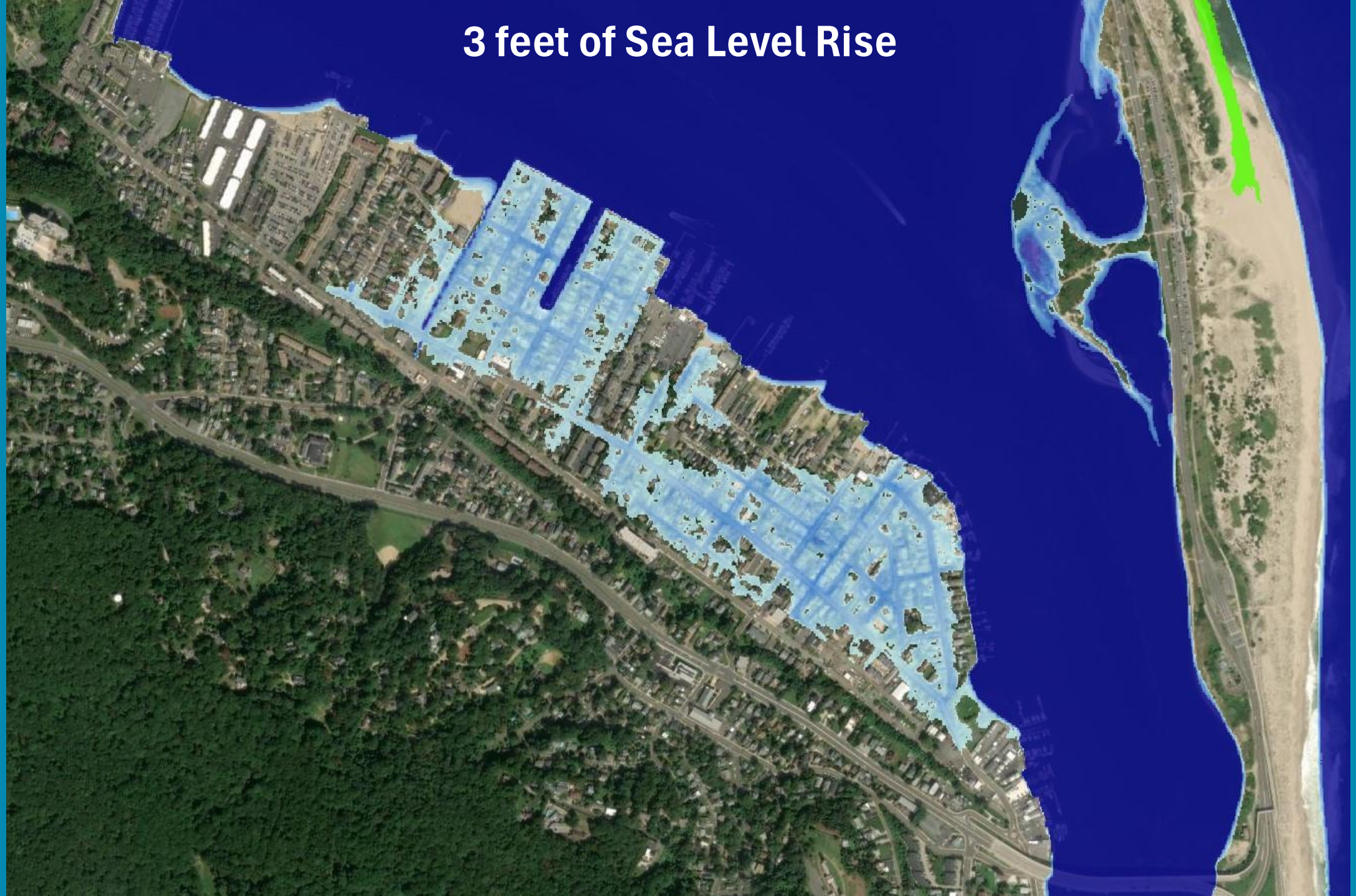


1 foot of Sea Level Rise

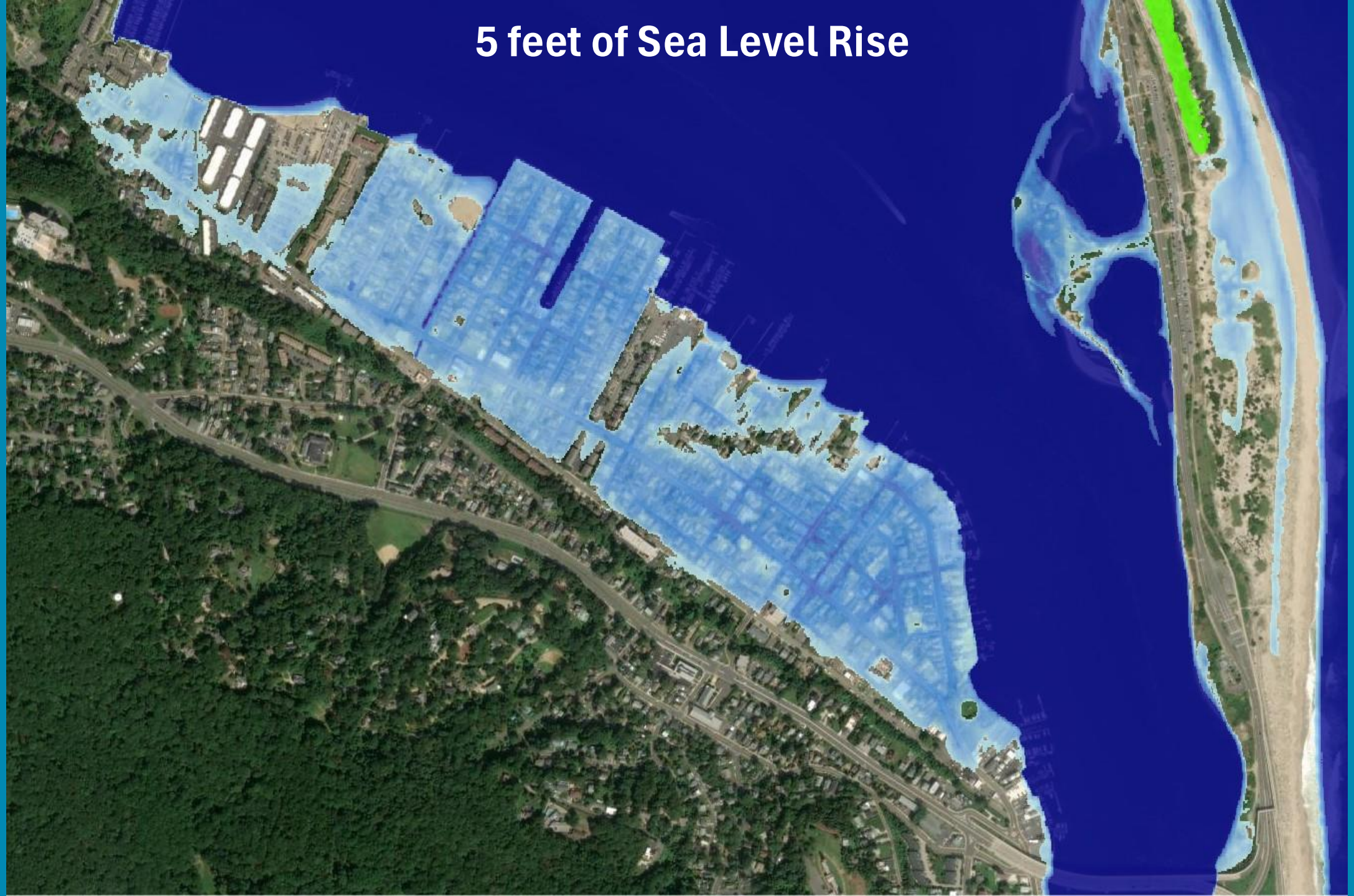
2 feet of Sea Level Rise



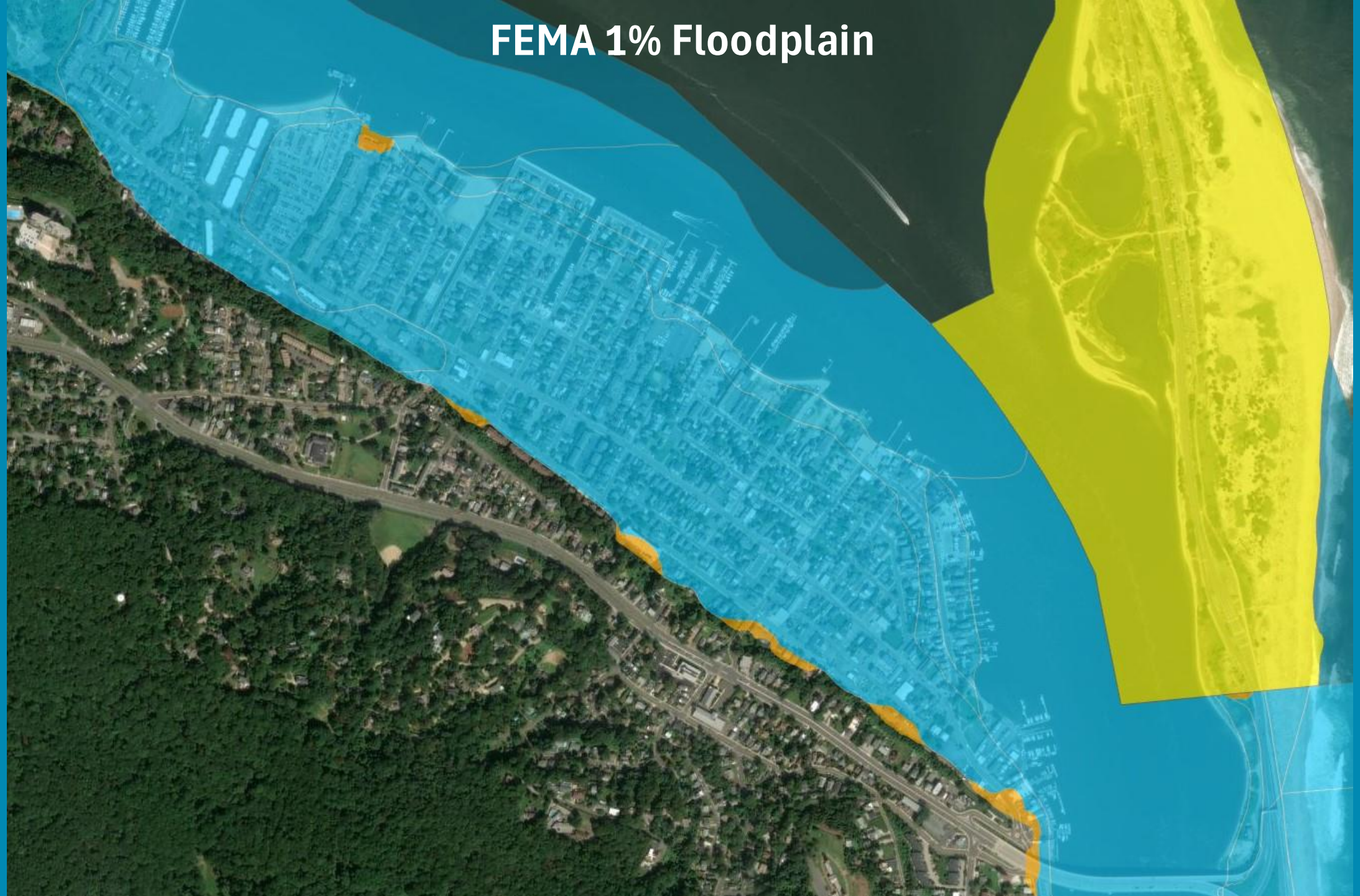
3 feet of Sea Level Rise



5 feet of Sea Level Rise



FEMA 1% Floodplain



Bay Ave & North St

Hurricane Sandy High Water Mark + Sea-Level-Rise

Proposed Height of USACE Floodwall (14.0 NAVD88)

Hurricane Sandy High Water Mark (~10.5 NAVD88)

Bay Ave & North St

Present Day Storm Levels

Bay Ave & North St

