OXFORD RESILIENCE CLIMATE CHANGE AND SEA LEVEL RISE

August 10, 2023

Town Talk – C Lewis

Building and Sustaining Community Resilience Timeline

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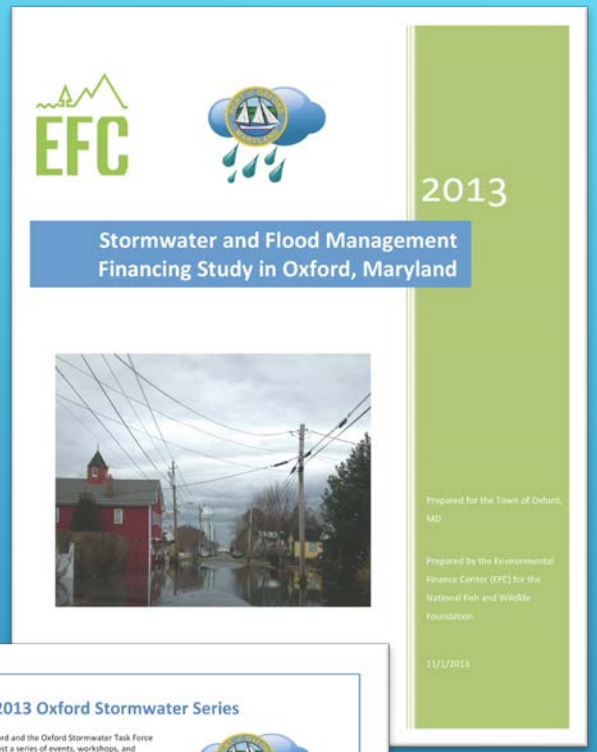

EFC

2013

Stormwater and Flood Management Financing Study in Oxford, Maryland

Prepared for the Town of Oxford, MD

Prepared by the Environmental Finance Center (EFC) for the National Fish and Wildlife Foundation

11/1/2013


Summer 2013 Oxford Stormwater Series

Join the Town of Oxford and the Oxford Stormwater Task Force this summer as we host a series of events, workshops, and informational sessions on the topic of stormwater management in the community and on your personal property. Solutions featured during these events can help prepare Oxford residents with resources useful for advancing Task Force recommendations due out later this year.

Saturday, April 27: Oxford Day Rain Barrel Raffle and Demonstration

Visit our table in the waterfront park on Oxford Day. We'll be raffling a rain barrel painted by an Oxford artist, conducting a rain barrel demonstration outside the Town Office, and chatting about stormwater and flood challenges in the town with the aid of town maps.

Friday, May 31: River Appreciation Week in Oxford

Join the University of Maryland Extension and the Talbot County Master Gardeners for a tour of Oxford's rain barrels and rain gardens followed by a living shoreline kayak excursion along the Strand. Meet at 4:30pm at the Oxford Community Center.
For more information, Contact: Mikaela Boley at 410-822-1244 (Ext. 12)

Wednesday, June 19: Rain Barrel Workshop

Learn how rain barrels can be used to manage stormwater and how to install them at this evening workshop to be held at 7:00pm at the Oxford Community Center.
For more information, Contact: Sean Williamson at 802-578-5399

Wednesday, July 17: Rain Garden Workshop

Learn how rain gardens can be used to manage stormwater and how to install them at this evening workshop to be held at 7:00pm at the Oxford Community Center.
For more information, Contact: Sean Williamson at 802-578-5399

Saturday, September 28: Bank Street Bio Swale Volunteer Day

Volunteers are invited to get their hands dirty as the community finishes installation of a bio swale on Bank Street by planting native species.
For more information, Contact: Sean Williamson at 802-578-5399

The ongoing Oxford stormwater study is sponsored by the National Fish and Wildlife Foundation.

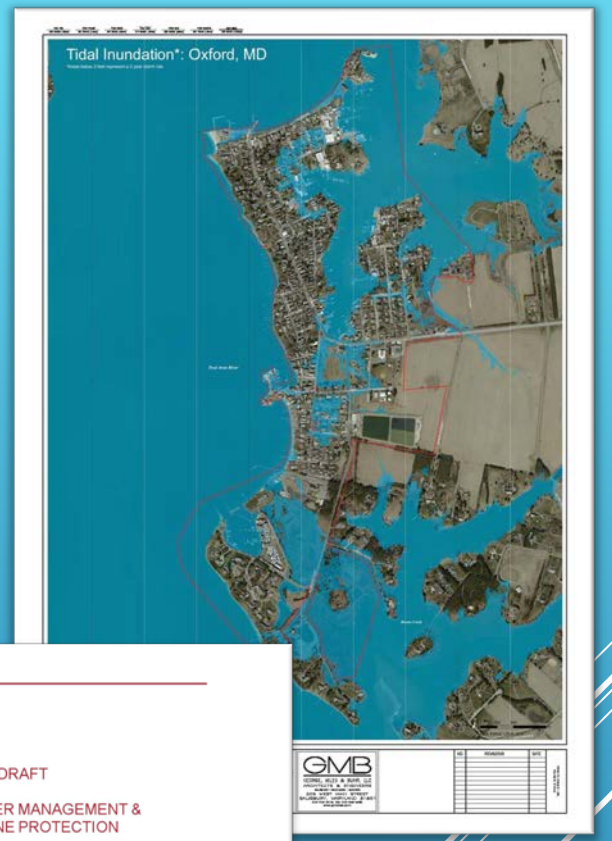
National Fish and Wildlife Foundation

Talbot County Master Gardeners

Chesapeake Bay Foundation

Eastern Shore Land Conservancy

EFC



DRAFT

STORMWATER MANAGEMENT & SHORELINE PROTECTION

INVENTORY & MASTER PLAN

OXFORD, MARYLAND

GMB PROJECT NO. 140187.A

Prepared for:

COMMISSIONERS OF OXFORD

JULY 2016
SEPTEMBER 2016 Rev 1

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS/ENGINEERS
206 WEST MAIN STREET
SALISBURY, MD 21801
410.742.3115
SALISBURY/BALTIMORE/SEAFORD

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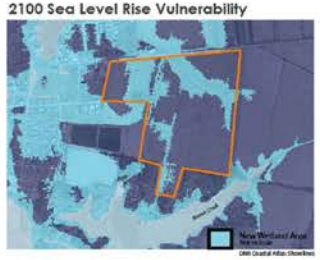
Oxford Park:
An Emerging Landscape

Project Goals
Create new opportunities for recreation.

Provide new habitat that can support animals from Blackwater National Wildlife Refuge.

Mitigate flooding at "Lake Oxford".

2100 Sea Level Rise Vulnerability



In 2100 sea level rise predeictions show the formation of new wetland areas. Within the 86 acre parcel the wetlands are categorized as irregularly flooded marsh and transitional marsh.

