

The Eastern Shore of Virginia

Hazard Mitigation Plan

- 2016 -



FEMA



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What is a hazard mitigation plan?

- A plan of policies and sustained actions to reduce or eliminate the long-term risk to human life and property from hazards.
- A hazard mitigation plan can also help a community take actions to prevent damage to its unique economic, cultural, and environmental assets.



Saxis Harbor, Virginia. Photo: Randy Peterson



Hazard Mitigation Plan Chronology

- **2000**: The Disaster Mitigation Act (DMA2000) enacted by Congress to
 - 1) reduce loss of life and property
 - 2) reduce human suffering
 - 3) reduce economic disruption
 - 4) reduce disaster assistance costs
- **November 1, 2004**: DMA2000 makes any community without an adopted and FEMA approved mitigation plan ineligible for some FEMA disaster funding
- **2005-2006**: ESVA Hazard Mitigation Planning Committee formed to complete original plan
- **October 2006**: Original HMP Adopted



Hazard Mitigation Plan Chronology

- **2010 - 2011**: ESVA Hazard Mitigation Planning Committee reforms to update 2006 plan
- **December 2011**: 2011 HMP Adopted
- **2014 - 2016**: ESVA Hazard Mitigation Steering Committee reforms to update the 2011 plan
 - All participating jurisdictions must adopt by the end of January, 2017
- Plan must be updated and re-adopted every 5 years to maintain FEMA-approved status



Participating Jurisdictions:

Both Counties and the following Towns:

Chincoteague

Saxis

Hallwood

Bloxom

Parksley

Tangier

Wachapreague

Onley

Onancock

Melfa*

Keller

Cape Charles

Cheriton*

Eastville

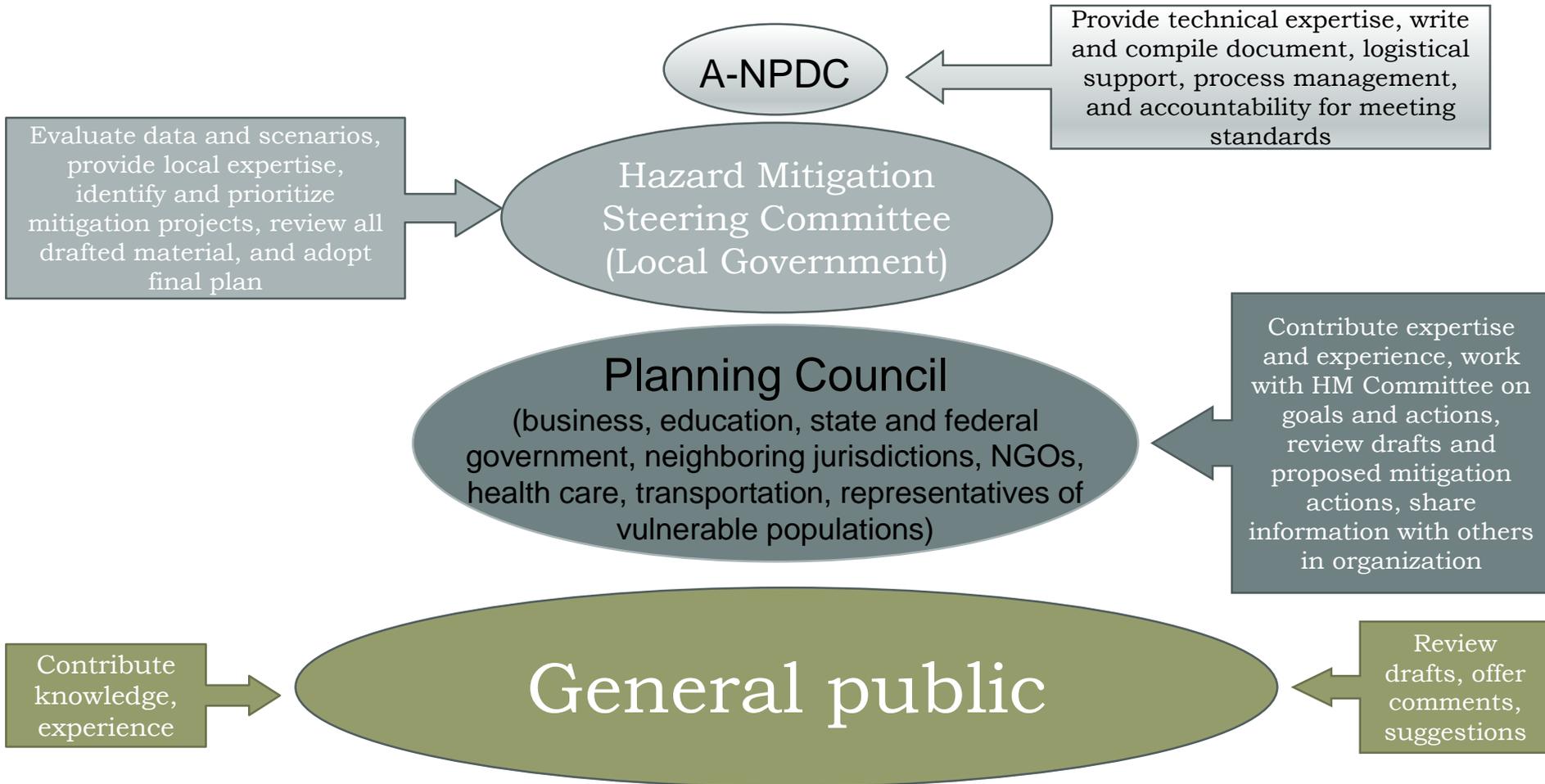
Exmore

Nassawadox*

****Denotes first-time participating towns***



Process and Participant Roles



Steering Committee

James Eichelberger, Chairman	Parksley, Mayor
Peter Stith, Vice Chairman	Northampton County, Long Range Planner
Denise Bendick	Melfa, Mayor
Mark Bowden	Accomack County, Acting Code Official
Jeb Brady	Cape Charles, Code Official
R. Scott Callander	Bloxom, Mayor
Denise Drewer	Saxis, Mayor
Robert Duer	Exmore, Town Manager
Taylor Dukes	Exmore, Public Works
David Eder	Eastville, Town Police Sergeant
James Eskridge	Tangier, Mayor
Ed Gibb	Nassawadox, Mayor
Greg Hardesty	Cheriton, Town Council Member
John Joeckel	Wachapreague, Town Council Member
Doug Jones	Accomack County, Deputy Director of Public Safety
Russell Jones	Onancock, Mayor
Mariann Miller	Saxis, Town Clerk
Rob Marney	Chincoteague, Town Planner
Greg Nottingham	Keller, Mayor
John Outten	Northampton County, Building Official
J. Jackie Poulson	Hallwood, Mayor
Bryan Rush	Chincoteague, EMS Supervisor
Don Strautz	Onley, Council Member





