

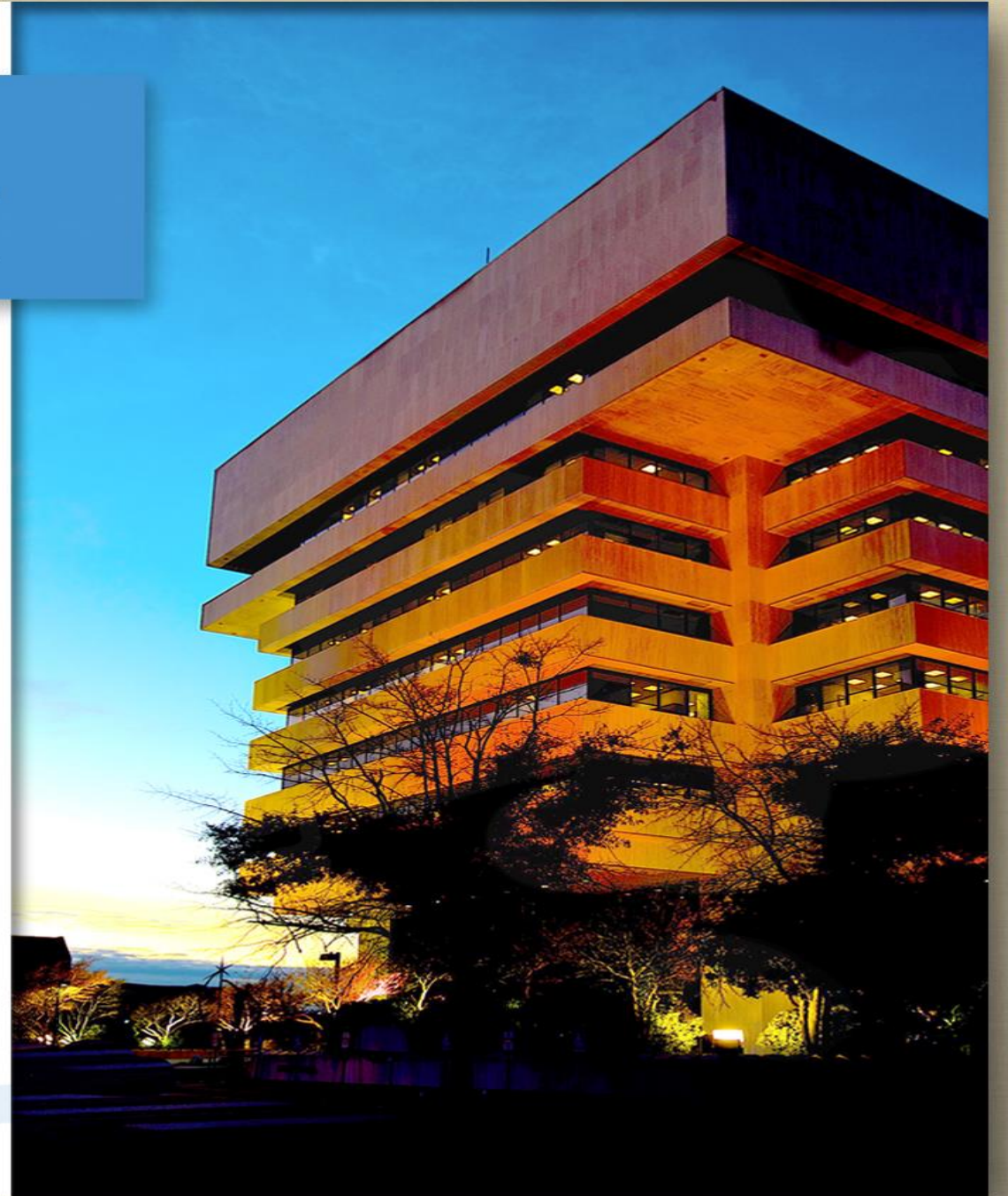
HAMPTON VA

Comprehensive Plan Amendment

Item 22-0231

Hazard Mitigation Plan

City Council
August 10, 2022

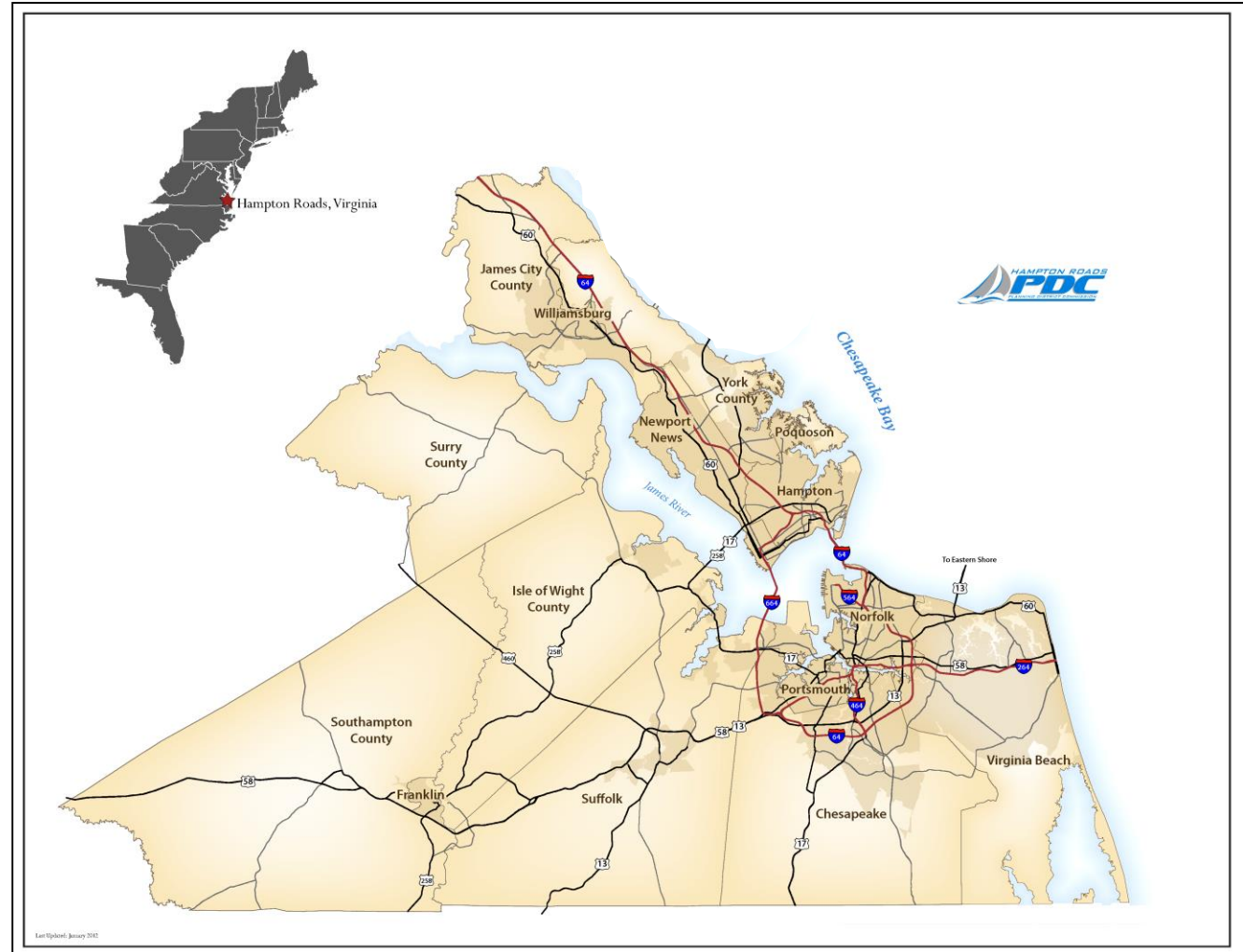


Updating the Hampton Roads Hazard Mitigation Plan for 2022



17 Participating Jurisdictions

- The Cities of:
 - Chesapeake, Franklin, Hampton, Newport News, Norfolk, Portsmouth, Poquoson, Suffolk, Virginia Beach, and Williamsburg
- The Counties of:
 - Isle of Wight, James City, Southampton, Surry and York
- The Towns of:
 - Smithfield and Windsor



