

Coastal Virginia CRS Workgroup November 2019 Meeting

COASTAL VIRGINIA COMMUNITY RATING SYSTEM WORKGROUP



WORKING TOGETHER FOR A STRONGER VIRGINIA



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UPDATES/ANNOUNCEMENTS

WIFI Info

Password removed for security reasons

Please provide your information on the sign-in meeting sheet

WORKGROUP MEETING INTRODUCTIONS

2020 Meeting Dates (James Room)

Wednesday, January 29, 10AM-Noon

Wednesday, March 25, 10AM-Noon

May date TBD

Wednesday, July 29, 10AM-Noon

Updated CRS Website Information (VA Specific)

September 2019 CRS Workgroup Meeting

- CECs not submitted for review yet



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JOB ANNOUNCEMENTS

- City of Norfolk:
 - Floodplain Manager/CRS Coordinator
- US Army Corps of Engineers, Norfolk District
 - Civil Engineer



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ISO STAFF IN ATTENDANCE

Douglas Reedy, CFM

ISO/CRS Specialist

ISO Community Hazard Mitigation

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SPEAKER: VIRGINIA INSTITUTE OF MARINE SCIENCE

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WORKGROUP MEMBER/ATTENDEE REPORT OUTS

Time for Workgroup members/attendees to bring up any news, questions, or future meeting topics to the group.



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Prioritizing natural and nature-based features (NNBFs) that increase the resilience of coastal communities to flooding

Pamela Mason, Jessica Hendricks,
Julie Herman and Carl Hershner



OFFICE FOR COASTAL MANAGEMENT
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NNBFs that enhance coastal flooding resilience

Goals

With a NOAA Coastal Resilience Grant, our goals:

1. Support the preservation and creation of natural and nature-based features (NNBFs) as a component of coastal community resilience
2. Incorporate water quality and flood insurance services into the assessment for existing features
3. Support localities' decision-making by:
 - Identifying NNBFs that provide multiple benefits
 - Identifying target areas for new NNBF creation/restoration



NNBFs that enhance coastal flooding resilience

Goals

Three primary steps:












1. Map existing natural and nature-based features (NNBFs) and buildings at less than 10 feet elevation in the coastal zone
2. Identify and rank existing NNBFs that provide multiple benefits for communities
3. Identify target areas for new NNBFs to improve flood resilience



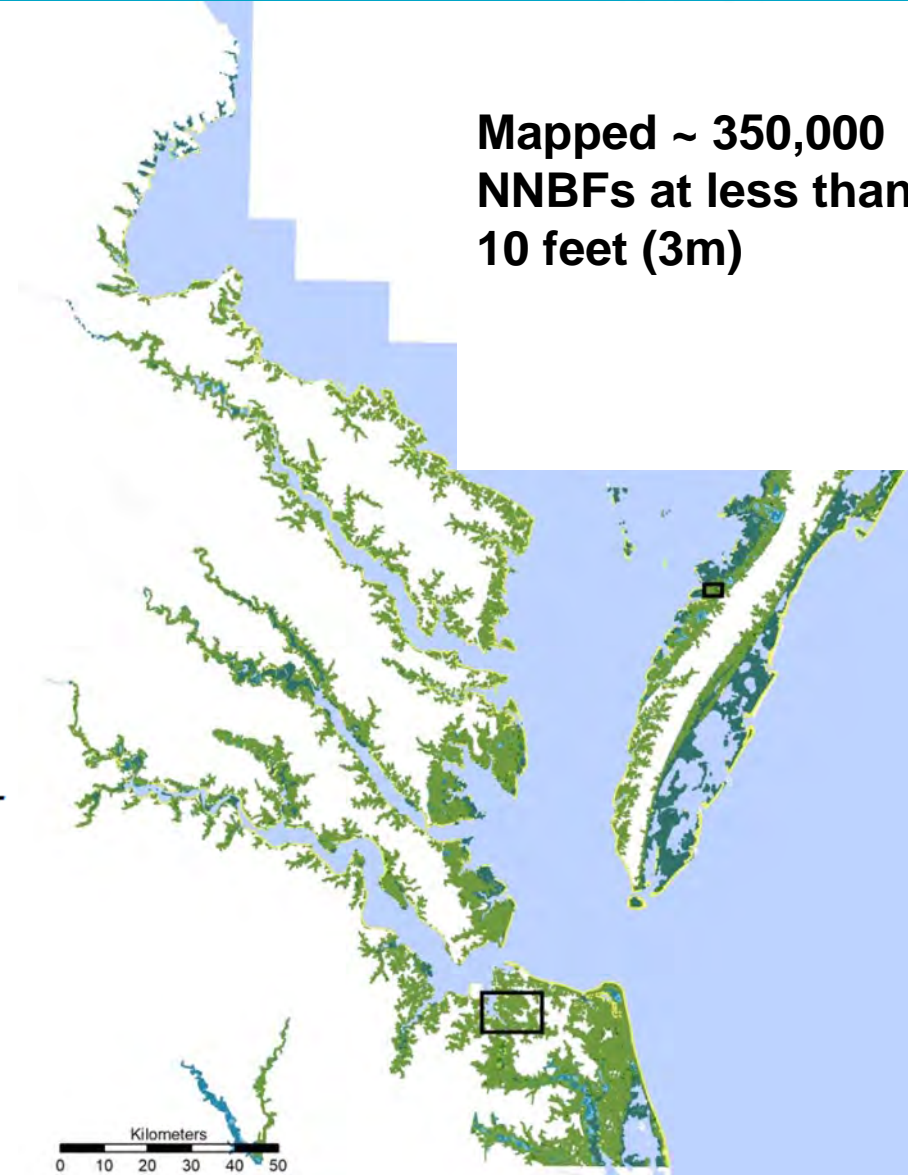
NNBFs that enhance coastal flooding resilience