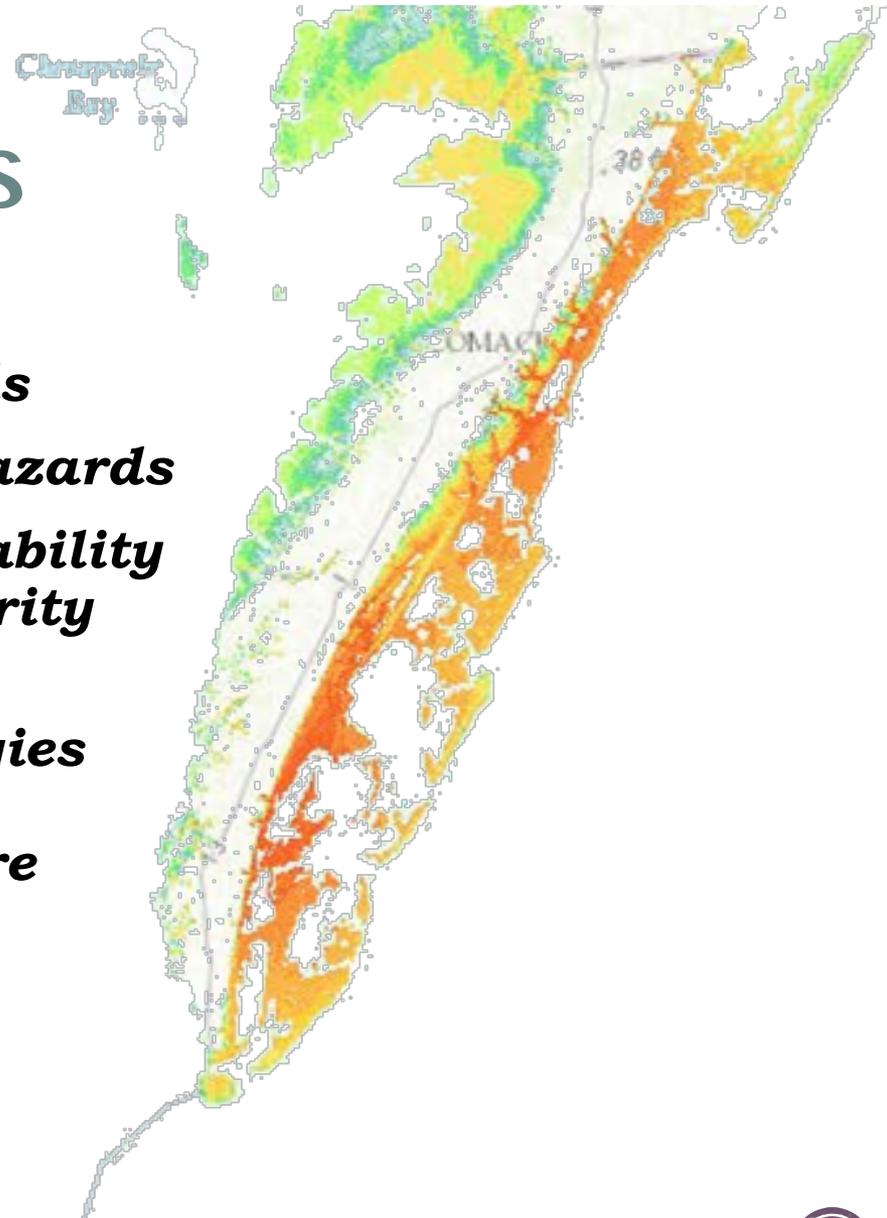
Document Organization

- Introduction
- Hazards on the Shore
- Planning Process
- Risk Assessment
- Risk Descriptions for the 4 Major Hazards
- The Region
- Each County & Each Town
- Mitigation Strategies Development
- Mitigation Strategies for Each County & Town
- Mitigation Funding Options



Planning Process

- 1. Review historical hazards***
- 2. Identify and prioritize hazards***
- 3. Conduct risk and vulnerability assessment for high priority hazards***
- 4. Define mitigation strategies and develop mitigation projects to mitigate future hazard impacts***