2-Yr Storm + Sea-Level-Rise

Year	Likely Sea Level Rise
2030	0.5 – 1.1 feet
2050	0.9 – 2.1 feet
2070	1.4 – 3.1 feet

Proposed Height of USACE Floodwall (14.0 NAVD88)

Bay Ave & North St

10-Yr Storm + Sea-Level-Rise

Year	Likely Sea Level Rise
2030	0.5 – 1.1 feet
2050	0.9 – 2.1 feet
2070	1.4 – 3.1 feet

Proposed Height of USACE Floodwall (14.0 NAVD88)

2070

2050

2030

10-Yr Storm (8.0 NAVD88)

Bay Ave & North St

50-Yr Storm + Sea-Level-Rise

Year	Likely Sea Level Rise
2030	0.5 – 1.1 feet
2050	0.9 – 2.1 feet
2070	1.4 – 3.1 feet

Bay Ave & North St

FEMA 100-Yr Storm + Sea-Level-Rise

Year	Likely Sea Level Rise
2030	0.5 – 1.1 feet
2050	0.9 – 2.1 feet
2070	1.4 – 3.1 feet

Marine Pl (West)

Present Day Storm Levels

Proposed Height of USACE Floodwall (14.0 NAVD88) = FEMA 100-Yr Storm

50-Yr Storm

10-Yr Storm

2-Yr Storm

Marine Pl (West)

2-Yr Storm + Sea-Level-Rise

Year	Likely Sea Level Rise
2030	0.5 – 1.1 feet
2050	0.9 – 2.1 feet
2070	1.4 – 3.1 feet