Map Existing NNBFs and buildings

Natural and Nature-Based Features (NNBFs)

-  Dune
-  Beach
-  Scrub-Shrub
-  Wooded
-  Emergent Wetland
-  Scrub-Shrub Wetland
-  Forested Wetland
-  Tidal Marsh
-  Hybrid Living Shoreline with Breakwater
-  Hybrid Living Shoreline with Marsh Sill
-  Hybrid Living Shoreline with Oyster Sill

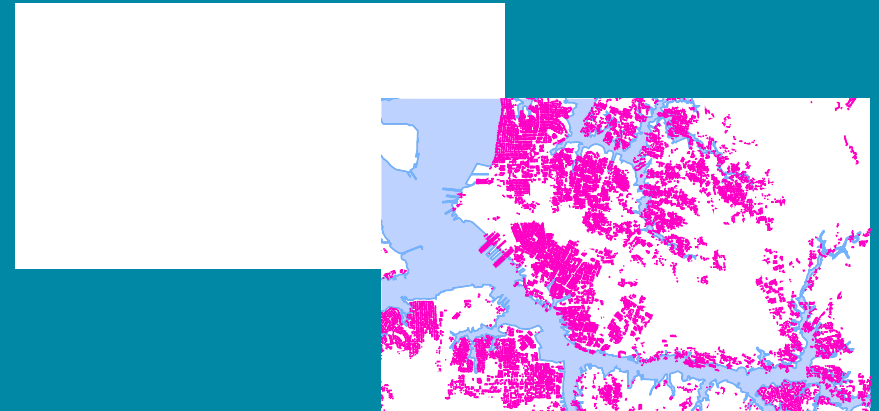
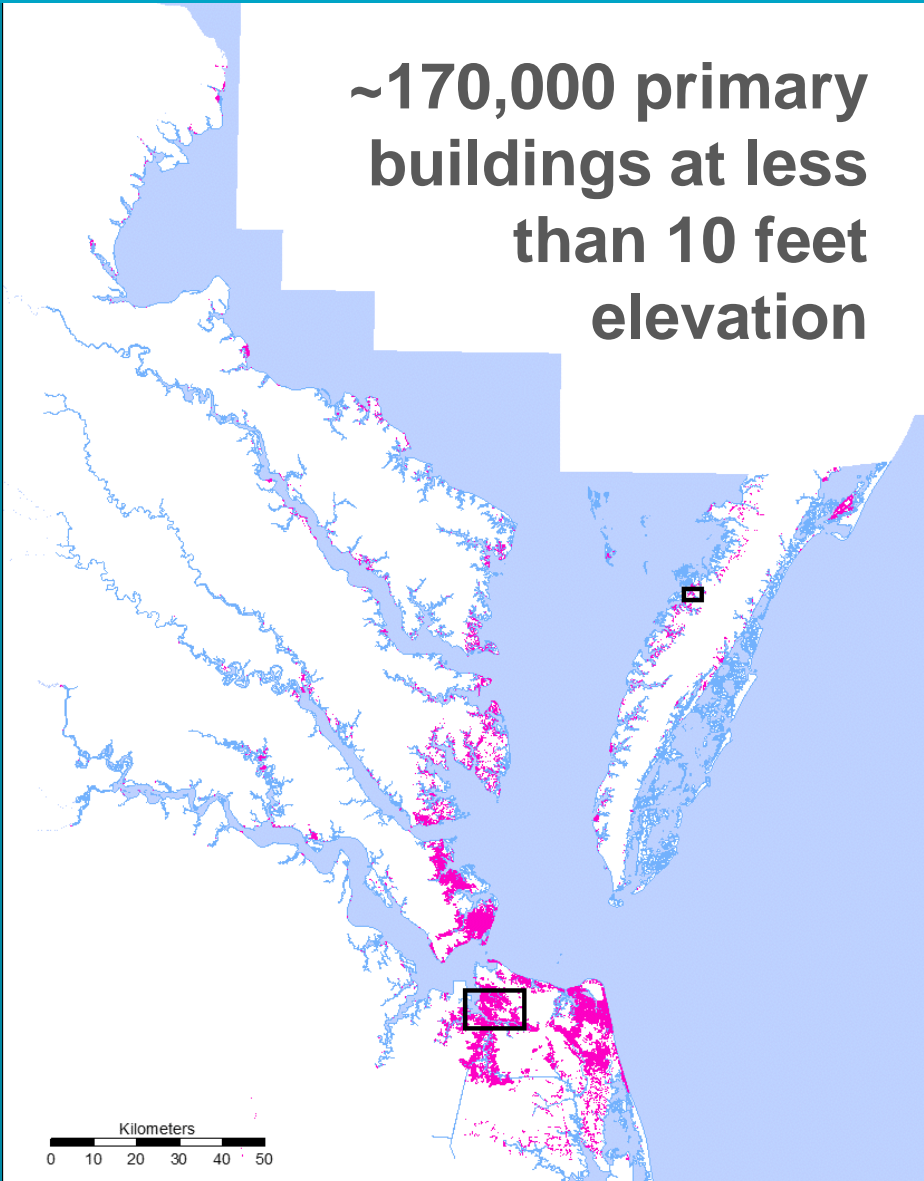
Mapped ~ 350,000
NNBFs at less than
10 feet (3m)



NNBFs that enhance coastal flooding resilience

Map Existing NNBFs and buildings

**~170,000 primary
buildings at less
than 10 feet
elevation**



Identified critical community facilities (e.g., police stations, hospitals, schools)

NNBFs that enhance coastal flooding resilience

Rank NNBFs based on flooding mitigation benefits

1. Capacity to **reduce wave energy** (e.g., surface and vegetation roughness) and allow **infiltration of floodwaters**.

Assigned *low, medium, high* ranking based on expert judgment and lit review, for each NNBF type (e.g., beach, tidal marsh).

2. Opportunity for the NNBF to act on flooding waters (i.e., the elevation of the feature)



Living shoreline project (marsh with breakwaters) in Gloucester County.
Photo: K. Duhring, CCRM