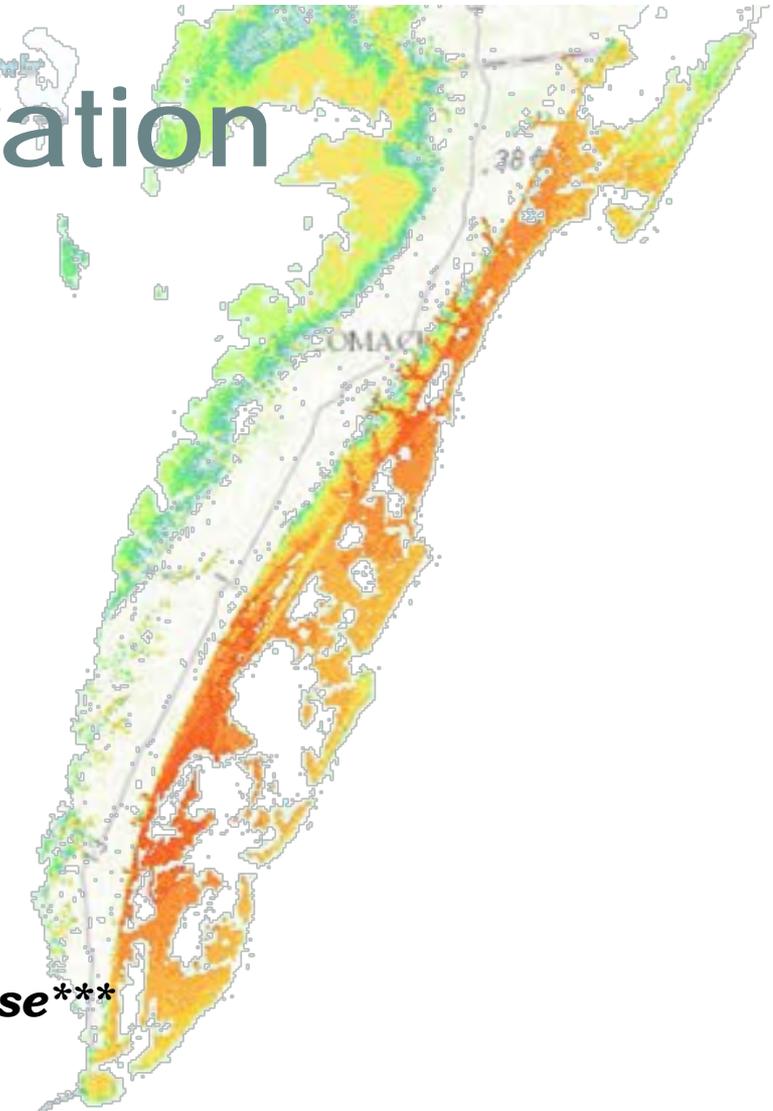
Hazard Identification

- **High Wind**
- **Coastal Erosion**
- **Coastal Flooding**
- **Storm Water Flooding**
- **Well Contamination**
- **Ice-Snow**
- **Drought**
- **Sewage Spills**
- **Wildfire**
- **Haz-Mat Incidences***
- **Heat Wave**
- **Fish Kills**
- **BioHazards****
- **Invasive Environmental Disease*****
- **Earthquake**

**Haz-Mat Incidents include oil spills, blast zone, thermo-nuclear*

***BioHazards include invasive human diseases and pandemic pathogens*

****Invasive Environmental Disease includes invasive land and water species and diseases*



Risk Assessment

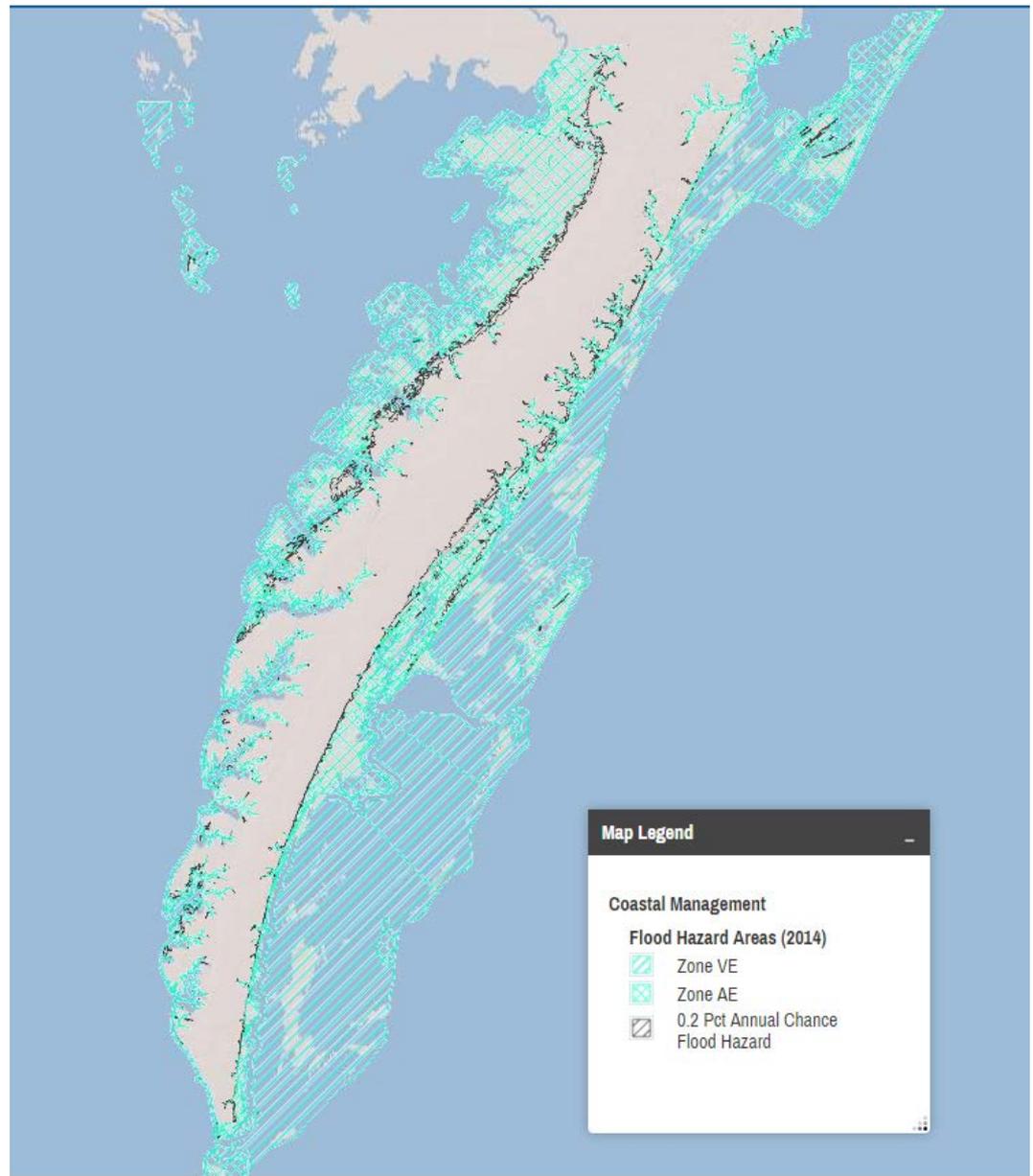
Hazard Type	2016 Plan Ranking	Likelihood of Occurrence	Affected Structures	Primary Impact	Secondary Impact	Mitigation Options	Total Score
High Wind	High	2.96	2.92	2.58	2.67	1.79	12.92
Coastal Erosion	High	2.96	2.83	2.46	2.58	1.83	12.67
Coastal Flooding	High	2.96	2.96	2.46	2.63	1.67	12.67
Storm Water Flooding	High	2.92	2.63	2.38	2.38	2.17	12.46
Well Contamination	Medium	2.00	2.17	1.96	1.75	2.04	9.92
Ice-Snow	Medium	2.46	2.13	1.50	2.13	1.67	9.88
Drought	Medium	2.13	1.63	2.13	1.88	1.46	9.21
Sewage Spills	Medium	2.00	1.79	1.58	1.79	1.83	9.00
Wildfire	Low	1.75	1.96	1.71	1.67	1.71	8.79
Hazardous Materials Incidents*	Low	2.04	1.42	1.38	1.71	1.92	8.32
Heat Wave	Low	2.42	1.38	1.46	1.50	1.38	8.13
Fish Kills	Low	2.04	1.38	1.58	1.67	1.29	7.96
Biological Hazards**	Low	2.35	1.63	1.71	1.83	1.88	7.46
Invasive Environmental Disease***	Low	2.00	1.00	1.00	1.00	2.00	7.00