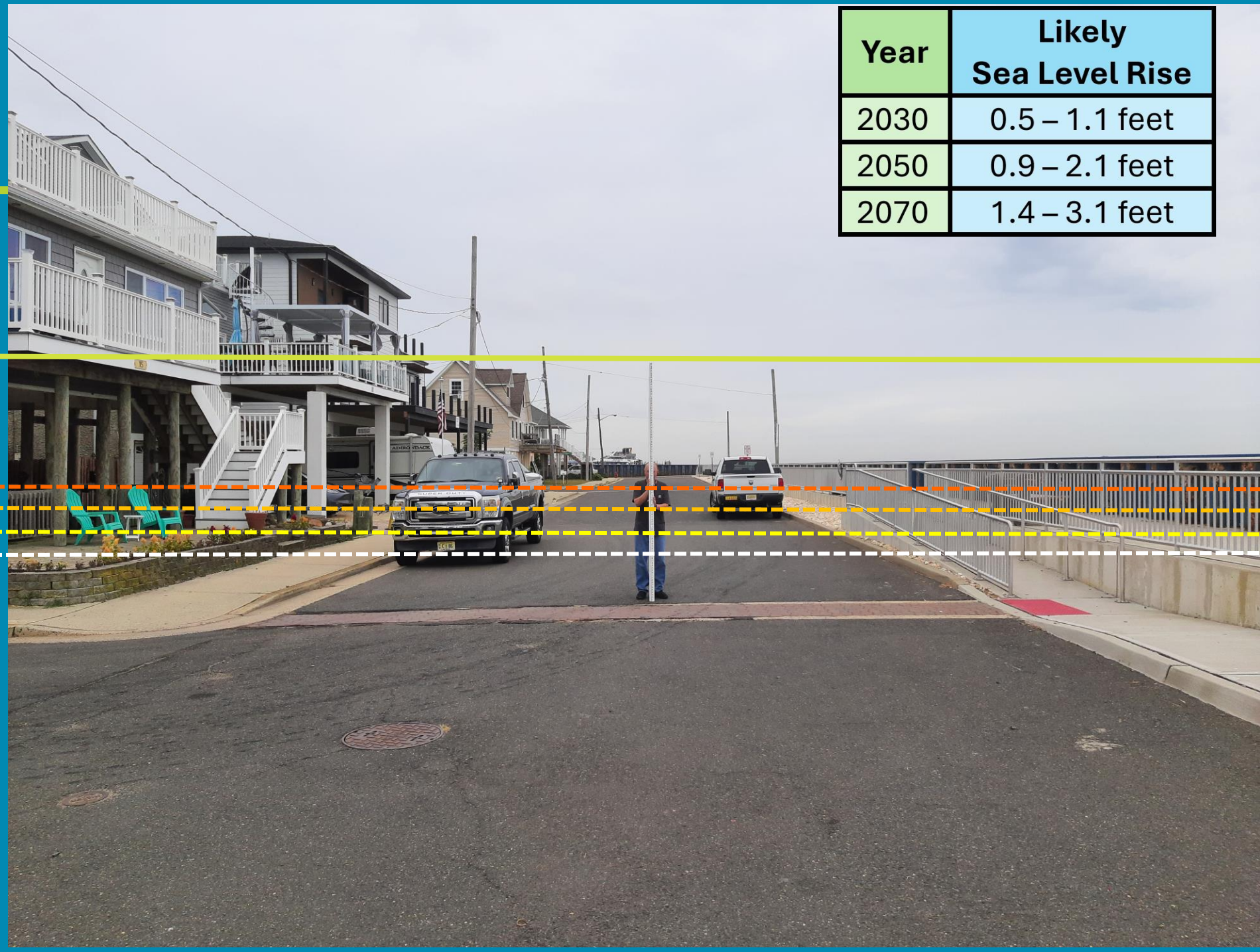
Proposed Height of USACE Floodwall (14.0 NAVD88)

2070

2050

2030

2-Yr Storm (6.1 NAVD88)



Marine Pl (West)

10-Yr Storm + Sea-Level-Rise

Year	Likely Sea Level Rise
2030	0.5 – 1.1 feet
2050	0.9 – 2.1 feet
2070	1.4 – 3.1 feet

Proposed Height of USACE Floodwall (14.0 NAVD88)

2070

2050

2030

10-Yr Storm (8.0 NAVD88)

Marine Pl (West)

50-Yr Storm + Sea-Level-Rise

Year	Likely Sea Level Rise
2030	0.5 – 1.1 feet
2050	0.9 – 2.1 feet
2070	1.4 – 3.1 feet

Proposed Height of USACE Floodwall (14.0 NAVD88)

2070

2050

2030

50-Yr Storm (10.2 NAVD88)

Washington Ave (Captains Cove)

Present Day Storm Levels

Year	Likely Sea Level Rise
2030	0.5 – 1.1 feet
2050	0.9 – 2.1 feet
2070	1.4 – 3.1 feet

