



Nature-Based Solutions for Coastal Highway Resilience

October 8, 2019

Tina Hodges

Federal Highway Administration



Morris Landing, NC. Photo Credit: Tina Hodges



QUESTION



U.S. Department of Transportation
Federal Highway Administration

How many miles are there of coastal roads in the US?

(Coastal roads defined as roads at least occasionally exposed to coastal waves and surge. Includes estuaries, not just open coast.)

- a. 1,000
- b. 20,000
- c. 60,000
- d. 100,000

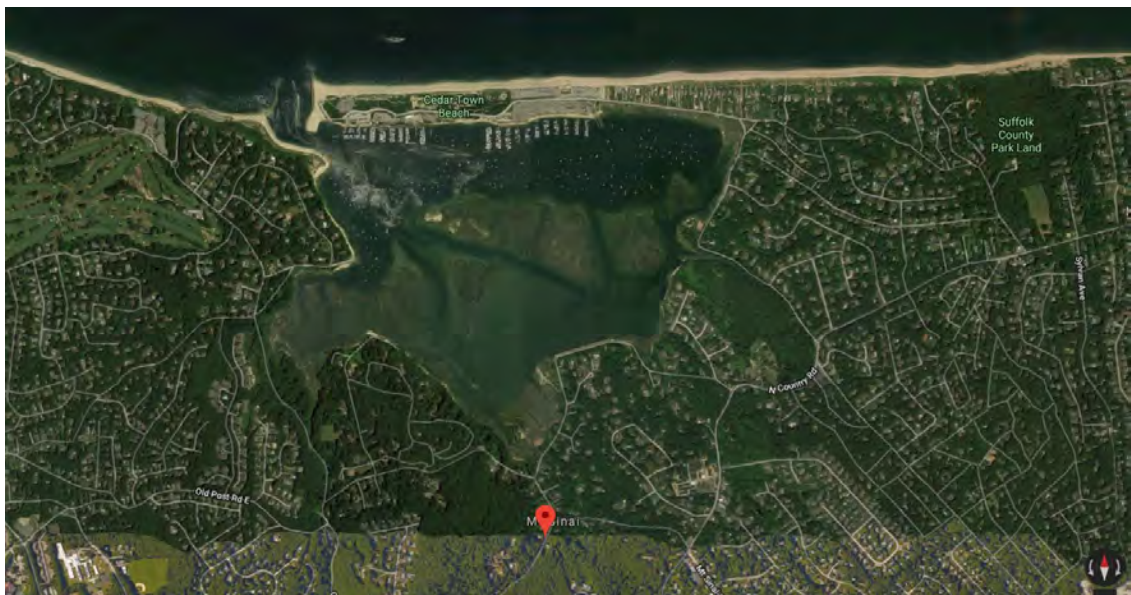


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Source: FHWA, [HEC-25: Highways in the Coastal Environment](#)

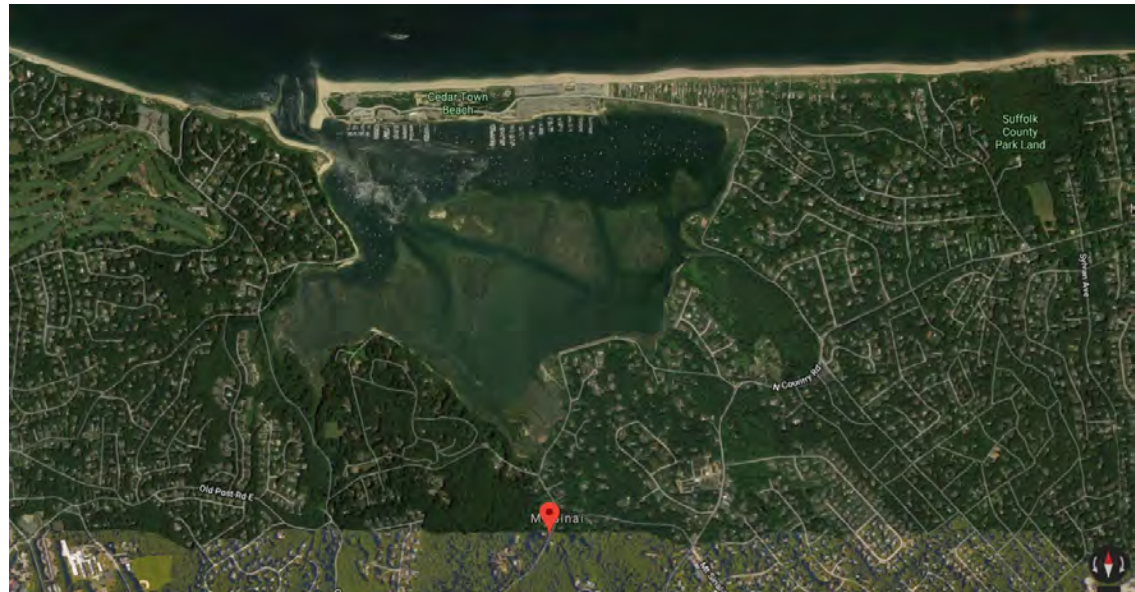


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“DOT will increase its effectiveness in ensuring that infrastructure is resilient enough to withstand extreme weather” – USDOT FY 2018-22 Strategic Plan