NNBFs that enhance coastal flooding resilience

Identify NNBFs that benefit flood risk buildings



Detail of Gwynn's Island, Virginia

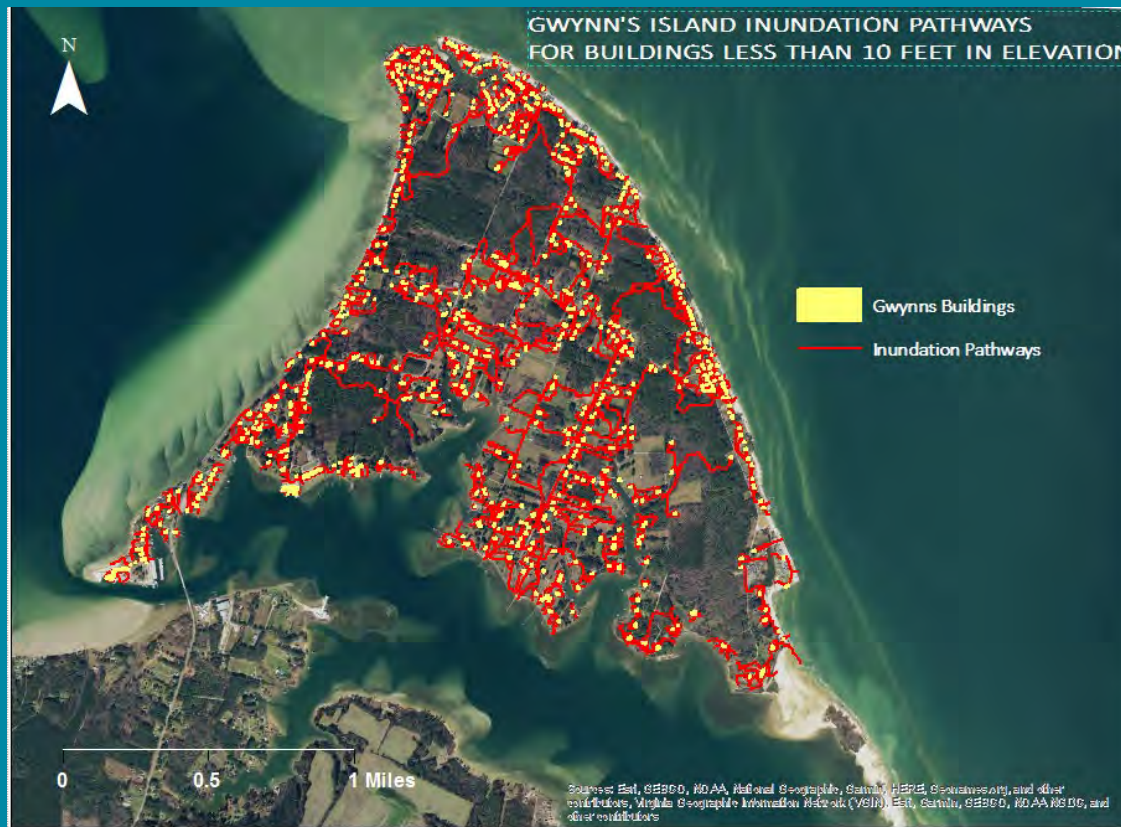
Connect NNBFs with the buildings that they benefit
= **Inundation Pathways (IPs)**

IPs depict lowest elevation areas connecting the shoreline to buildings, and represent where rising waters begin to flood onto the land.

IPs are multicolored lines. Buildings are outlined in black.

NNBFs that enhance coastal flooding resilience

Identify NNBFs that benefit at-risk buildings



Using IPs, we are able to categorize NNBFs based on the numbers of buildings they benefit, and identify buildings that receive no benefit from NNBFs.

NNBFs that enhance coastal flooding resilience

Identify NNBFs that provide multiple benefits

For each NNBF, count the number of associated buildings -

- *This NNBF (tidal marsh) benefits 4 buildings*

For each building, count how many NNBFs are associated -

- *This building benefits from 2 NNBFs (a tidal marsh and a wooded area)*

NNBF Types (on this map):