Water Flow

The proposed constructed wetlands are to help reduce the amount of water that contributes to the creation of "Lake Oxford" during storm events. Fixing the existing outfall to Town Creek will allow for redirecting the water away from "Lake Oxford".

Blackwater National Wildlife Refuge

Dorchester, MD is located approximately 10 miles south of Oxford, MD. Blackwater National Wildlife Refuge, located in Dorchester, contains wetlands that are recognized as Wetlands of International Importance by the Ramsar Convention and has also been recognized as an Internationally Important Birding Area. Since the 1940s, 7,000 of 17,000 acres of marsh have been lost at a rate of 100 acres per year.

Atlantic Flyaway

U.S. Fish and Wildlife Services + Photoshop

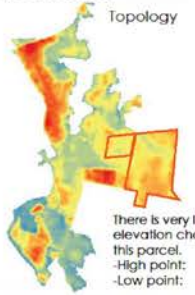
Delmarva Squirrel

Bald Eagle

Waterfowl

Site Analysis

Topology



There is very little elevation change on this parcel.
-High point:
-Low point:

Soils

The site is composed of hydric soil groups C and D. These are poorly draining soils which can be beneficial for constructed wetlands.

Existing Habitat

Oxford consists of estuary wetlands. There are no large forest stands in Oxford and can benefit from habitat creation.

Potential for habitat is dependent on elevation, soil, and existing habitats.

Adriana Mendoza Fall 2013 Studio V LARC 748

Phase One:
Remove soy beans
Removal of invasive species
Begin construction of wetlands
Introduce native seeds and plants in areas not effected by construction

Phase Two:
Vegetate wetlands
Replant trees that have not survived
Implement path system

Phase Three:
Build restroom building
Paving for parking lot
Add educational signage
Add tables, trash receptacales

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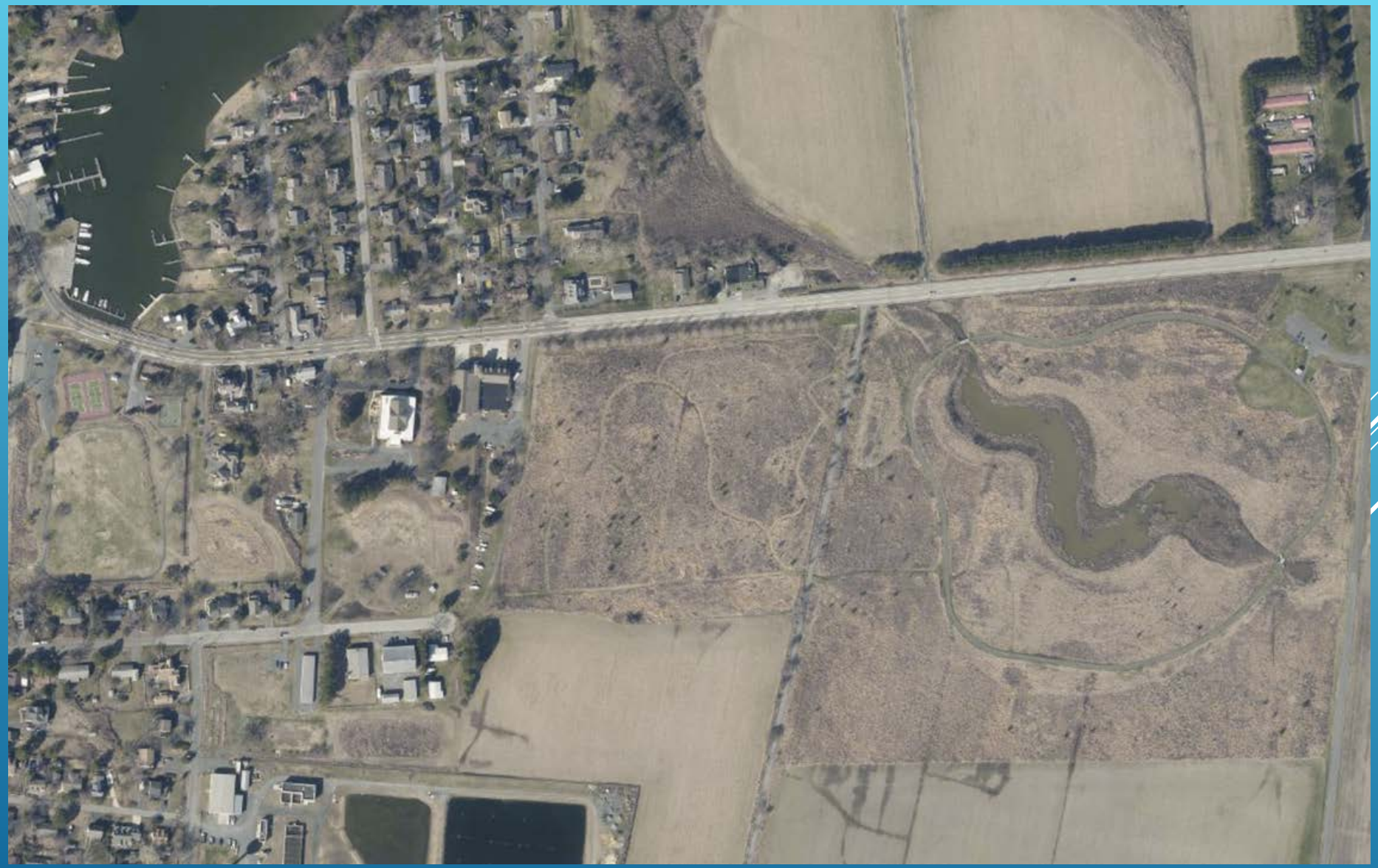

