

# The RAFT

Resilience Adaptation Feasibility Tool

PRESENTED BY:

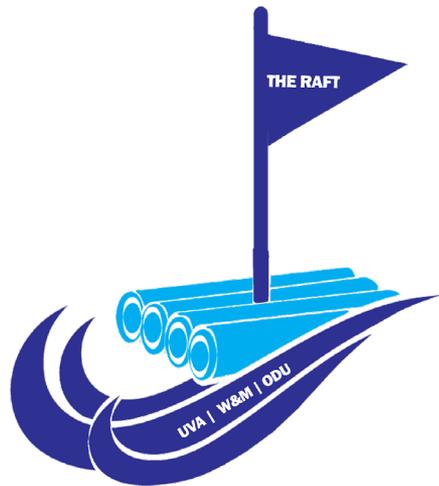


# THE RAFT GOAL

*To help Virginia's coastal localities  
improve resilience to flooding and other coastal storm hazards  
while remaining economically and socially viable.*



# THE RAFT TEAM



**Multi-disciplinary academic partnership**

**Core Team:**

**Old Dominion University**

Virginia Sea Grant Climate Adaptation and Resilience Program

**William & Mary Law School**

Virginia Coastal Policy Center

**University of Virginia**

Institute for Engagement & Negotiation

# INCREASING FLOODING

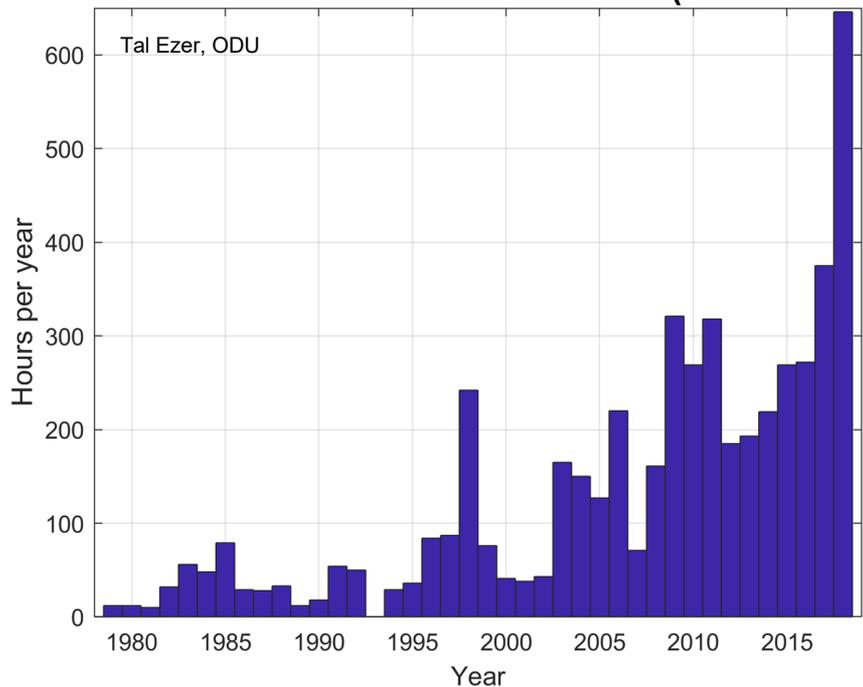
## ■ Nearby sea level rise rate measured in Lewisetta:

- 1978-1993 = 0.15 in/yr
- 1994-2018 = 0.26 in/yr
- 12 days of flooding in 2019
- Over 600 hours of flooding in 2019