-  Tidal Marsh
-  Wooded



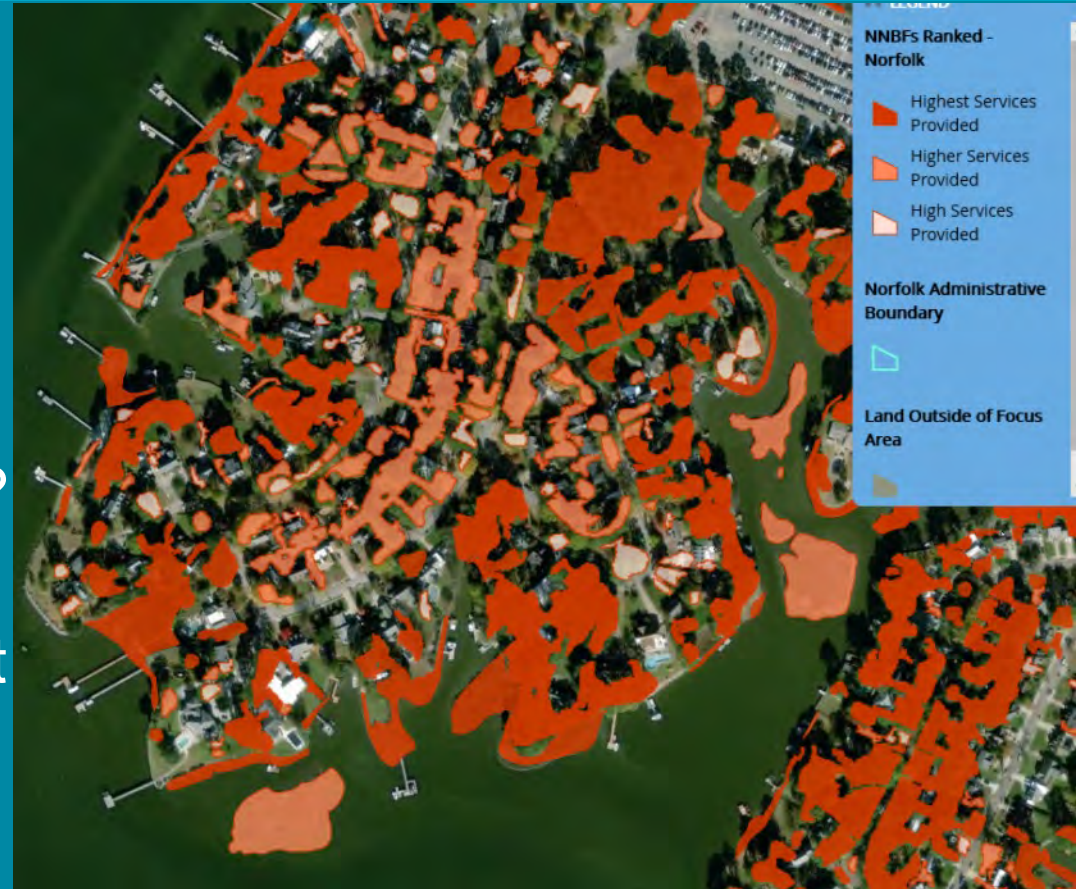
NNBFs that enhance coastal flooding resilience

Identify NNBFs that provide multiple benefits

NNBF Ranking

Four components:

1. NNBF flooding mitigation services
2. How many buildings does the NNBF benefit?
3. Are there any critical community facilities that benefit from NNBF?
4. Can the NNBF be used to take advantage of existing programmatic incentives?



→ Each NNBF ranked high, medium, low for each category

NNBFs that enhance coastal flooding resilience

Rank NNBFs for Protection



Highest Ranked NNBF Provide the most Flood Benefit + Co-benefits

Existing regulatory programs still allow adverse impacts and loss of these resources.

Resource impacts may effect ability of locality to

- 1. Qualify for CRS open space credits**
- 2. Meet required water quality sediment and nutrient load reductions**