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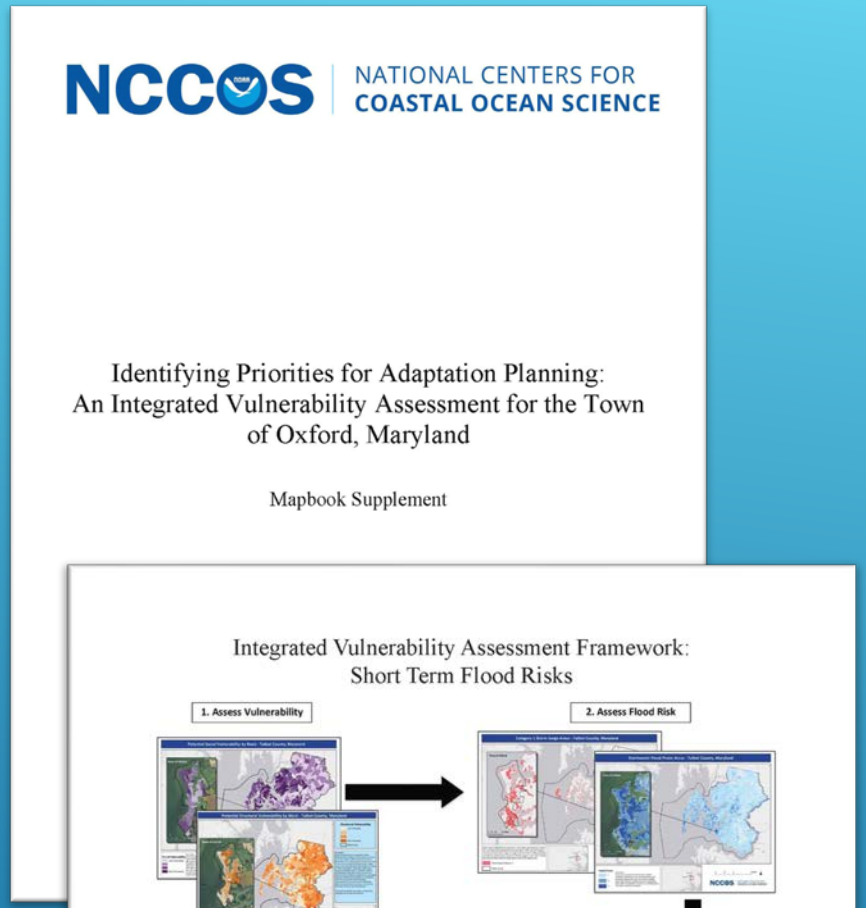
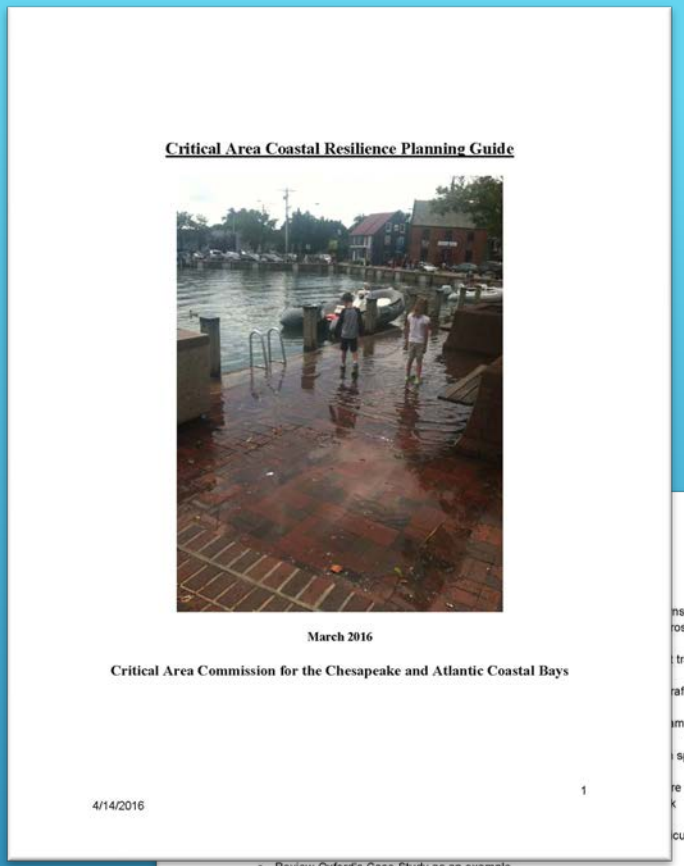

NCCOS | NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE

Identifying Priorities for Adaptation Planning:
An Integrated Vulnerability Assessment for the Town of Oxford, Maryland

Mapbook Supplement

Integrated Vulnerability Assessment Framework:
Short Term Flood Risks

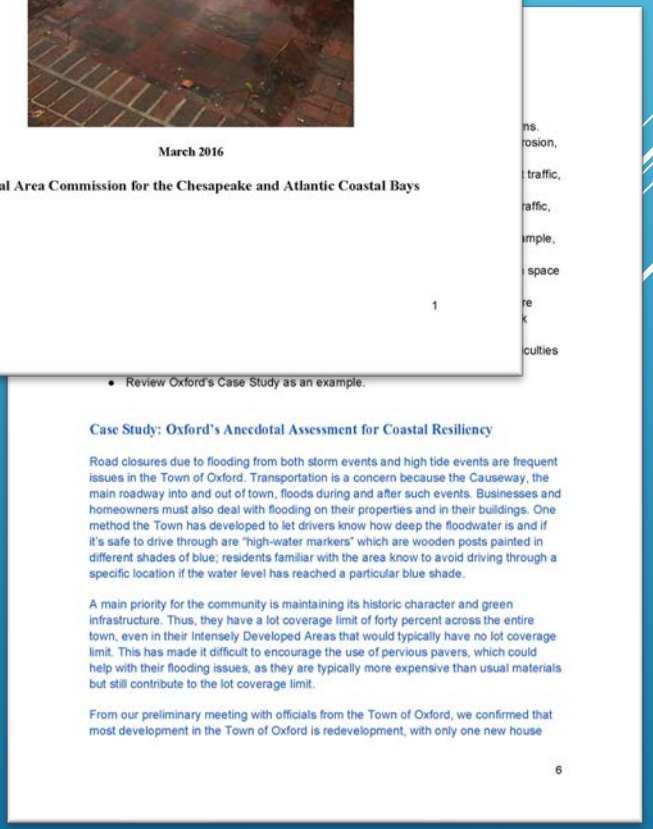
1. Assess Vulnerability
2. Assess Flood Risk
3. Prioritize Adaptation Areas
4. Take Management Action


Critical Area Coastal Resilience Planning Guide

March 2016

Critical Area Commission for the Chesapeake and Atlantic Coastal Bays

4/14/2016 1


- Review Oxford's Case Study as an example.

Case Study: Oxford's Anecdotal Assessment for Coastal Resiliency

Road closures due to flooding from both storm events and high tide events are frequent issues in the Town of Oxford. Transportation is a concern because the Causeway, the main roadway into and out of town, floods during and after such events. Businesses and homeowners must also deal with flooding on their properties and in their buildings. One method the Town has developed to let drivers know how deep the floodwater is and if it's safe to drive through are "high-water markers" which are wooden posts painted in different shades of blue; residents familiar with the area know to avoid driving through a specific location if the water level has reached a particular blue shade.

A main priority for the community is maintaining its historic character and green infrastructure. Thus, they have a lot coverage limit of forty percent across the entire town, even in their Intensely Developed Areas that would typically have no lot coverage limit. This has made it difficult to encourage the use of pervious pavers, which could help with their flooding issues, as they are typically more expensive than usual materials but still contribute to the lot coverage limit.