Coastal Flooding

- **New FIRM**

- Less area in SFHA
 - 8.6mi² & 1,452 buildings
- Less area in V-zone
 - 66.9mi² & 365 buildings
- Less Properties with Insurance
 - 585 less policies since 2011

- **New Analysis → New Data**



Special Flood Hazard Areas for Accomack and Northampton Counties. Source: FEMA Flood Hazard Areas as depicted in coastalresilience.org



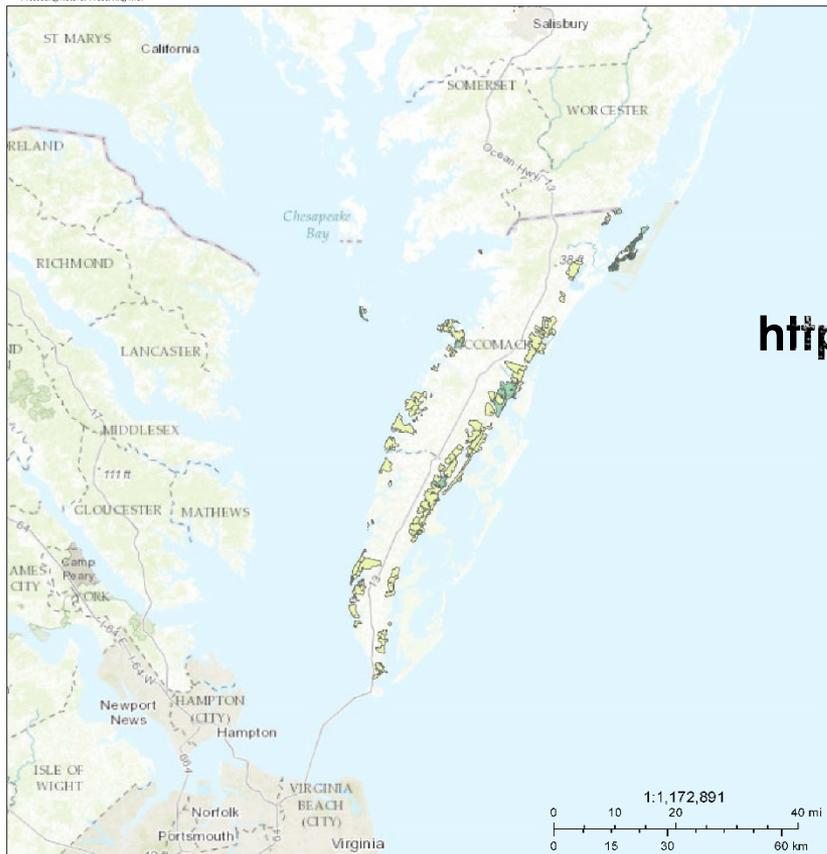


Coastal Flooding continued...

Flood Hazard Areas & Insurance 2016

County	Area in SFHA mi ²	Area in V-zone mi ²	# Buildings Damaged 1%-annual-chance event	# Buildings Destroyed 1%-annual-chance event	# Insurance Policies	Total Paid in Claims since 1978	Total Losses (Residential, Commercial, Building, Contents, Business Disruption)
Accomack	311.5	144.6	3,081 (11.2%)	665 (2.4%)	3,600 (61 V-zone, 3,162 A-zone, 377 other)	\$11.9 M	\$293.5 M
Northampton	222.2	181.8	132 (1.5%)	18 (0.2%)	573 (7 V-zone, 238 A-zone, 173 other)	\$1.1 M	\$57.9 M
TOTAL	533.7	326.4	3,213	683	4,173	\$13 M	\$351.4 M

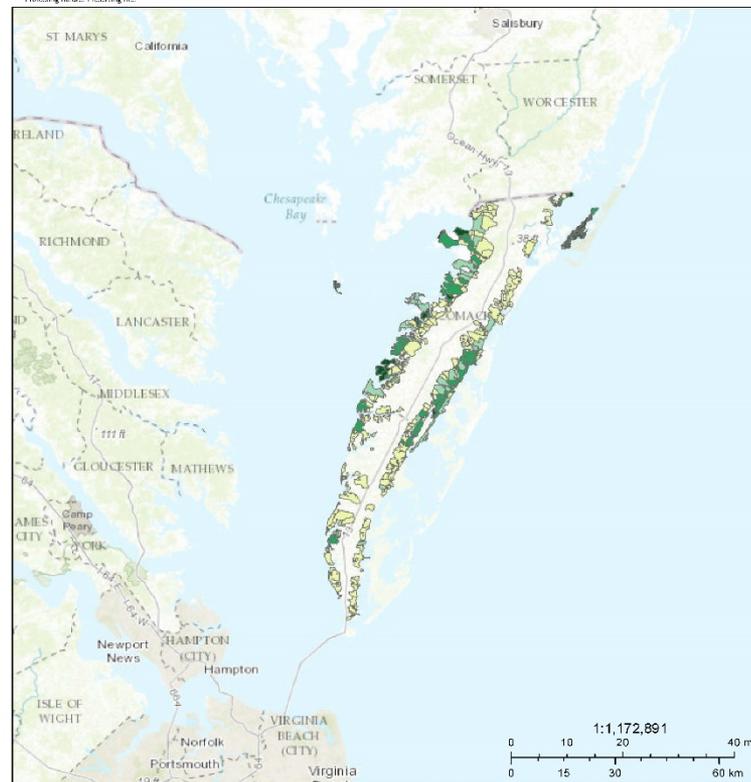
Nor'Ida Losses by Census Block, Current



- \$1,000 - \$500,000
- \$500,001 - \$1,000,000
- \$1,000,001 - \$5,000,000
- \$5,000,001 - \$8,136,000