NNBFs that enhance coastal flooding resilience

Identify NNBFs that provide multiple benefits

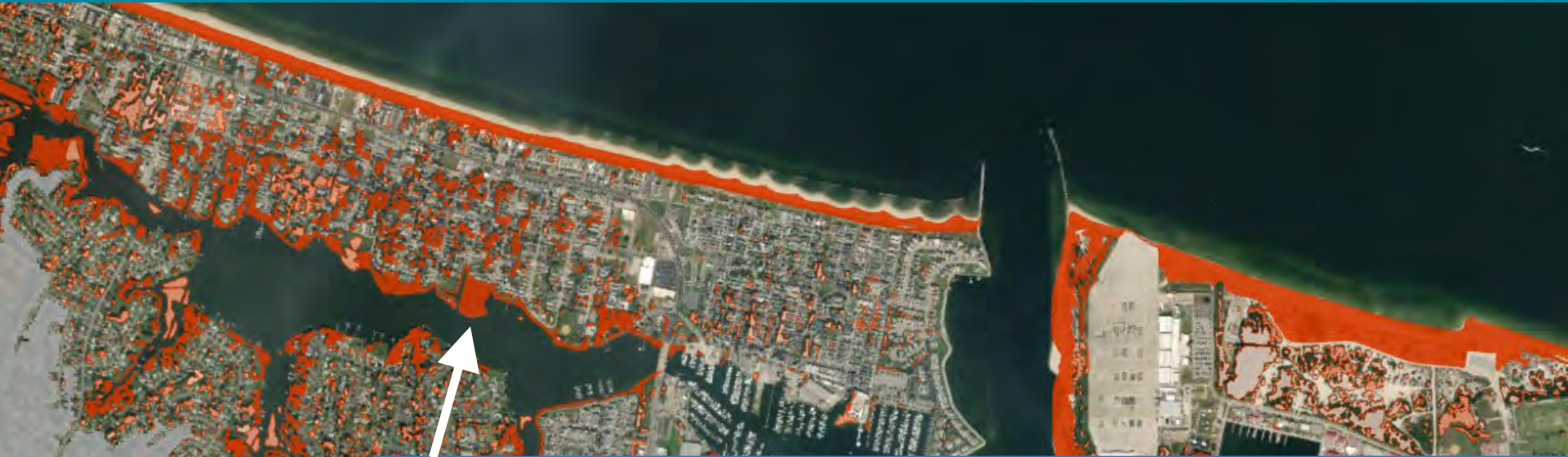
Factor #4: Identify NNBFs that may be used to take advantage of incentives

1. FEMA Community Rating System (CRS) credits. Potentially qualifying NNBFs are in 100-year flood zone and overlay the Resource Protection Area (RPA) or RPA 100-ft buffer