FHWA Resilience Pilots and Studies

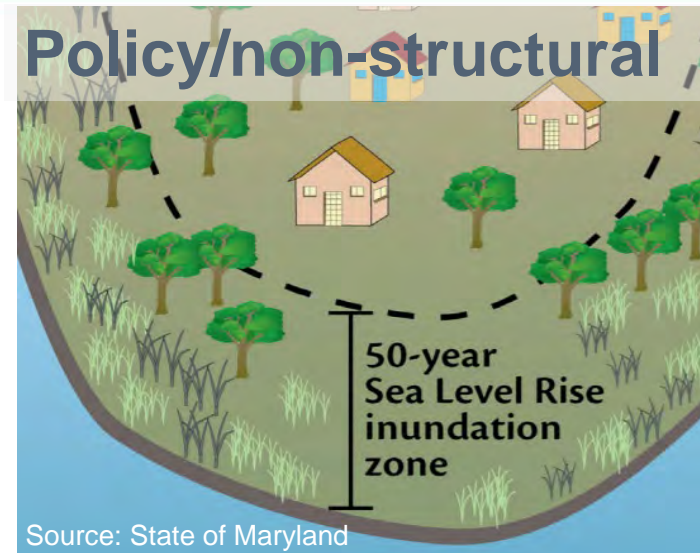


Research Gap: Nature-based Solutions and Integrated Approach

Structural solution



Policy/non-structural



Nature-based solution



- Natural features
- Nature-based features
- Hybrid approaches

Nature-Based Solutions for Coastal Highway Resilience

- 5 pilot projects
 - OR DOT
 - ME & NH DOTs jointly
 - MS DOT
 - DE DOT
 - US Army Corps of Engineers in NJ
- White paper
- Regional peer exchanges
- Implementation Guide
- Incorporated into HEC-25

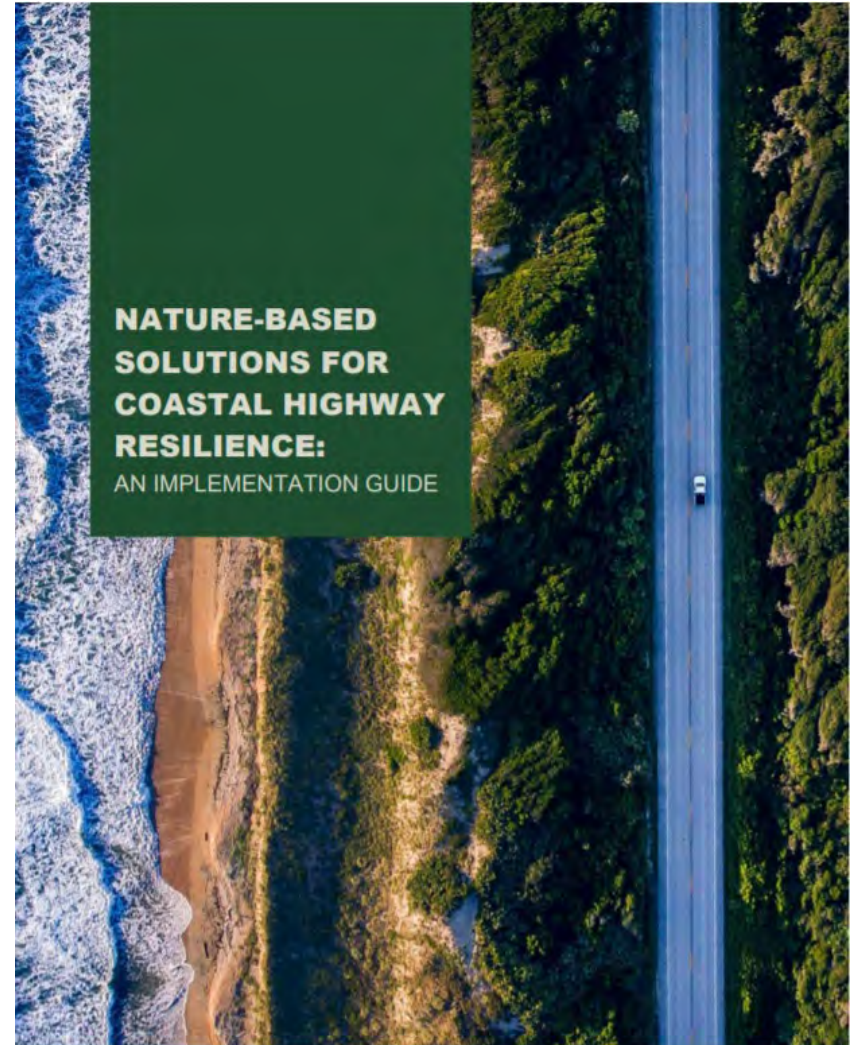
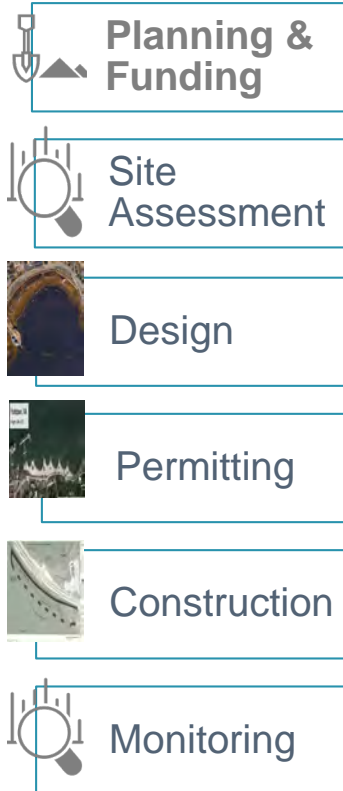