<http://maps.coastalresilience.org/virginia/>

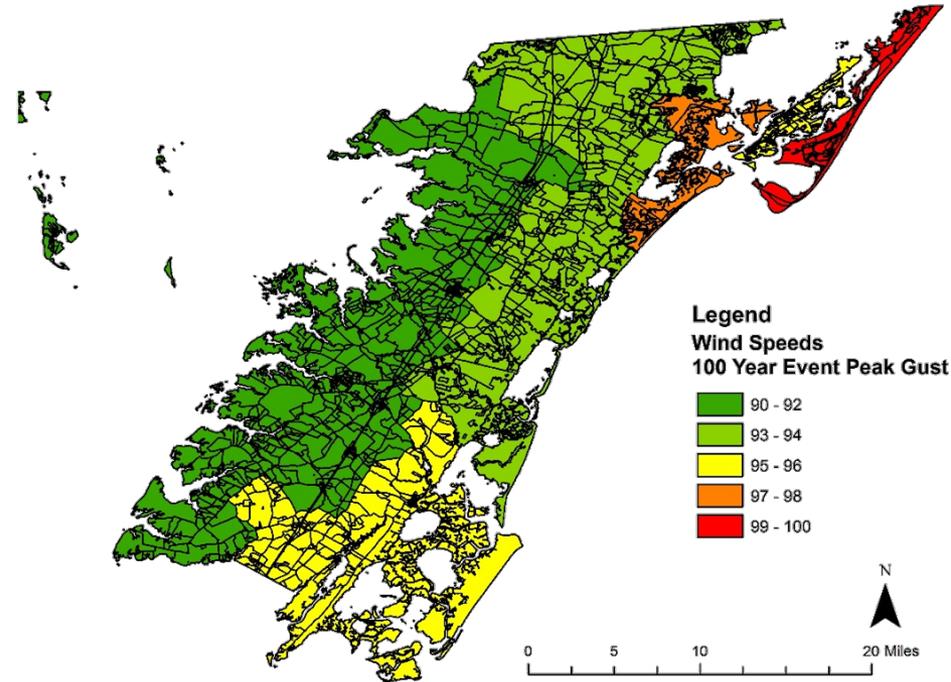
Nor'Ida Losses by Census Block, 2065



- \$1,000 - \$500,000
- \$500,001 - \$1,000,000
- \$1,000,001 - \$5,000,000
- \$5,000,001 - \$45,196,000

High Winds

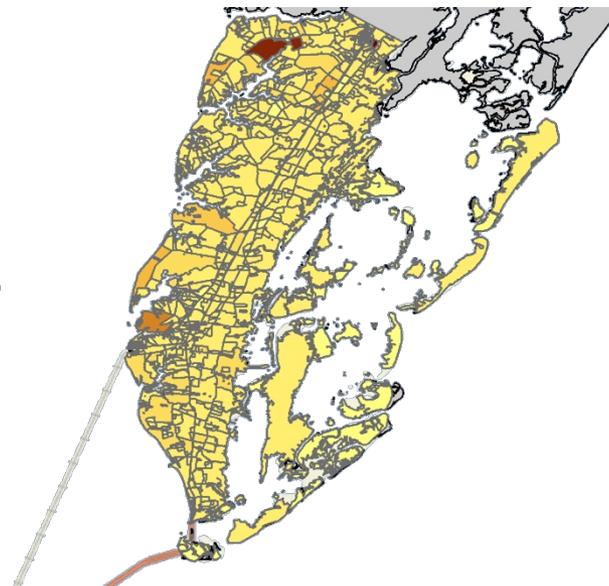
- With a 1%-annual-chance storm event wind speeds ranged between 88 & 96 mph across Northampton County and 84 & 100 mph in Accomack County.
- Hazus estimated 386 buildings at least moderately damaged in Accomack and 108 in Northampton County.
- Total estimated damages for both Counties: **\$72 million**



Legend
Wind Speeds
100 Year Event Peak Gust

90 - 92
93 - 94
95 - 96
97 - 98
99 - 100

Source: FEMA Hazus hurricane model, run May 26, 2016



Legend
Total Loss (\$K)

<= 0
0 - 81
81 - 163
163 - 244
244 - 326
326 - 407
407 - 489
489 - 570
570 - 652
652 - 733
733 - 815

Two different Hazus map products by Census Block:
Accomack = wind speeds in 1%-annual-chance storm
Northampton = Losses from same storm



Coastal Erosion

- **Approximately 1,500 structures located within 50 feet of a shoreline**
- **Valued at about \$210 M**



Greenbackville, Virginia. Photo: Gwynn Crichton, TNC

- **Average rate of erosion on the bayside is 2.2 feet annually**



Cedar Island, 2006, 2013. Photo: Gordon Campbell, At Altitude Gallery
As of 2016, all of the land pictured above is gone, with several feet of water in its place. Wachapreague is concerned about the decrease in protections from storm surge.

- **Erosion rates for the Barrier Islands typically range from 7 to 17 feet annually**



Stormwater Flooding

- Most storm water flooding causes septic systems to fail or roads to flood.
- Most of the coastal Towns have tidally dependent stormwater flooding.
- Almost every inland Town identified Stormwater Flooding as the highest hazard of concern.
- Flood insurance policies not in a SFHA could indicate purchases meant to protect against storm water flooding hazard.