From our preliminary meeting with officials from the Town of Oxford, we confirmed that most development in the Town of Oxford is redevelopment, with only one new house

6

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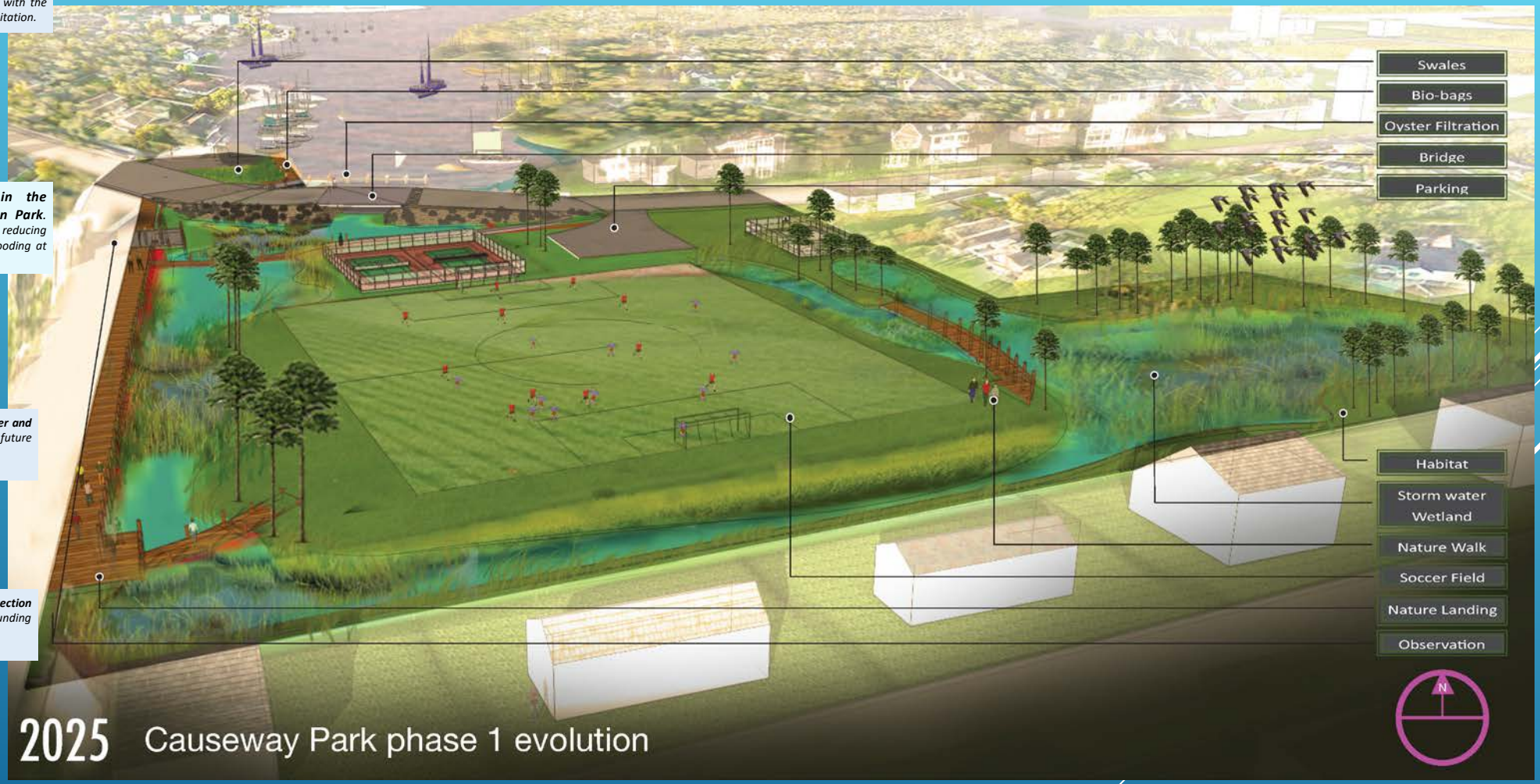

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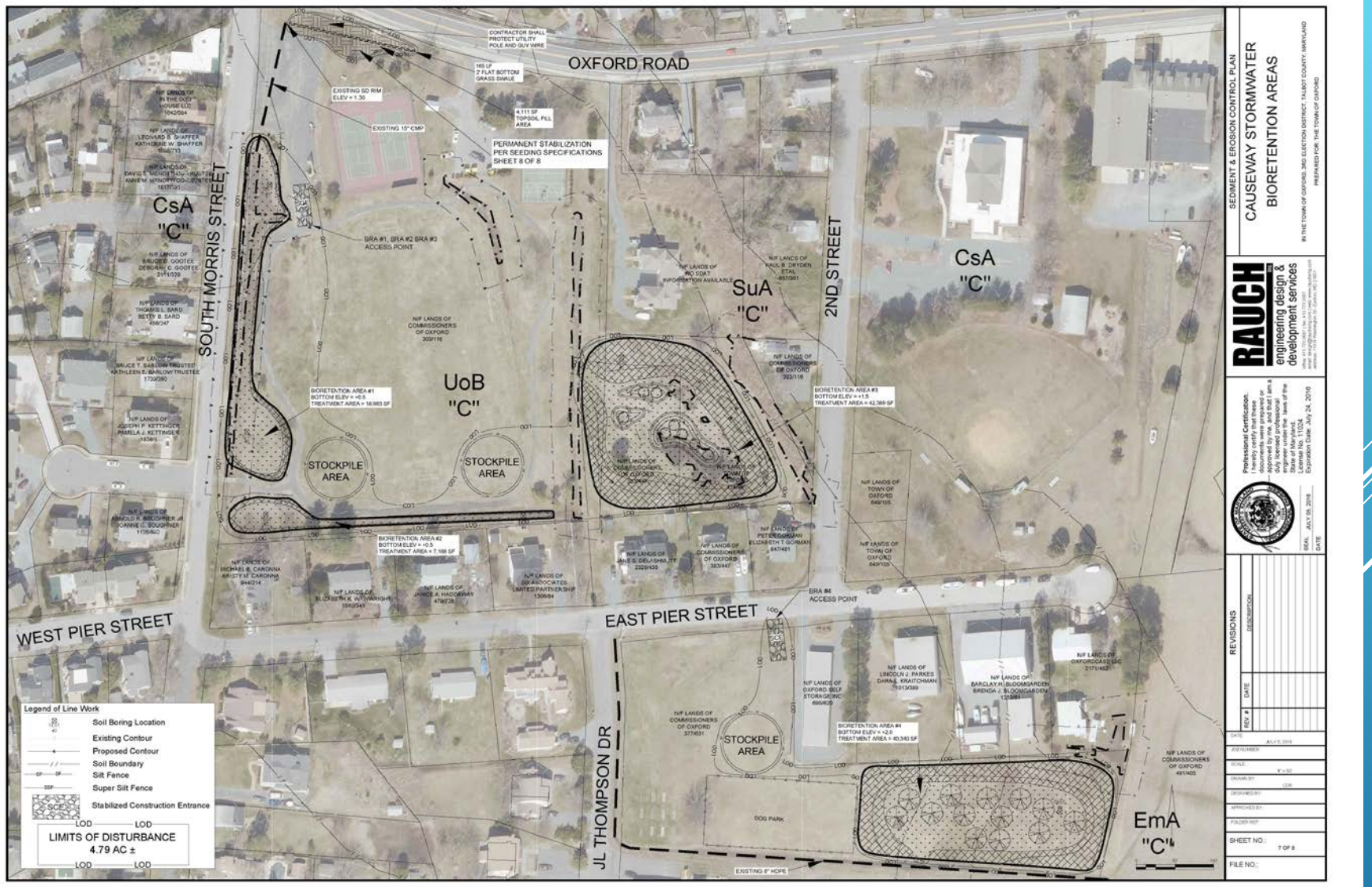