Process

1

Organize Resources

- Get organized
- Plan for involvement
- Coordinate with other departments and agencies

2

Assess Risk

- Identify the hazards
- Assess the risks

3

Develop the Plan

- Review mitigation alternatives
- Set planning goals
- Draft action plan

Conduct Public Outreach

4

Adopt, Implement & Maintain the Plan

Flooding



Broad definition used in this plan encompasses impacts from:

- Stormwater, “urban” flooding
- Riverine flooding
- Nor’easters
- Coastal storms and storm surge

Flooding from impoundment (dam or levee) failure and sea level rise are separate hazards.

Hazus Level 2 Flood Risk Assessment

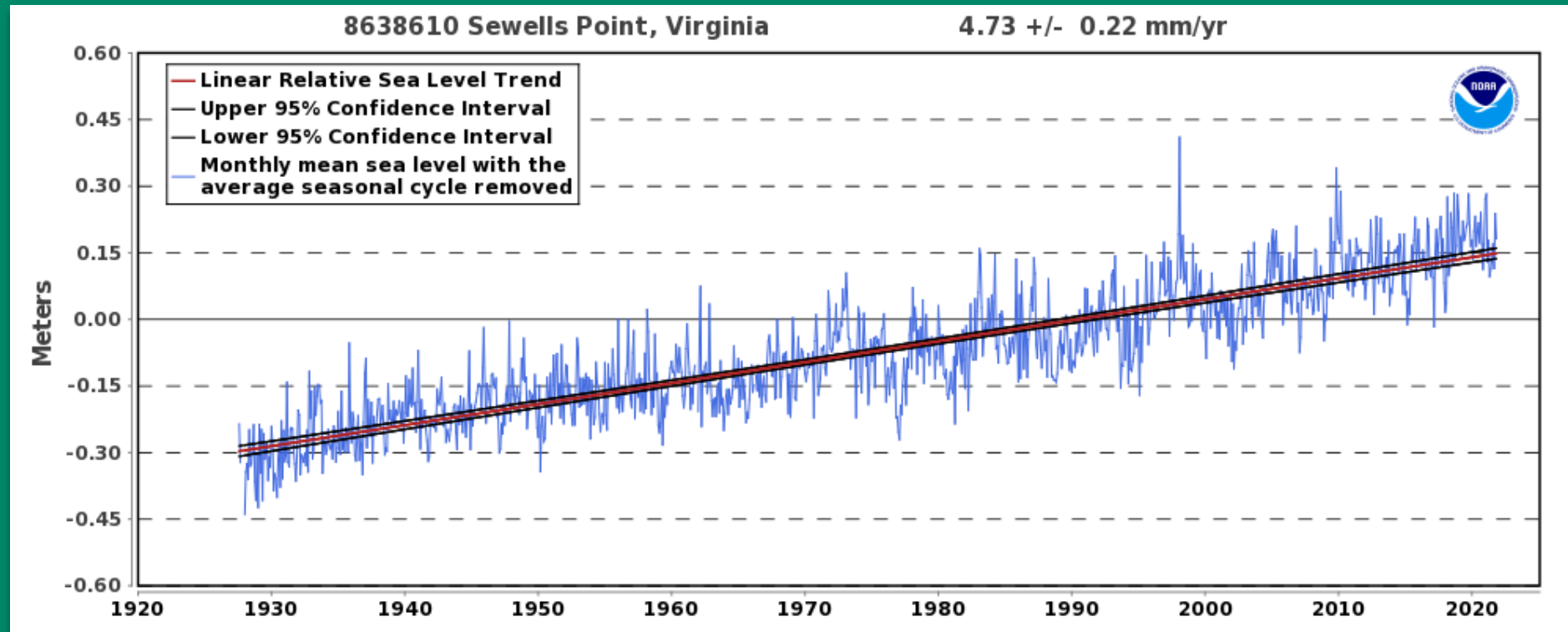
100-year Flood Analysis – Annualized Losses