Washington Ave (Captains Cove)

2-Yr Storm + Sea-Level-Rise

Year	Likely Sea Level Rise
2030	0.5 – 1.1 feet
2050	0.9 – 2.1 feet
2070	1.4 – 3.1 feet

Washington Ave (Captains Cove)

10-Yr Storm + Sea-Level-Rise

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Washington Ave (Captains Cove)

50-Yr Storm + Sea-Level-Rise

Year	Likely Sea Level Rise
2030	0.5 – 1.1 feet
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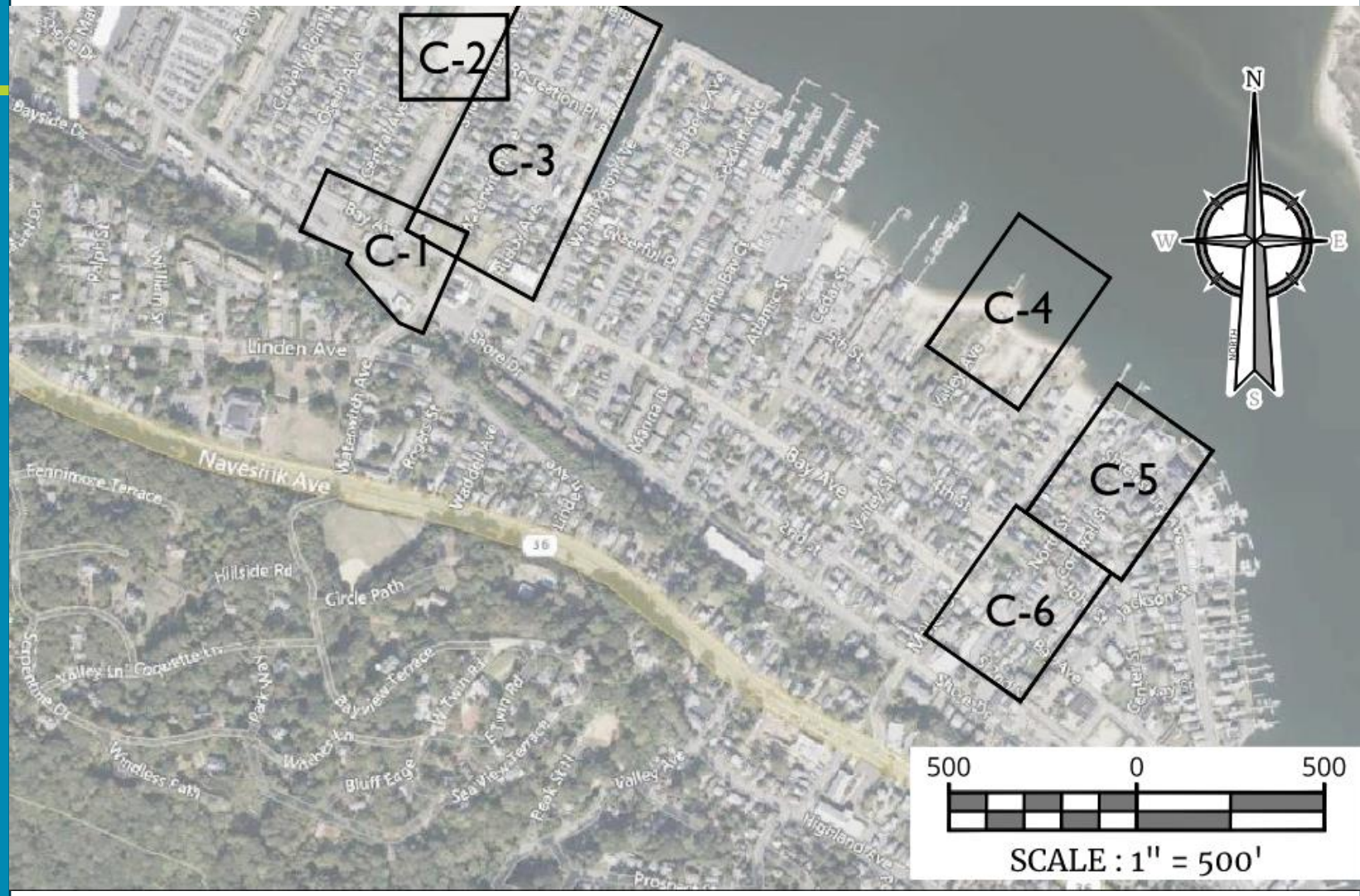
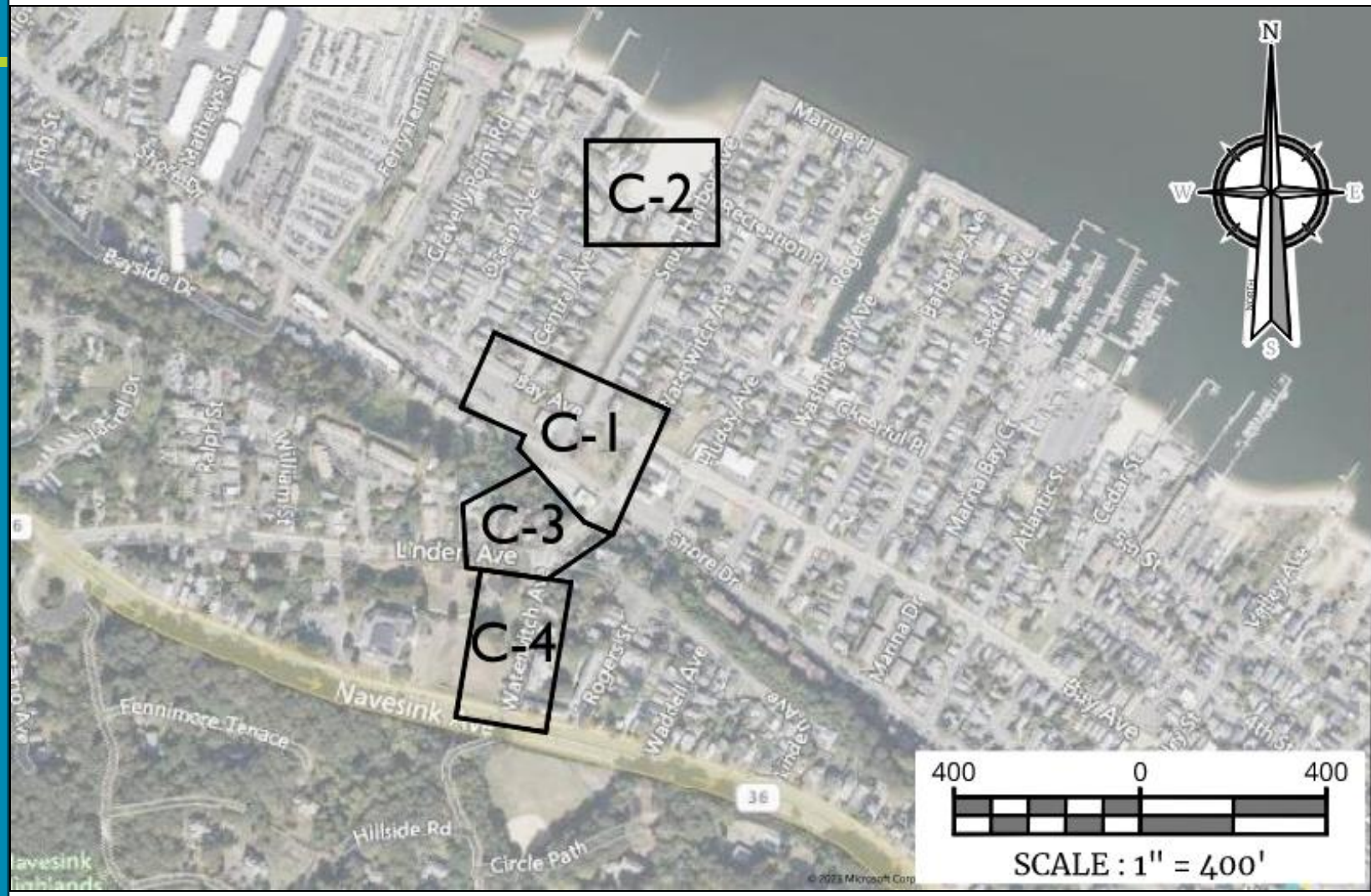
Highlands & Monmouth Hills Flood Mitigation and Green Infrastructure Project