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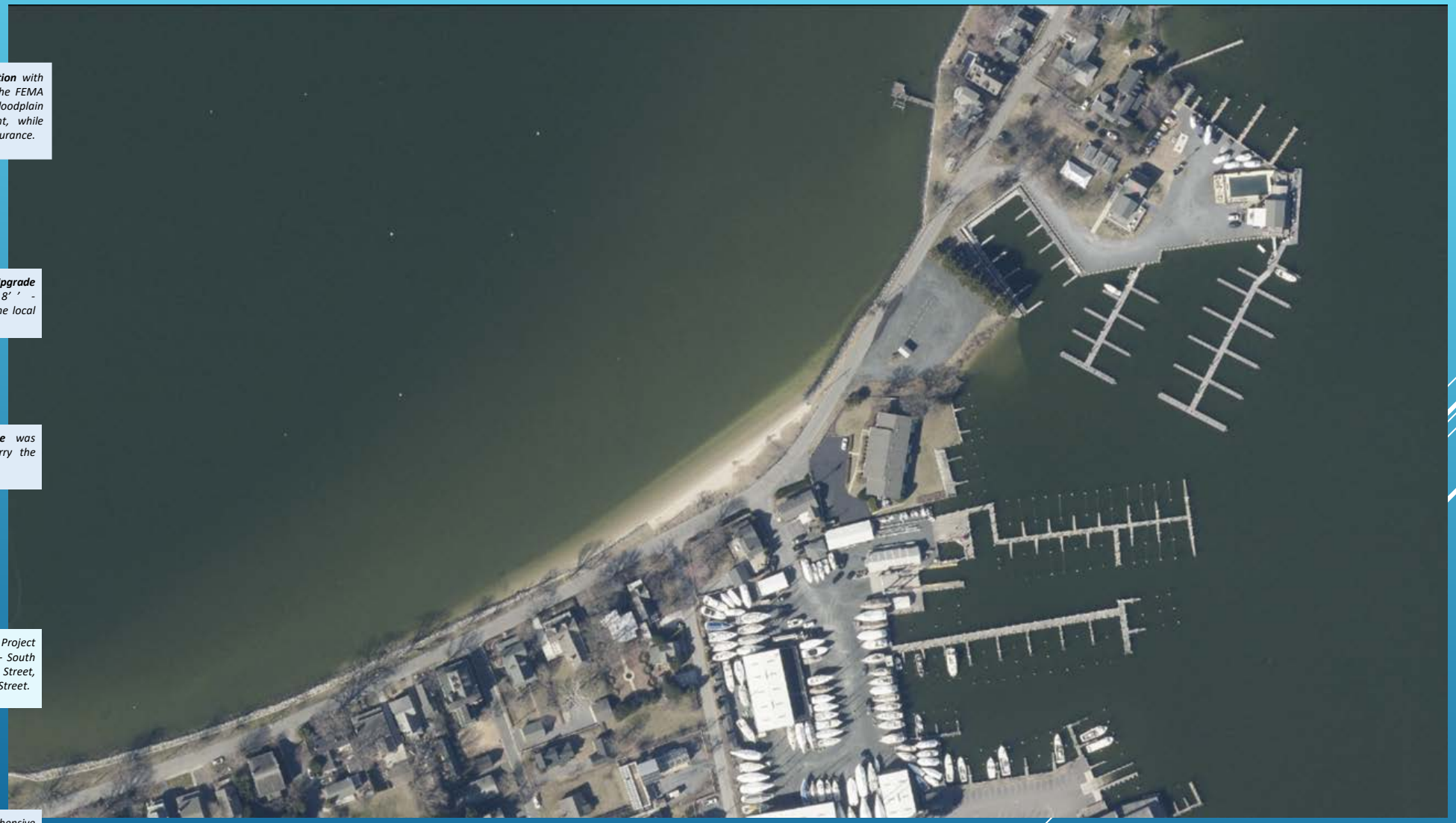