Unincorporated Areas	
Accomack	Northampton
New Church; Rt 13 & 175	Hare Valley
Sanford; particularly near Parker Rd	Weirwood
Pastoria	Cheapside; between Arlington & Rt 13
Mappsville	Townsend
Family Dollar Store in Tasley	Johnsontown
Locustville Rd & Drummond Rd intersection	
Clam	
Messongo	
Belinda	



Town of Bloxom, 2003. Photo by Scott Callander



Hazards of Local Significance

- Human & environmental health are at risk from **hazmat** incidences, failing or flooded **septic** systems, & **mosquito-borne diseases**
- Poultry kills occur from **disease, heat waves, & storm events** - any of these have the potential of causing great **economic** loss in the County
- **Winter storms** can be extremely damaging to County infrastructure and have lasting impacts on local economy
- **Fish kills** commonly occur during **cold snaps, severe drought, or as result of disease, parasites, & toxicity.**
 - these events have extensive environmental, health, & economic impacts



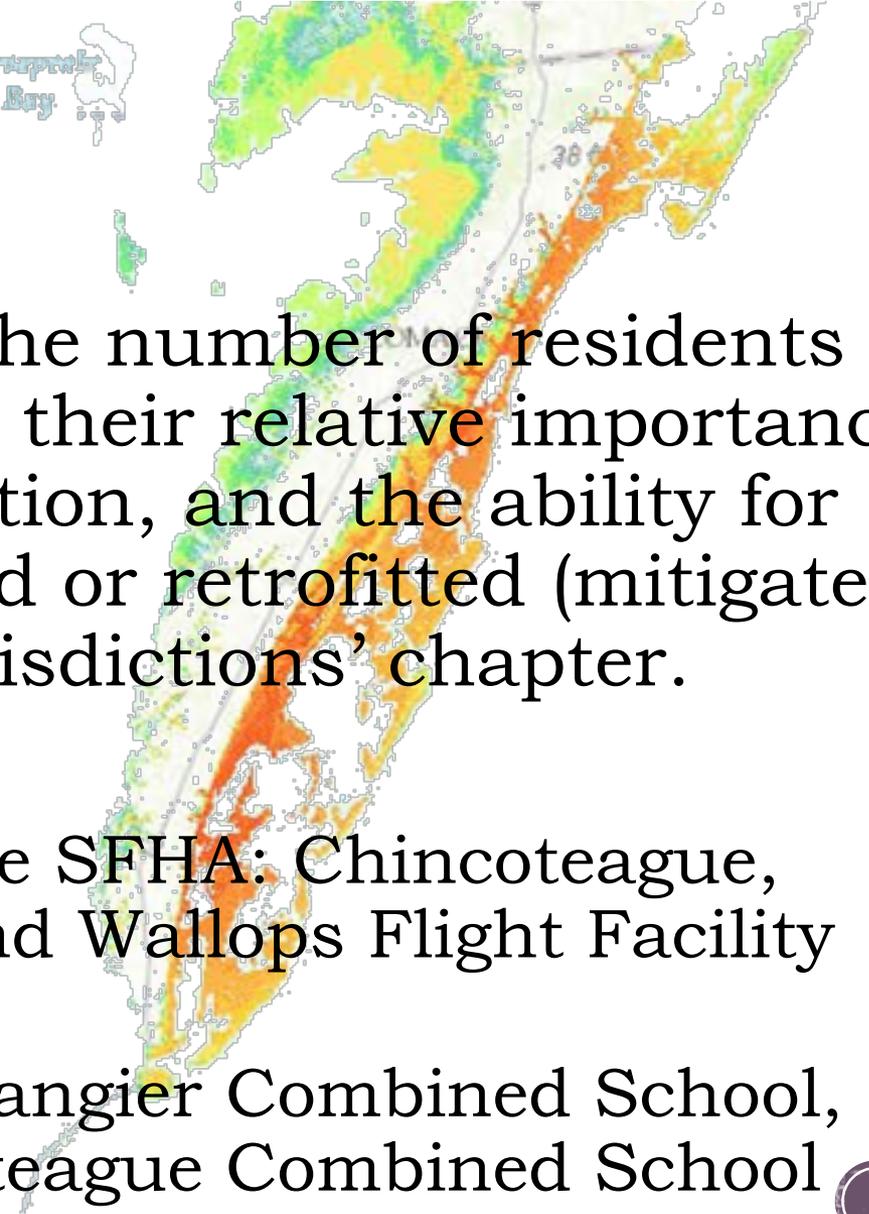
More Hazards of Local Significance

- **Closure of the Chesapeake Bay Bridge Tunnel** for any length of time would be a significant disruption to traffic, communications, medical, and emergency response operations in the County.
- Aquaculture & seafood industries are at risk to wave action and drought-induced water quality degradation
- Agriculture industry very susceptible to drought and storm events - Secondary impacts of drought include increased ground water demand and heightened risk of wildfire.





Critical Facilities



- A list of these facilities, the number of residents affected by their closure, their relative importance to the respective jurisdiction, and the ability for the facility to be relocated or retrofitted (mitigated) was included in each jurisdiction's chapter.
 - Fire & EMS stations in the SFHA: Chincoteague, Saxis, Wachapreague, and Wallops Flight Facility Station #2
 - Schools in flood zones: Tangier Combined School, northern wing of Chincoteague Combined School
- 

Regional Fire Companies' Capabilities

Station Number/Name	Fire	Rescue	EMS
#1 New Church	X	X	
#2 Greenbackville	X	X	X
#3 Chincoteague	X	X	X
#4 Atlantic	X	X	
#5 Saxis	X	X	X
#6 Bloxom	X	X	X
#7 Parksley	X	X	X
#8 Tasley	X	X	
#9 Onancock	X	X	X
#10 Melfa	X	X	X
#11 Wachapreague	X	X	
#12 Painter	X	X	X
#13 Community Fire Company (Exmore)	X	X	X
#14 Cheriton	X	X	
#15 Cape Charles Fire Company	X	X	
#16 Northampton Fire and Rescue	X	X	X
#17 Eastville Fire Company	X	X	
#18 Onley Fire and Rescue	X	X	X
#19 Cape Charles Rescue Service			X
#20 Oak Hall Rescue			X
#21 Tangier	X	X	X
#25 & #26 NASA Wallops Flight Facility	X	X	X
#31 Northampton EMS			X