2. Water quality/TMDL credit potential – N, P, TSS reductions. All NNBFs except for beaches and dunes



NNBFs that enhance coastal flooding resilience

Identify NNBFs that provide multiple benefits



Overall_Priority_Ranking - Tidal Marsh

Type of NNBF: Tidal Marsh

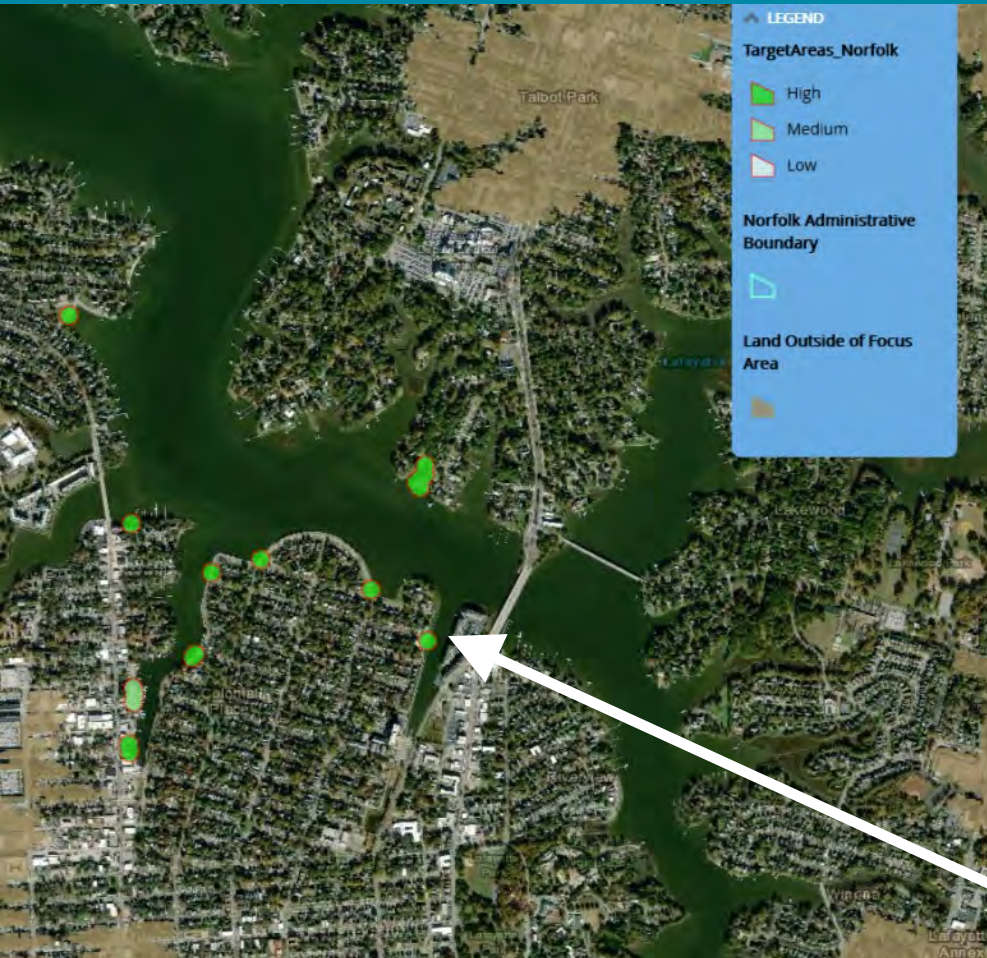
This Tidal Marsh receives an overall ranking of **Highest priority for preservation.**