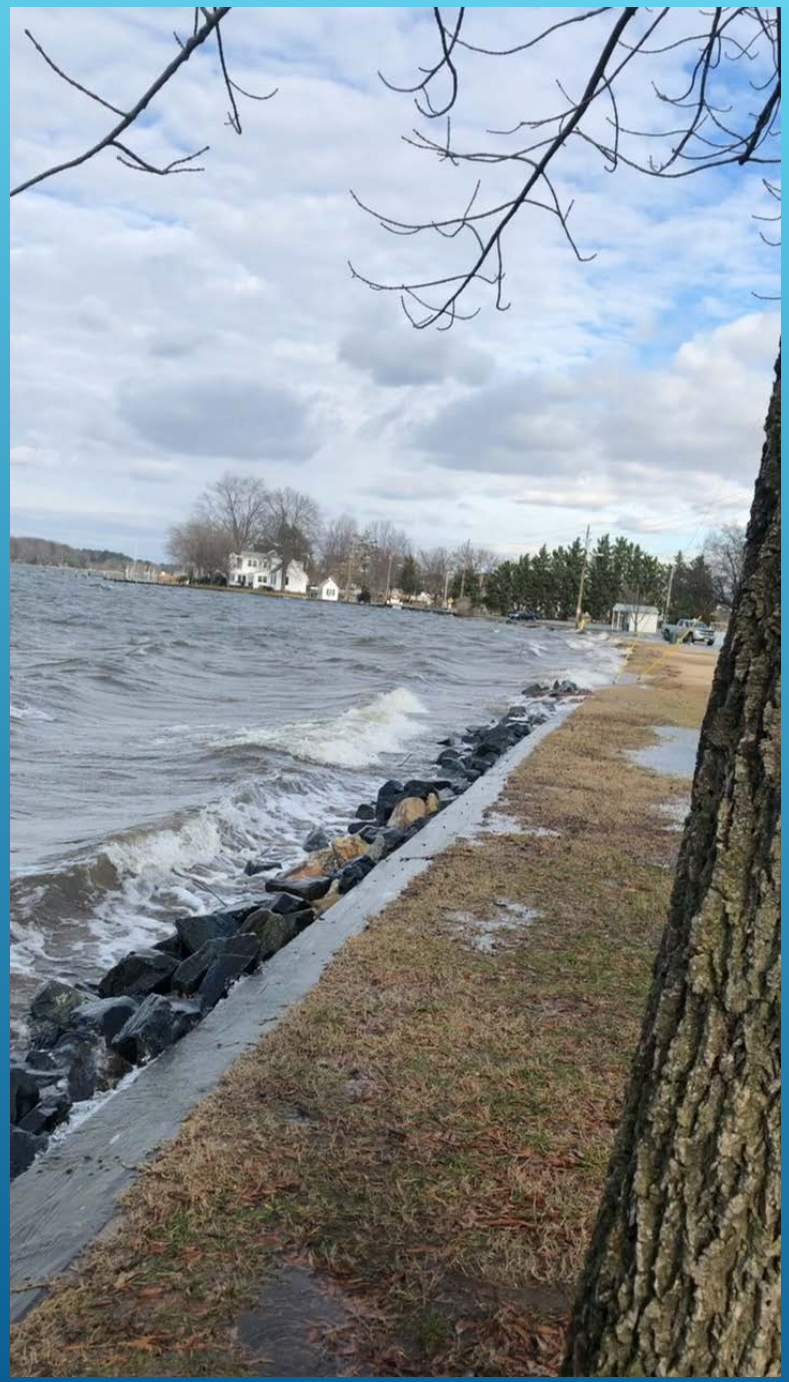


STOP

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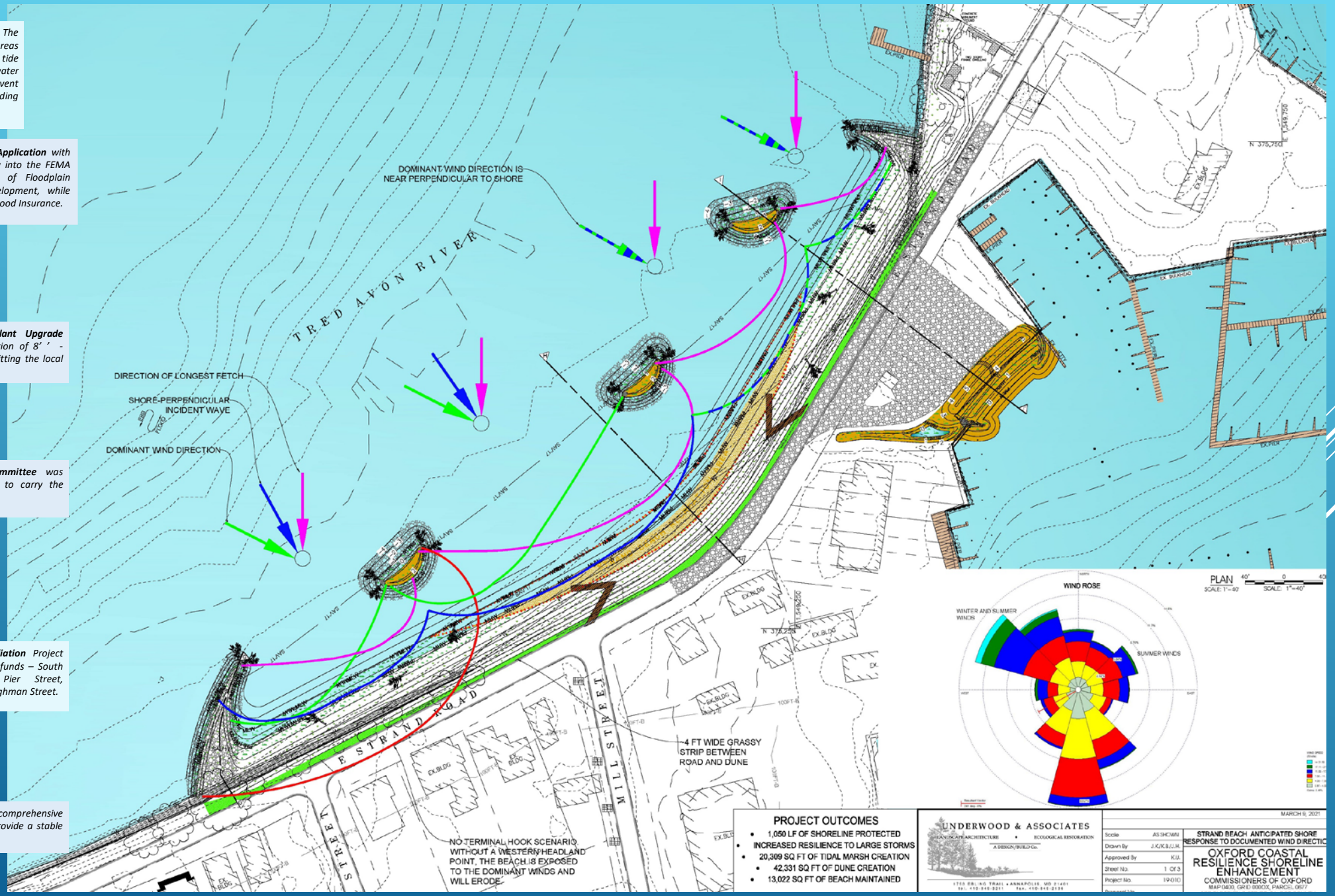
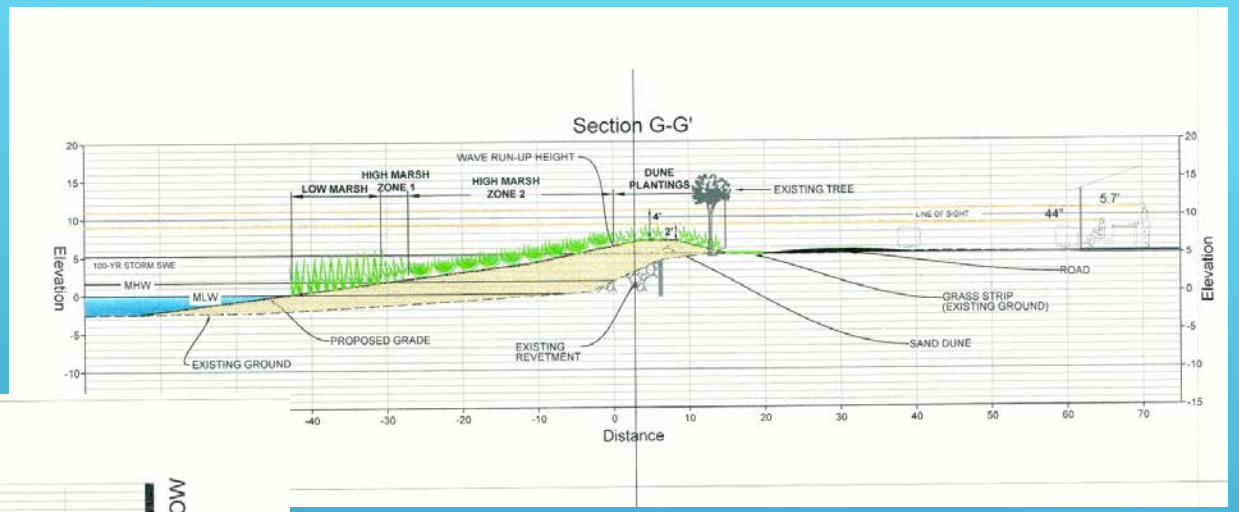
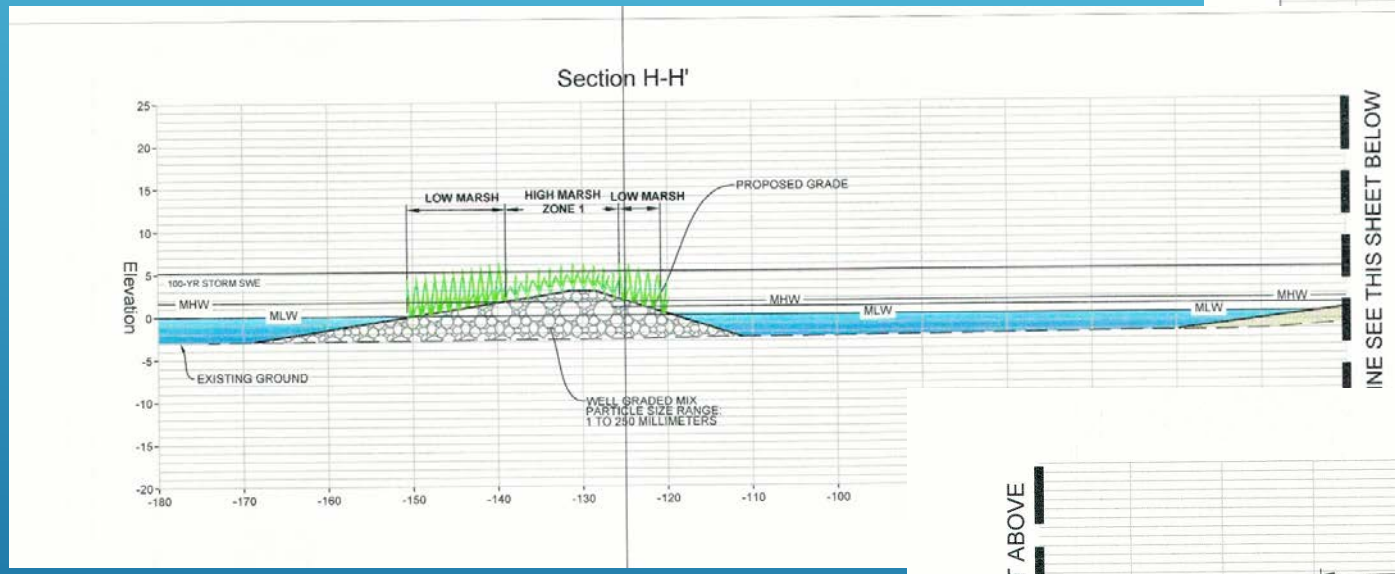
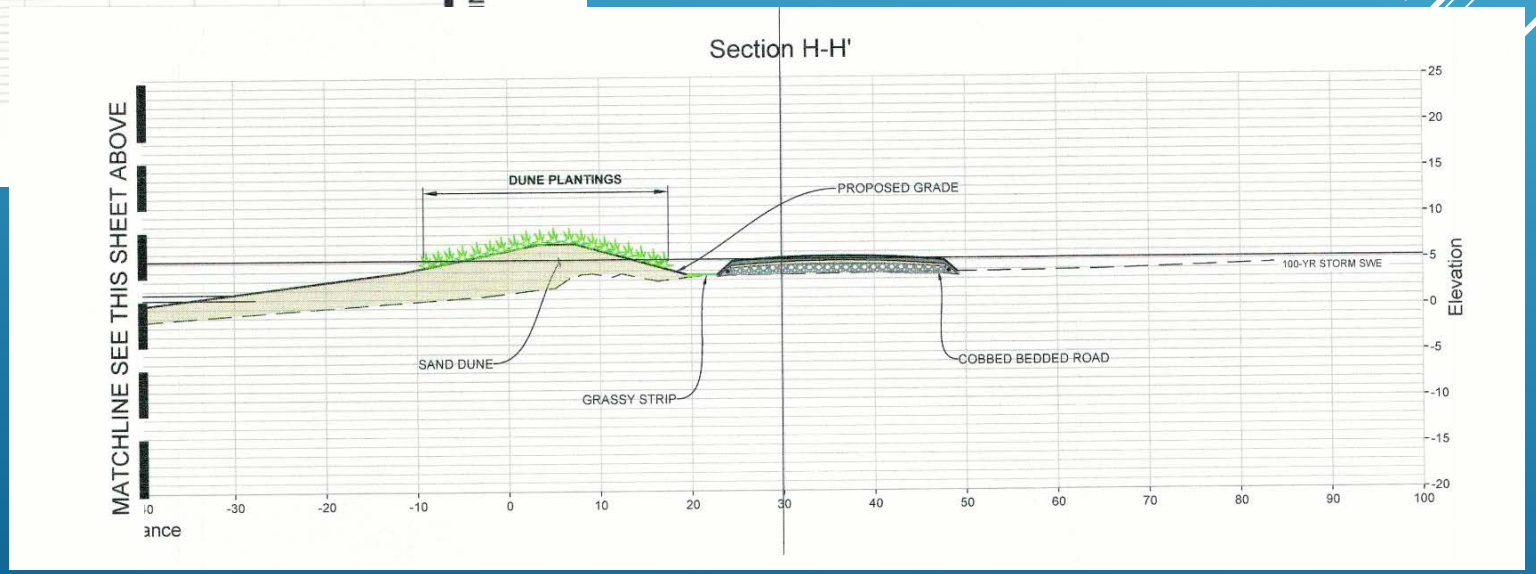



Section G-G'
WAVE RUN-UP HEIGHT
HIGH MARSH ZONE 1
LOW MARSH
HIGH MARSH ZONE 2
DUNE PLANTINGS
EXISTING TREE
LINE OF SIGHT
44°
5.7'
4'
2'
100-YR STORM SWE
MHW
MLW
ROAD
GRASS STRIP (EXISTING GROUND)
PROPOSED GRADE
EXISTING GROUND
EXISTING REVETMENT
SAND DUNE
Elevation
Distance