Participants at Alabama Peer Exchange. Credit: Susan Asam

Implementation Guide



- Goal: Provide info transportation agencies need to implement
- Overview
 - Technical factsheets
 - Benefits and typical costs
 - Implementation considerations



**Now available for
download at
bit.ly/FHWA_Nature**

What Makes Highway Agencies Adopt Living Shorelines?

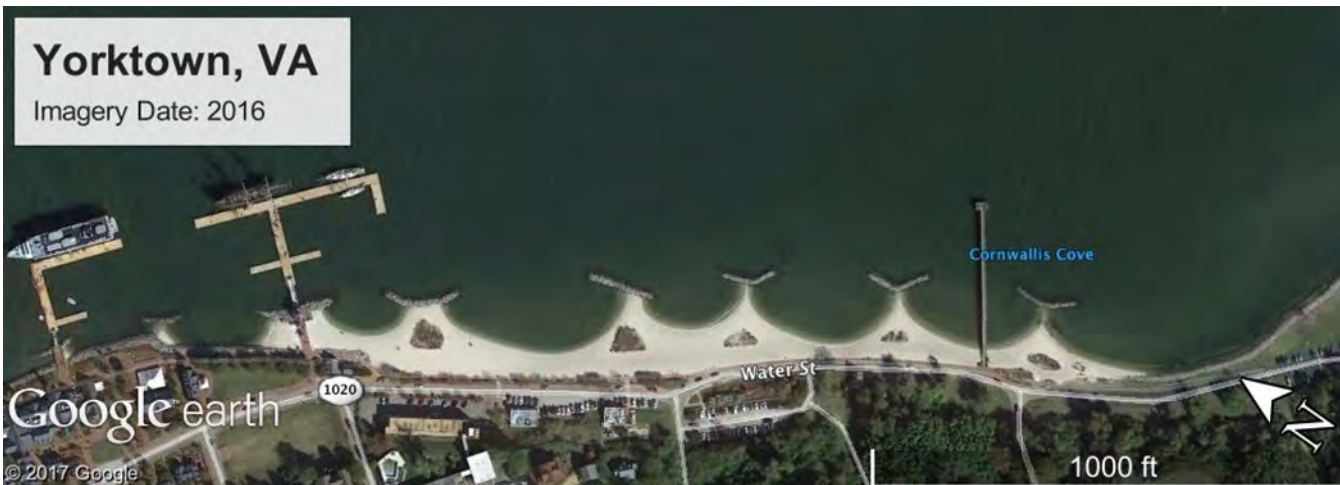


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- Opportunity to meet multiple goals
 - Protect road
 - Protect surrounding community
 - Habitat creation
 - Compensatory mitigation
- Evidence of wave, erosion, and flood reduction benefits; data on benefits and costs; examples; step by step guidance (see FHWA Implementation Guide!)
- Partnerships



Pensacola, FL



Yorktown, VA

Imagery Date: 2016

Top: Project Green Shores, Pensacola, FL protects 1 mi segment of Bayfront Parkway. Constructed 2003. FL DEP led.

Left: Pocket beaches protect Water St in Yorktown, VA. York County lead. VDOT contributed funding. Constructed 1994. Map Credit: Google Earth



Design and implement living shoreline (shellfish habitat, saltwater marsh) as part of reconstruction of Laguna Shores Road.

Partners:

- Corpus Christi Metropolitan Planning Organization
- FHWA
- Texas A&M University
- City of Corpus Christi Engineering Department
- HDR Engineering

Thank You!



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**Download the
Implementation Guide!
bit.ly/FHWA_Nature**



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