Based on these characteristics:

- **High rank** for the natural capacity of NNBF to mitigate coastal flooding
- **High rank** for the number of buildings at less than 10 feet elevation that the NNBF benefits
(311 at-risk buildings)
- **Low rank** for the number of critical community facilities at less than 10 feet elevation that the NNBF benefits
(0 at-risk critical community facilities)
- **High rank** for the potential for regulatory cobenefits
(2 potential regulatory co-benefits: CRS credit potential and water quality/TMDL credit potential)

Opportunities to improve coastal resilience

Identify target areas for new NNBFs



Find areas where new or restored NNBFs would provide multiple benefits

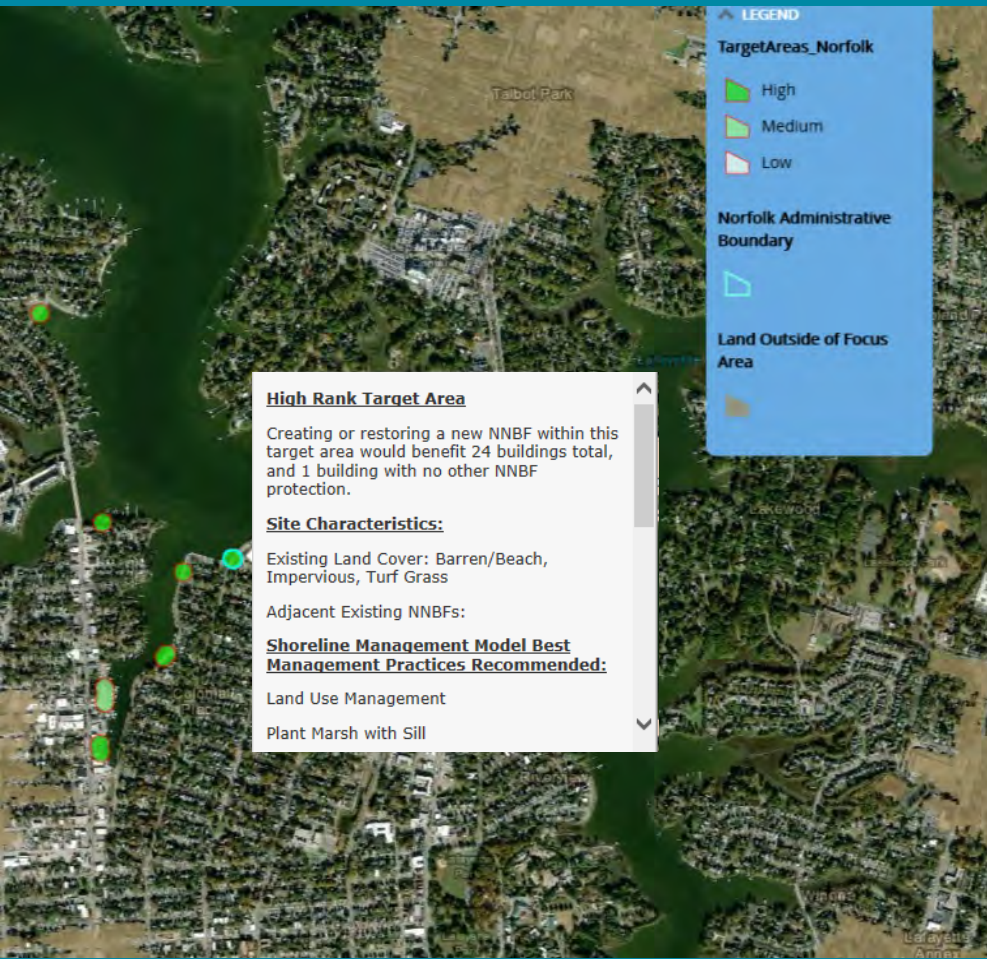
Looked for buildings that had 0 linked NNBFs.