Photo courtesy of wtvr.com

## Annual Flood Hours in Lewisetta (1ft>MHHW)



# Complex Flooding

RISING  
TIDES



INCREASED  
PRECIPITATION



GROUNDWATER  
EXTRACTION



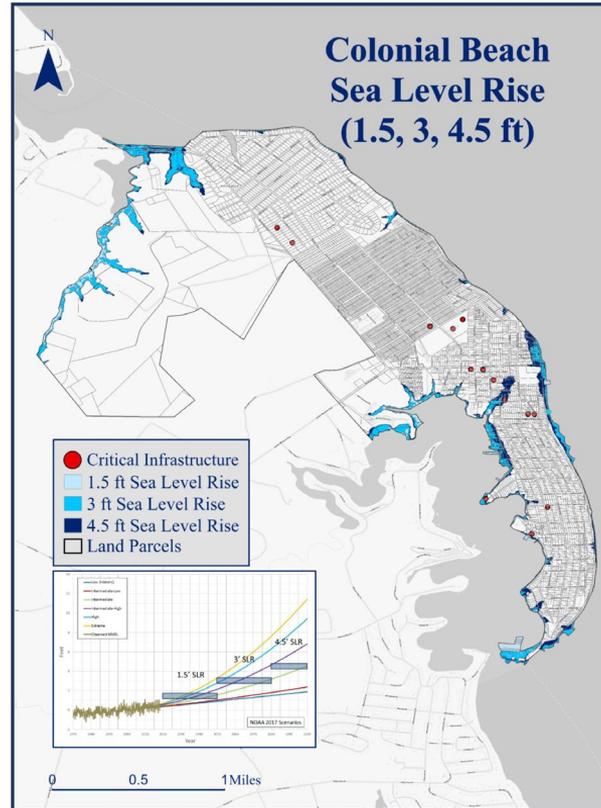
SURFACE  
RUNOFF



STORM  
SURGE



# RISK OF FUTURE FLOODING



OLD DOMINION UNIVERSITY  
Resilience Collaborative

WILLIAM & MARY  
LAW SCHOOL  
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UNIVERSITY  
OF VIRGINIA  
INSTITUTE for  
ENGINEERING & NEGOTIATION  
Shaping Our World Together

For more information visit: <https://raft.ien.virginia.edu/>

# WHAT IS AT RISK?

- Land inundation
- Shoreline erosion
- Destruction of wetlands
- Saltwater intrusion into wells
- Increased threat of severe storms
- Higher property insurance rates
- Transportation and infrastructure
- Economic stability



# RESILIENCE



From: California adaptation forum

<https://www.californiaadaptationforum.org/2018caf/equity/>

## The Resilience Cycle



Adapted from: NOAA Coastal Community Resilience Indicators and Rating Systems, 2015

# THE RAFT PROCESS

## 3 Step Process

### 1. Scorecard

Resilience Assessment

### 2. Resilience Action Workshop

Resilience Action Checklists  
Locality Implementation Teams

### 3. Implementation

Ongoing Assistance



# STEP 1: THE RAFT SCORECARD

1. **POLICY, LEADERSHIP, AND COLLABORATION:** policies, coordination, and access to data
2. **RISK ASSESSMENT AND EMERGENCY MANAGEMENT:** risk assessments, vulnerable populations, and plans for disaster preparedness
3. **INFRASTRUCTURE RESILIENCE:** stormwater, critical infrastructure, and natural and nature-based features
4. **PLANNING FOR RESILIENCE:** comprehensive plan, zoning ordinance, building and development incentives, and green infrastructure
5. **COMMUNITY ENGAGEMENT, HEALTH, AND WELL BEING:** residents, social equity, health and wellness

# COLONIAL BEACH TOTAL SCORE

Category	Score Received	Possible Score
1) POLICY, LEADERSHIP, AND COLLABORATION	9	20
2) RISK ASSESSMENT AND EMERGENCY MANAGEMENT	14	20
3) INFRASTRUCTURE RESILIENCE	9	20
4) PLANNING FOR RESILIENCE	12	20
5) COMMUNITY ENGAGEMENT, HEALTH, AND WELL BEING	10	20
<b>Total Score:</b>	<b>54</b>	<b>100</b>

## TOP STRENGTHS

- **Established emergency response roles, collaboration, and communication to the public.**
- **Regional Hazard Mitigation Plan includes flood exposure and vulnerability assessment, as well as a risk assessment for vulnerable populations.**
- **Support for living shoreline implementation.**
- **Comprehensive Plan discusses coastal resilience, community engagement, and includes goals/objectives to preserve and protect natural resources.**
- **Locality provides coastal resilience related information through a variety of methods including social media, website, and public meetings.**