Zone 1 – Borough of Highlands Pump Station Improvements – consisting of Snug Harbor Pump Station, Valley Street Pump Station, and North Street Pump Station



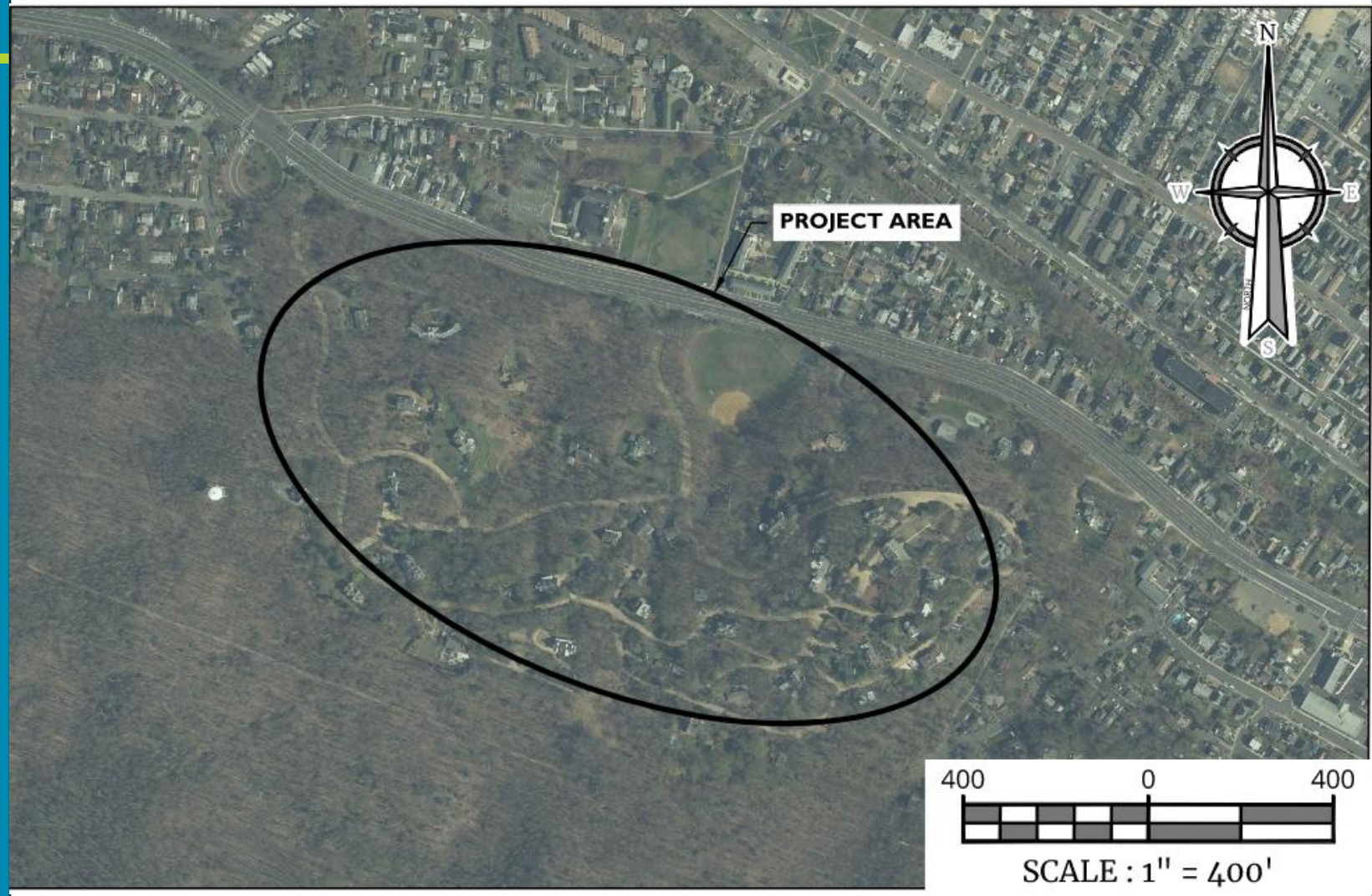
Highlands & Monmouth Hills Flood Mitigation and Green Infrastructure Project