Areas along those building IPs are potential locations for NNBF creation/restoration.

We focused on shoreline locations

Opportunities to improve coastal resilience

Identify target areas for new NNBFs



Why target areas along the shoreline?

- First line of defense
- Offers programmatic incentives – in RPA
- Other tools available that can help inform NNBF creation (e.g., CCRM Shoreline Management Model)

→ Target areas ranked based on number of buildings potentially benefitting

NNBFs that enhance coastal flooding resilience

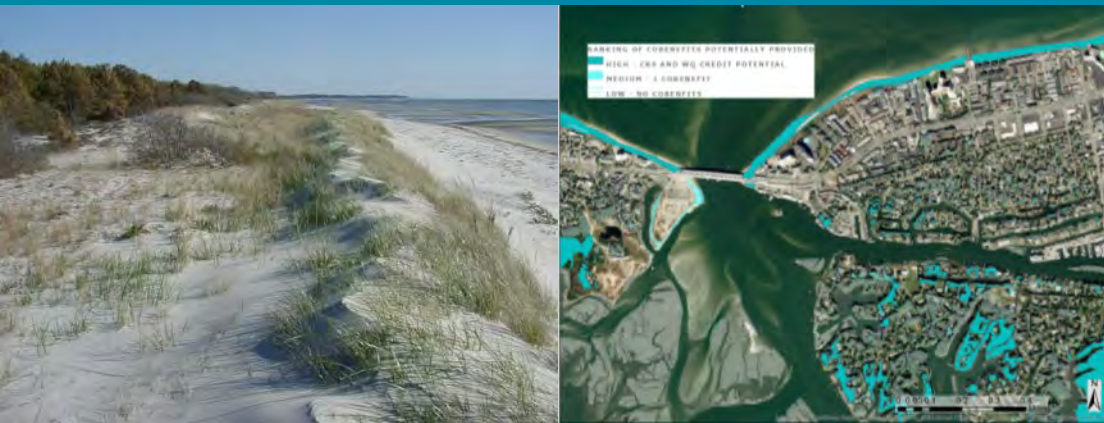
Communicate NNBF Protection & Restoration

Communications plan for Outreach

Engaging Local Governments for feedback

Working with Partners:

- Wetlands Watch
- Virginia Coastal Policy Center, W&M Law School
- APNEP, Albemarle Pamlico National Estuary Program



Type of NNBF: Beach

This Beach receives an overall ranking of **High priority for preservation.**

Rankings are based on four characteristics:

- **Medium rank** for the natural capacity of NNBF to mitigate coastal flooding.
- **High rank** for the number of buildings the NNBF benefits.
- **Low number of** critical community facilities the NNBF benefits
- **High rank** for the potential for regulatory cobenefits including CRS and/or water quality/TMDL credits.

Next Steps

- Based on current conditions- Add sea level rise projections to NNBF model
- Add other co-benefits, i.e. RTE species habitats, corridors, climate mitigation ...
- Incorporate NNBFs that do not have IP: spits, SAV, barrier and marsh islands
- Target NNBF restoration/ creation inland from the shoreline
- Enhance model capacity to reflect synergistic impacts
- Inform policy development to accommodate multi-benefit NNBF projects

Conclusions

- Identifies Natural and Nature Based Features that provide flood mitigation benefits
- Identifies areas lacking NNBF flood mitigation benefits
- Incorporate water quality and flood insurance services into the assessment for existing features
- Can target locations for NNBF creation/ restoration to maximize multiple benefits
- Supports the preservation and implementation of NNBF features as a component of coastal community resilience



Questions?
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CRS WORKGROUP 2020: MEETING IDEAS/FOCUS

- **Regional PPI?**
- **What else?**



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THANKS!

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