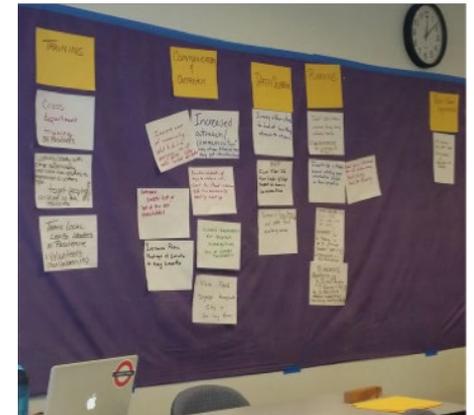
## TOP OPPORTUNITIES

- Hold **resiliency training and education events** for elected officials, locality staff, and/or residents.
- **Update site/subdivision ordinance and/or comprehensive plan** to incorporate new data, scientific analyses, and approaches to resilience.
- **Participate in CRS** as a way to reduce flood insurance premiums for policyholders in the community.
- Incorporate resilience elements into **economic development plans** – for example, provide programs for small businesses for emergency preparation and business continuity post-event.
- Engage residents, schools, hospitals, and other groups in **emergency drills, simulations**, and planning workshops.
- Provide **demonstrational BMPs** on public property for stormwater education.

## STEP 2: RESILIENCE ACTION WORKSHOP AND CREATING RESILIENCE ACTION CHECKLISTS

### Each Community Develops 4 to 5 Actions

- **Develop emergency response system**, by identifying vulnerable populations (senior, disabled, other), responsible authorities and contact lists, shelter center, volunteer help, and developing emergency evacuation plan.
- **Develop/create a coastal resilience resource list**, to help the town to quickly and effectively identify resources for emergencies, funding, planning etc. when needed.
- **Create resilience risk maps** to help decision-making, including key assets and resources that need to be protected.
- **Develop a basic needs list**, for both In-Season and Off-Season populations: e.g., water, shelter, food, medicine (basics), and how many bodies can be held at which shelter sites



## STEP 3: IMPLEMENTATION – WITH ASSISTANCE FROM THE RAFT TEAM

- **Monthly support calls** for Locality Implementation Team with The RAFT Core Team
- **Assistance** over one year in completing Resilience Action Checklist items such as:
  - Communication products
  - Policy and legal analysis
  - Model ordinances and comprehensive plan language
  - GIS mapping
  - Connection to needed experts (i.e. engineers or planners)
  - Facilitation, presentations, community engagement, surveys

# EXAMPLES FROM EASTERN SHORE OF ASSISTANCE FROM THE RAFT TEAM



## Onancock

### Warnings & Information

#### Radio Stations

WESR – 103.3FM, 1330AM  
WCTG- 96.5

#### Television Channels

WVEC, WTKR, WAVY, WBOC, WMDT

Facebook: Town of Onancock

Website: [www.onancock.com](http://www.onancock.com)

Eastern Shore of Virginia 911 Center

Sign up for emergency alerts

Go to the Accomack County

Website to sign up with CodeRED



## FOR ALL EMERGENCIES DIAL 9-1-1

### Non-Emergency Contact Information

Onancock Police Department	757-787-8577
Emergency Management Coordinator Accomack County (Charles Pruitt)	757-789-3610
Accomack County Non-Emergency Number	757-787-1131
Town of Onancock	757-787-3363

#### What do you need in an Emergency?

- Food:** 3-7 days of non-perishable, easy to prepare items
- Water:** 1 gallon per person, per day, for 3-7 days
- Special **dietary items** and **special needs items** (for infants and/or elderly)
- First aid kit, **medications**, prescriptions
- Important documents: **picture ID**, insurance policies, etc.
- Cell phone** with chargers and back up battery
- Vehicle full of **fuel**, **keys**, and **cash** in small denominations
- Basic tool set, **manual can opener**
- Flashlight** and extra **batteries**
- Battery-powered radio** with NOAA weather alert
- Clothing**, personal hygiene supplies
- Cleansing wipes, **sanitizer**

\*Consider your **pets' needs**  
(please do not leave them behind!)