Zone 2 –Waterwitch Avenue Drainage Improvements



Highlands & Monmouth Hills Flood Mitigation and Green Infrastructure Project

Zone 3 – Monmouth Hills Drainage Improvements



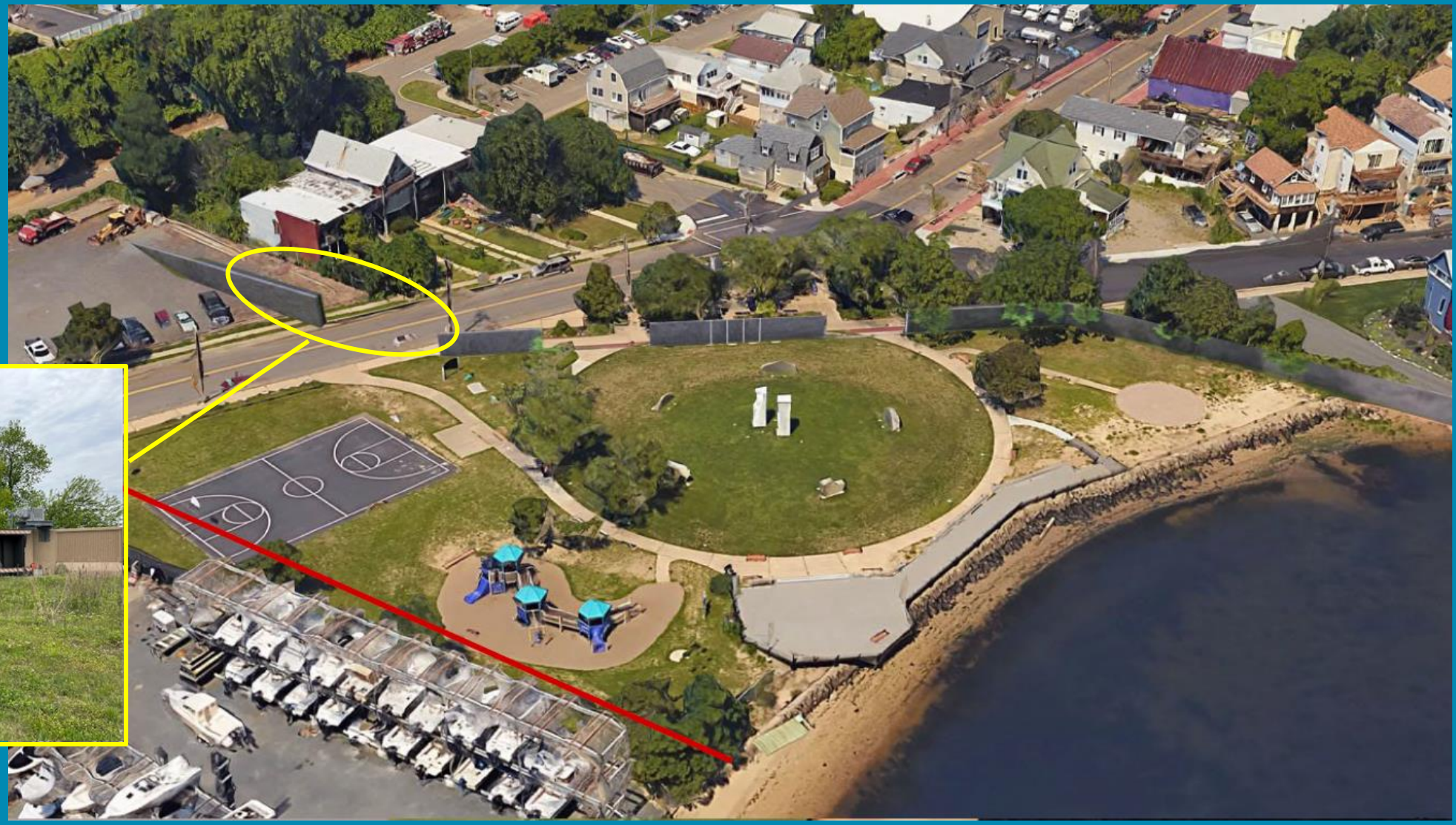
USACE Coastal Storm Risk Management Project

- Project Description
  - Reinforced Concrete Floodwall
  - Road Closure Gate (Phase 1)
  - Detention Pond
  - Pump Station
  - Pressurized Pipes
- Status
  - Design of Phase 1 ongoing.
  - Design and construction of all project components to be complete by 2030 at the earliest.
- Funding
  - Total Estimated Construction Cost = $148M
    - 65% Federal Share = $96M
    - 35% Non-Federal Share = 96M
      - 75% State Share = $39M
      - 25% Local Share = $13M

USACE Project: Features

USACE Project: Veterans Park

Phase 1: Road Closure Gate across Bay Ave



USACE Project: Floodwall Examples

USACE Project: Flexibility

- Aspects of the project that can still be modified:
  - Specific alignment and offset of the wall at each property
  - Crossover and access configuration
  - Aesthetic finish of the wall
- Aspects of the project that cannot be modified:
  - Top of wall elevation 14.0 NAVD88
  - Reinforced concrete-type floodwall

USACE Project: Next Steps

1. Finish Design
2. USACE and NJDEP sign Project Partnership Agreement (PPA) for construction
3. NJDEP and Borough sign State Aid Agreement (SAA)
4. Obtain Easements
    a) Perpetual easements will be needed on both public and private property
    b) Property owners will have the following options:
        - Donate easement/voluntary
        - Request appraisal for compensation
        - Eminent domain (if amount of compensation cannot be agreed upon)
5. Construction
6. Operation & Maintenance

Recap

- Highlands is highly vulnerable to flooding
- Flooding will continue to get worse and more frequent
- USACE, NJDEP, and the Borough are proposing several projects that will help reduce flooding and flood damage
- The Highlands Coastal Storm Risk Management Project will help keep the water out and greatly reduce vulnerability from bay flooding

Thank you!


Please take the opportunity to fill out the Highlands Flood Vulnerability Survey if you haven't already:
https://www.surveymonkey.com/r/FloodingVulnerability
Questions & Answers
SHOREGRAFX