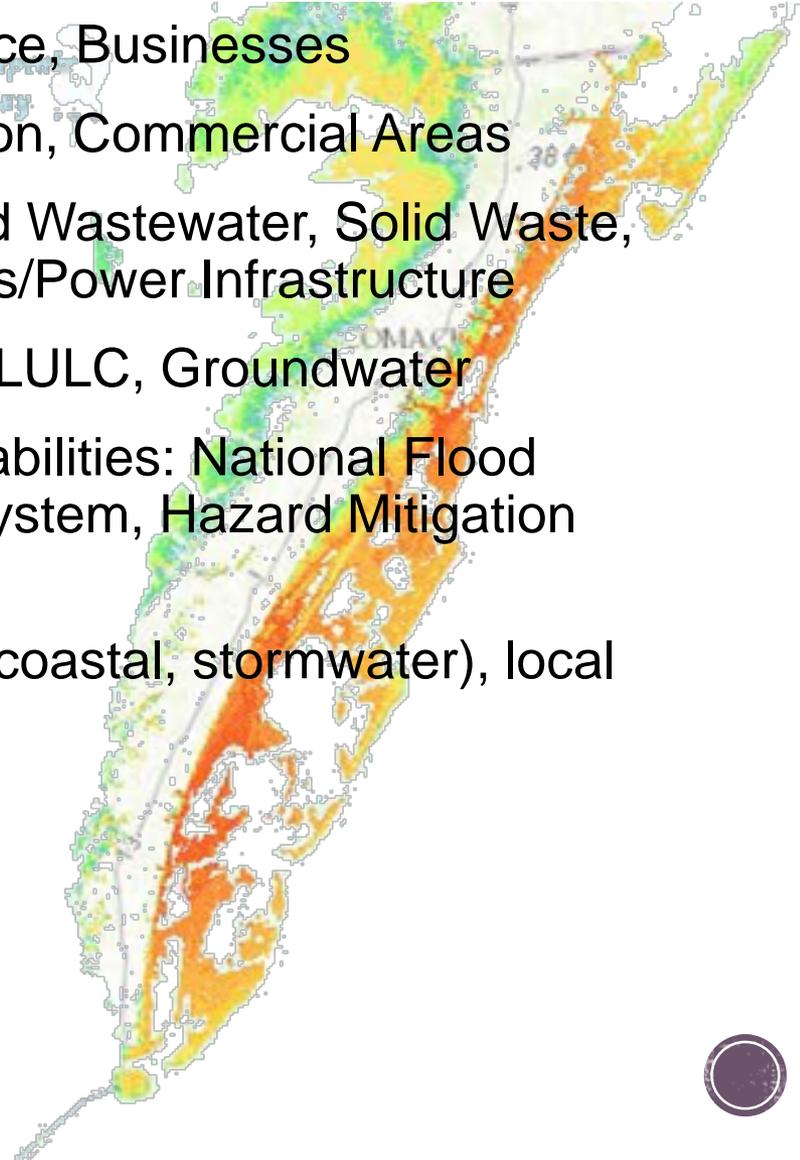
Regional Mitigation Goals

- **Goal 1** - Local Governments Guide a Comprehensive Mitigation Program Including Public Education and On-going Hazard Assessments
- **Goal 2** - Residents, Businesses Local Governments, and other Community Partners Will Work Independently and Together to Minimize Community Disruption Through Planning and Mitigation Activities
- **Goal 3** - Local Governments Encourage Self-sufficiency and Personal Responsibility for Managing Risk
- **Goal 4** - Local Governments Will Work to Ensure That Infrastructure Will Continuously Function During and After a Hazard Event
- **Goal 5** - Local Governments Will Make Efforts to Reach Special Needs Populations