## THE RAFT

RESILIENCE ADAPTATION FEASIBILITY TOOL

### Beach Relocation Economics

Accomack County, VA

2019

Authored by The RAFT Partners

## Know Your Zone vs. Your FEMA Flood Zone

### "Know Your Zone" is Evacuation

Virginia Department of Emergency Management



Evacuation zones are for tiered evacuation and labeled from A through D. A is the highest risk of flooding.

Partial evacuations are possible in which residents of flood-prone areas should move to safer locations. The evacuation route out of the area is Route 13 NORTH.

Find your evacuation zone at: <https://www.vademergency.gov/hurricane-evacuation-zone-lookup/>

### FEMA Flood Zone

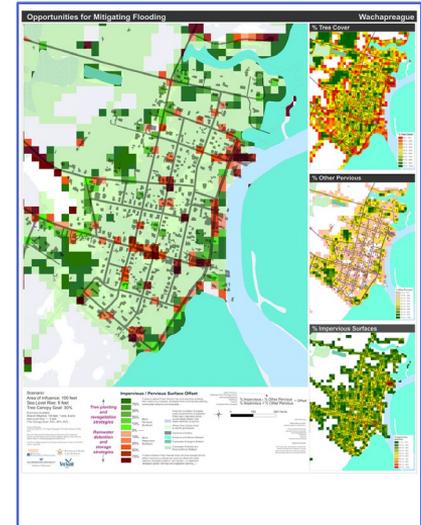
Based on FEMA National Flood Hazard Layer



Flood Zones are FEMA designated areas of flood risk used to determine flood insurance rates (darker shades refer to the risk of flood water being deeper):

- VE Zone – 1% annual chance of flooding and the most hazardous due to wave velocity at the water's edge (areas with stripes on this map)
- AE Zone – 1% annual chance of flooding and high flooding potential (solid colored areas except green)
- Moderate flood hazard – 0.2% annual chance of flooding (green)
- X Zone (unshaded) – minimal risk (white)

Find your flood zone at: <https://accomack.mapsdirect.net/>



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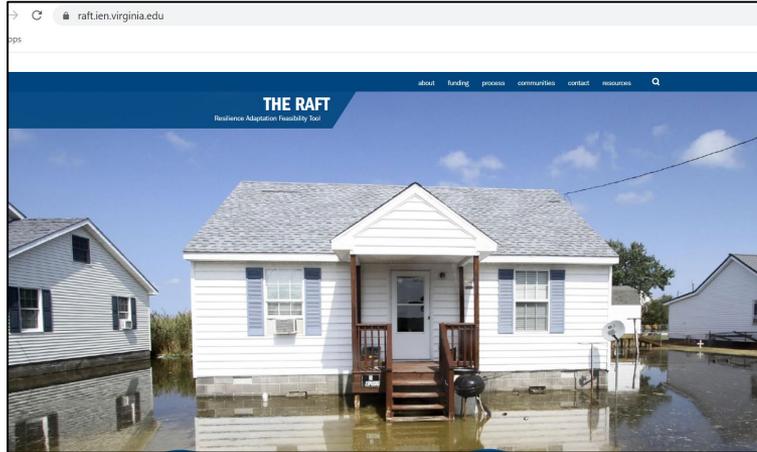
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VISIT THE RAFT WEBSITE: <https://raft.ien.virginia.edu/>



The RAFT is a collaborative, community-driven process and full-service tool developed to help Virginia's coastal localities improve resilience to flooding and other coastal storm hazards while remaining economically and socially viable.

### The RAFT Communities

[2017-2018 Pilot Project](#)   [2018-2019 Eastern Shore](#)   [2019-2020 Northern Neck](#)

*"After reading the RAFT Scorecard for our community, the Saxis team immediately knew where it could improve to prepare for Florence – getting a count of who was staying, who was evacuating, providing transport to shelters, creating a master communication list, etc.!"*  
-The Saxis Resilience Implementation Team

#### The RAFT Resilience Resources

The RAFT Resilience Research & Policy Products	The RAFT Resilience Communication Products
The RAFT Scorecard Assessments & Checklists	The RAFT Resilience Maps
State & National Resilience Resources	

**THANK YOU!**

**ANY QUESTIONS?**