COMMUNITY	# of Residential Buildings Damaged	Average Annual Damages	COMMUNITY	# of Residential Buildings Damaged	Average Annual Damages
Hampton	4,012	\$6.8 million			
Newport News	435	\$486,000			
Poquoson	1,405	\$3.7 million			
James City County	64	\$156,000			
Williamsburg	0	n/a	Norfolk	2,684	\$19.2 million
York County	266	\$688,000	Portsmouth	658	\$982,000
			Suffolk	40	\$191,000
			Virginia Beach	2,322	\$9.5 million
			Chesapeake	1,382	\$1.8 million

COMMUNITY	# Residential Buildings Damaged	Average Annual Damages
Isle of Wight County	47	\$411,000
Franklin*	n/a	\$11,000
Southampton County*	n/a	\$111,000
Surry County	23	\$111,000

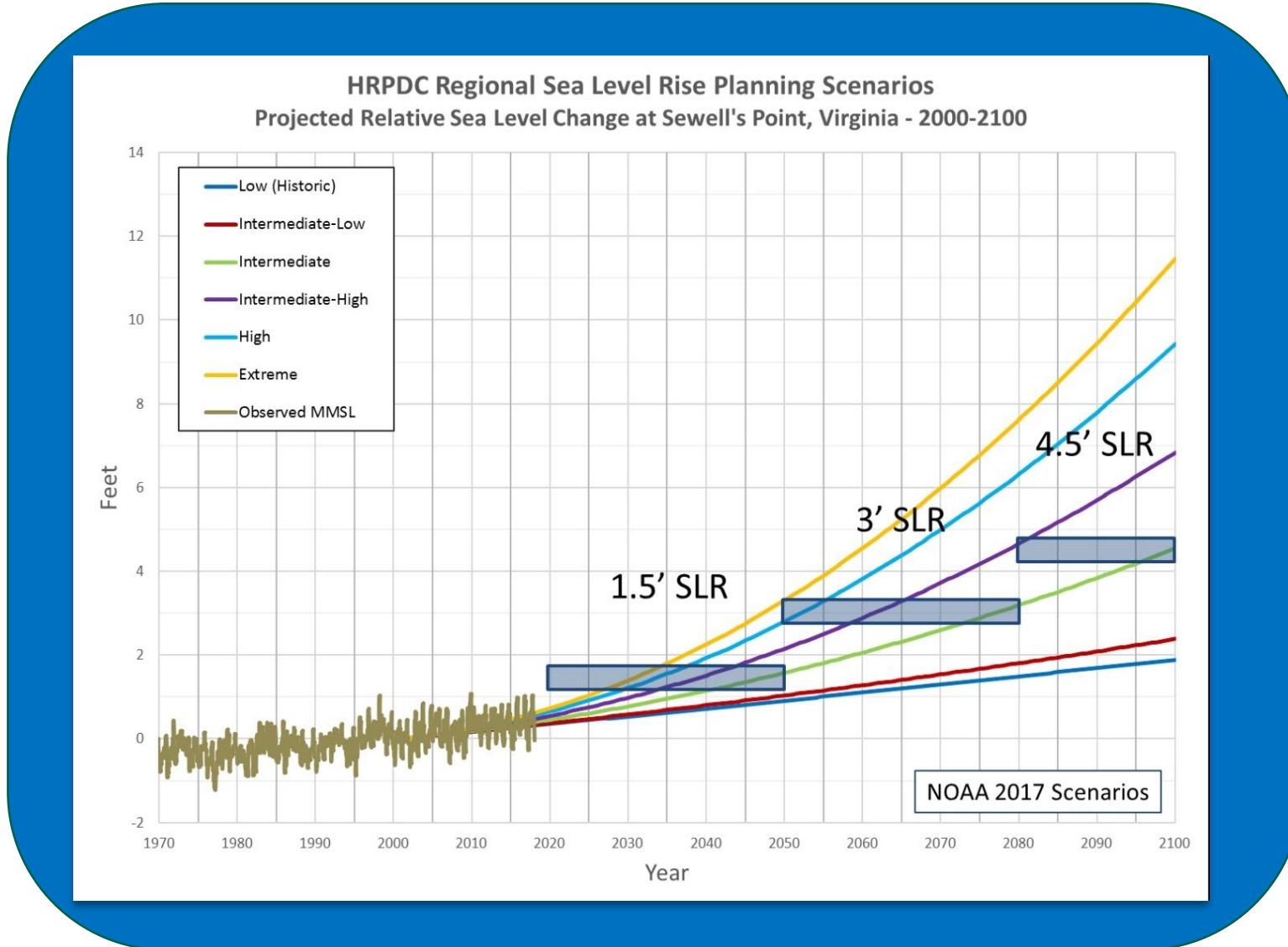
Sea Level Rise

Mean Sea Level Historic Trend



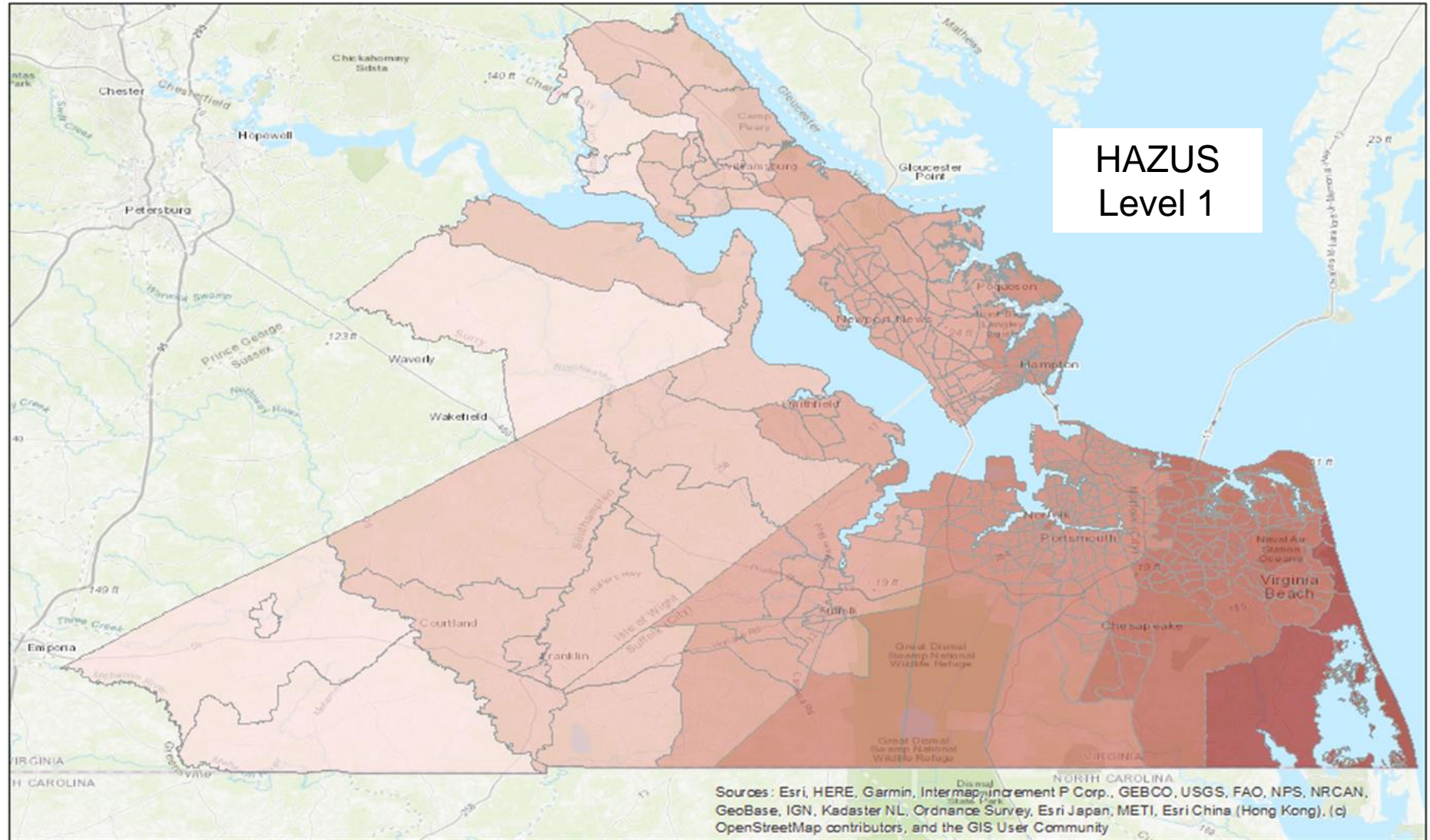
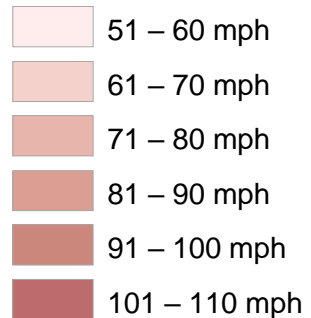
Sea Level Rise