Section H-H'
LOW MARSH
HIGH MARSH ZONE 1
LOW MARSH
PROPOSED GRADE
100-YR STORM SWE
MHW
MLW
EXISTING GROUND
WELL GRADED MIX PARTICLE SIZE RANGE: 1 TO 250 MILLIMETERS
INE SEE THIS SHEET BELOW
Elevation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MATCHLINE SEE THIS SHEET ABOVE
DUNE PLANTINGS
PROPOSED GRADE
100-YR STORM SWE
SAND DUNE
GRASSY STRIP
COBBED BEDDED ROAD
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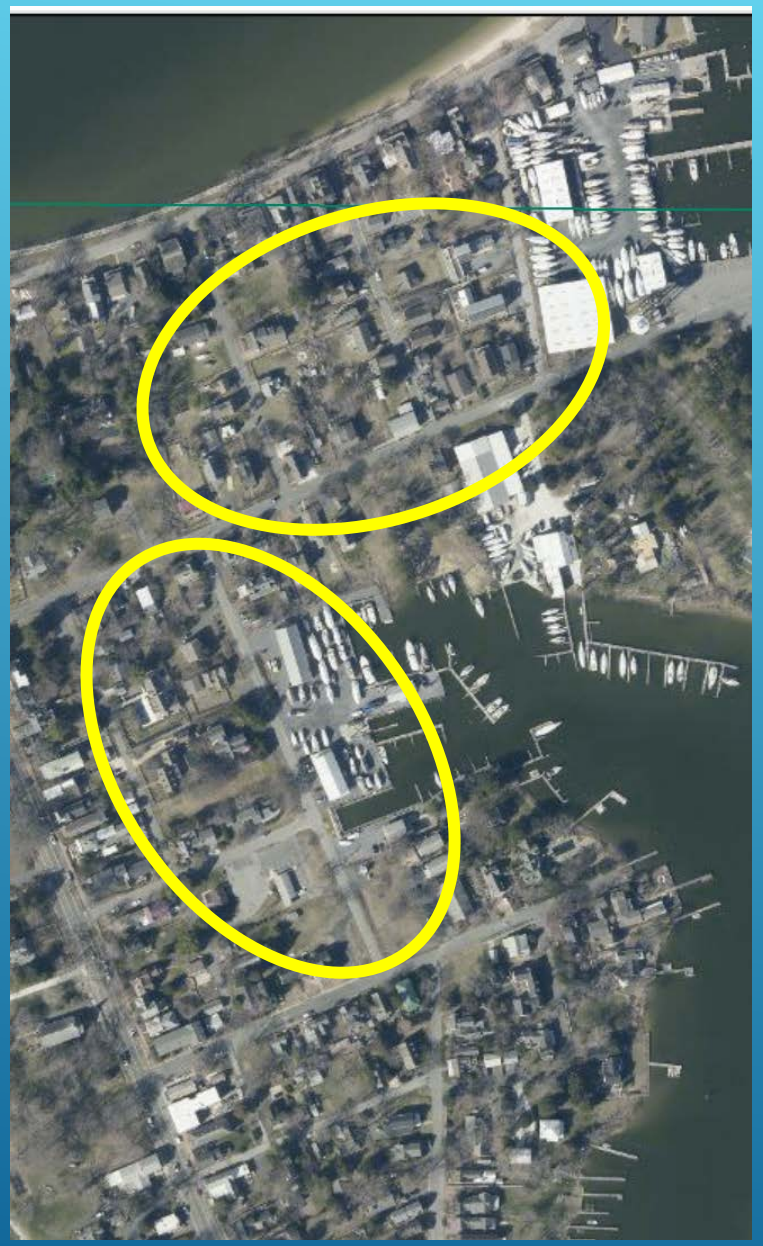
2023 Oxford Water Improvement Project *- comprehensive upgrade to the drinking water system to provide a stable utility and identify any future needs.*



2018 Causeway Stormwater Bioretention Pond construction. *The completed project provided a series of stormwater retention areas inland and the expansion of existing stormwater swales prior to the tide gate release to the Causeway. These newly created stormwater retention areas were de-signed to hold stormwater during a rain event and allow for both ground absorption and slow drainage, providing improved filtration prior to final discharge.*

2018 FEMA Community Rating System Application *with funding from MD DNR CoastSmart. Entry into the FEMA CRS Program requires a higher level of Floodplain standards, building resilience into development, while providing a discount to residents on their Flood Insurance.*

2019 Oxford Coastal Resilience Shoreline Enhancement and Stormwater Design *with funding from MD DNR Coastal Resilience Program "The Northern waterfront of Oxford, including Strand Beach".*

2020 Oxford Wastewater Treatment Plant Upgrade *constructed at the Flood Protection Elevation of 8' ' - providing enhanced nutrient removal benefitting the local waters of Town Creek.*

2021 Oxford Morris Street Main Waterline *pipe lined from the inside securing the main water resource for the historic district into the future.*

2022 Oxford Community Resilience Committee *was formed to act as 'keepers' of the light to carry the knowledge into the future.*

2023 Oxford Coastal Resilience Shoreline Enhancement and Stormwater Construction *with funding from MD DNR Coast Resilience Program, National Fish and Wildlife Foundation through the National Wildlife Federation, MD DNR Chesapeake and Coastal Services, and MD Department of the Environment Flood Management Grant Program.*

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Zoning Codes
- "ALL" new and improved structures should be built to the Flood Protection Elevation to assure resilience to future tidal events.

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Resilient Shorelines
- Continue natural stabilization of the shorelines for both public and private waterfronts.

OXFORD 2100 REPORT & TIMELINE will allow for development of a 100-year Capital Improvement Plan- allowing the town to determine when funding will be need to meet future sea level.

The next five years…

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Stormwater/Tidal Water Management
- Seek funding to complete infrastructure improvements as designed.

2023 Oxford 2100 – Strategic Vision of Oxford living with Sea Level Rise funding from MD DNR Chesapeake and Coastal Services.

2023 Oxford Water Improvement Project *- comprehensive upgrade to the drinking water system to provide a stable utility and identify any future needs.*

Oxford Water Improvements
- Completed identified projects in Phase 1 and determine Phase 2 needs.

Currently seeking federal funding to develop Oxford specific information: OXFORD'S BUILDING CAPACITY FOR SEA LEVEL RISE ADAPTION ON THE EASTERN SHORE

2022 Oxford Community Resilience Committee *was formed to act as 'keepers' of the light to carry the knowledge into the future.*

Community Resilience Committee

Continue to request collaboration with MD Department of Transportation to prioritize design for a future "Causeway" solution in order to address sea level rise.

Q & A on any topic of interest.

This presentation will be placed on the Town website.