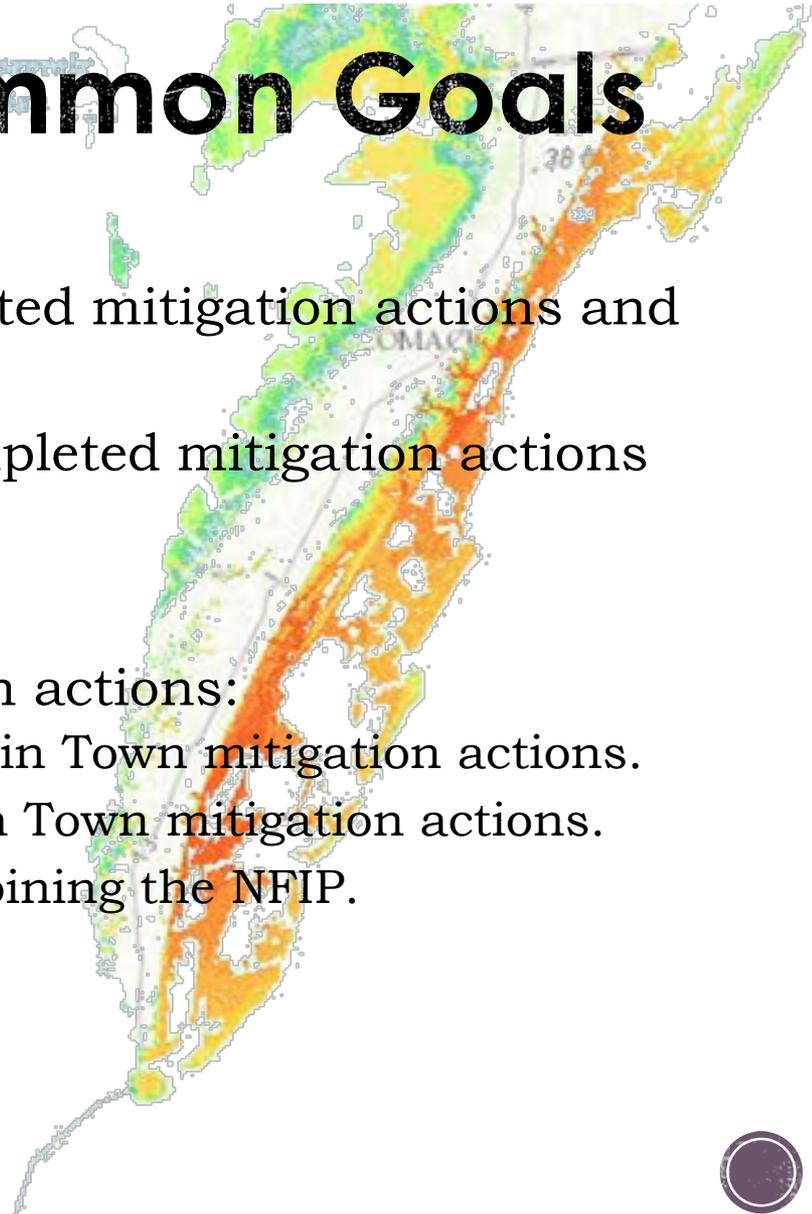


Each Chapter is compatible:

- Socio-Economic: Demographics, Workforce, Businesses
- Built Infrastructure: Housing, Transportation, Commercial Areas
- Facilities: Public Safety, Water Supply and Wastewater, Solid Waste, P&R, Drainage, Schools, Communications/Power Infrastructure
- Natural Environment: Geology and Soils, LULC, Groundwater
- Hazard Preparedness & Community Capabilities: National Flood Insurance Program, Community Rating System, Hazard Mitigation Grant Program
- Hazards Profile: the top 4 (wind, erosion, coastal, stormwater), local significance
- Critical Facilities
- Findings: Summary Statements
- Mitigation Actions/Projects



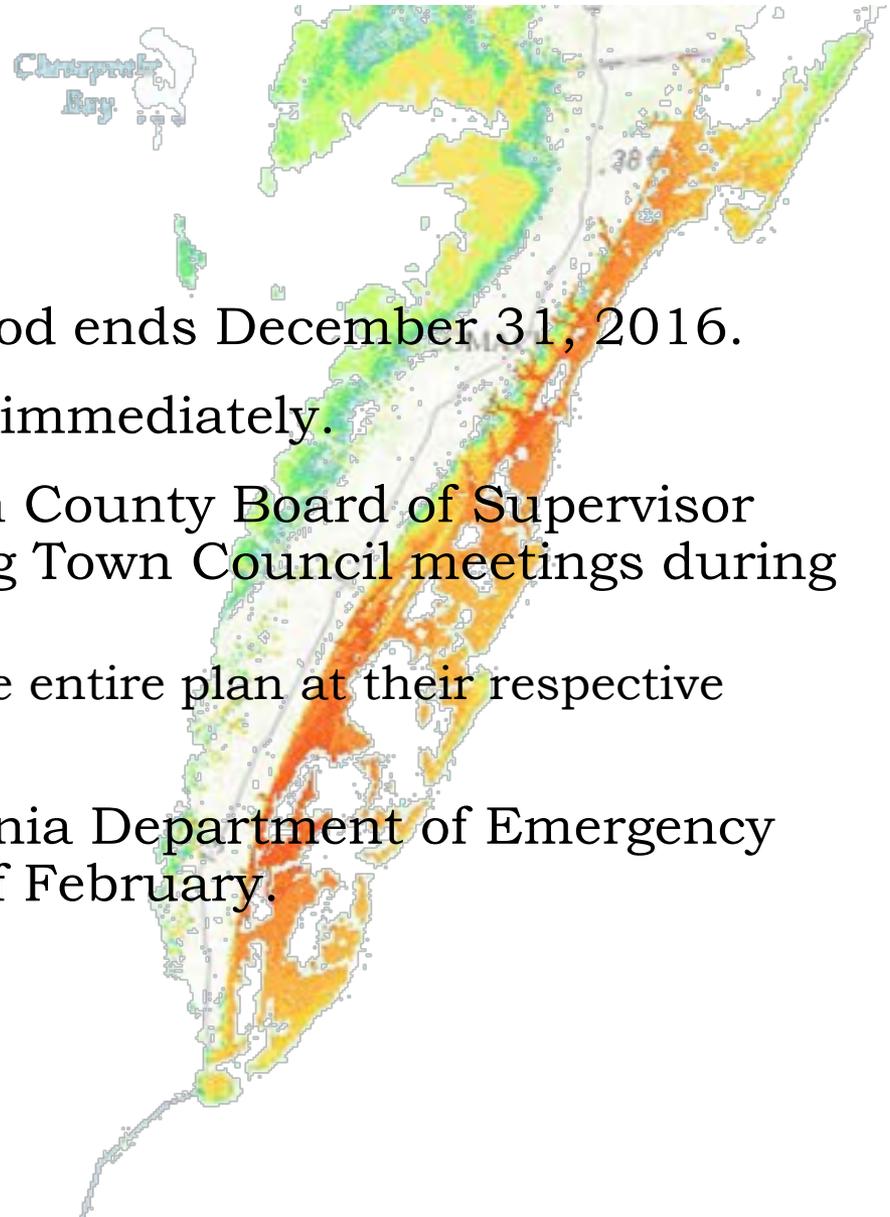
Successes & Common Goals



- Accomack County has 19 completed mitigation actions and many ongoing projects.
- Northampton County has 10 completed mitigation actions and many ongoing projects.
- There are a total of 125 mitigation actions:
 - ‘Stormwater’ is mentioned 9 times in Town mitigation actions.
 - ‘Generator’ is mentioned 7 times in Town mitigation actions.
 - Four Towns indicated interest in joining the NFIP.



Next Steps



- 30-Day Public Comment Period ends December 31, 2016.
- Necessary edits will be made immediately.
- A-NPDC staff will attend both County Board of Supervisor meetings and all participating Town Council meetings during the month of January.
 - Towns and Counties adopt the entire plan at their respective meetings.
- Draft will be sent to the Virginia Department of Emergency Management the first week of February.



HAZARD MITIGATION PLAN

Thank you for attending!

**Questions?
Comments?**

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