Future Planning Scenarios



Tropical Storms

100-year return period
Peak Gust (mph)
by Census Tract



Tropical Storms

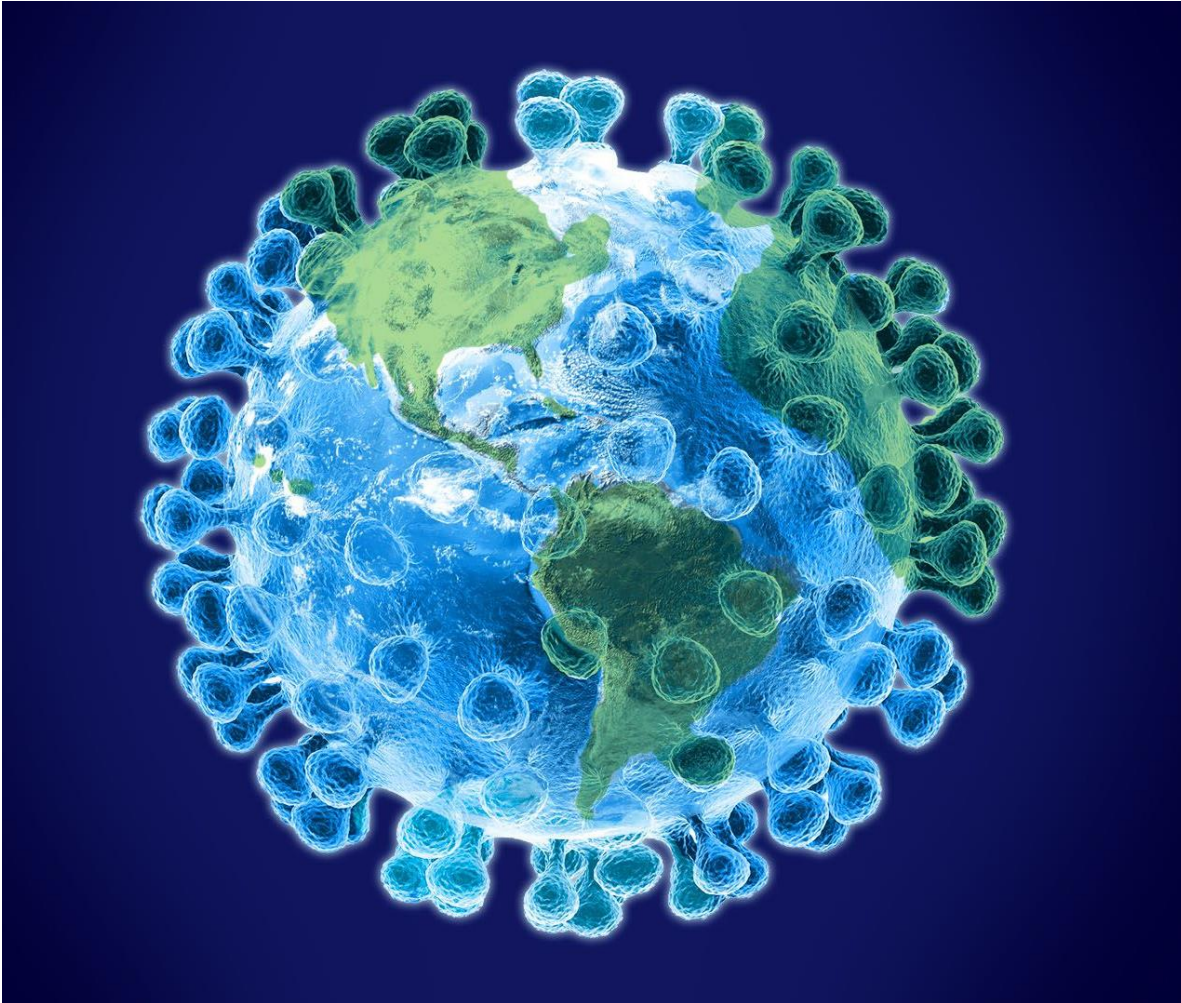
Probabilistic Loss Estimates, ANNUALIZED LOSSES

Peninsula	Total
Hampton	\$7,537,000
Newport News	\$5,166,000
Poquoson	\$698,000
James City County	\$2,081,000
Williamsburg	\$256,000
York County	\$3,161,000

Western Tidewater	Total
Isle of Wight County	\$1,227,000
Franklin	\$215,000
Southampton County	\$457,000
Surry County	\$165,000

Southside	Total
Norfolk	\$10,600,000
Portsmouth	\$3,711,000
Suffolk	\$3,180,000
Virginia Beach	\$3,855,000
Chesapeake	\$13,002,000

Infectious Diseases: Pandemic Flu

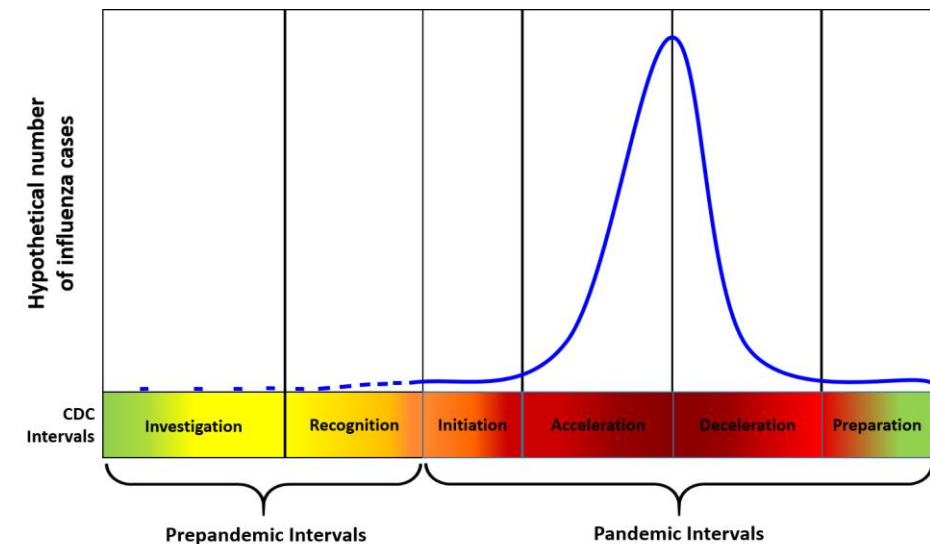


Pandemic flu is defined as an epidemic of:

- Influenza virus
- Worldwide spread
- Infection of large proportion of human population

Infectious Diseases: Pandemic Flu

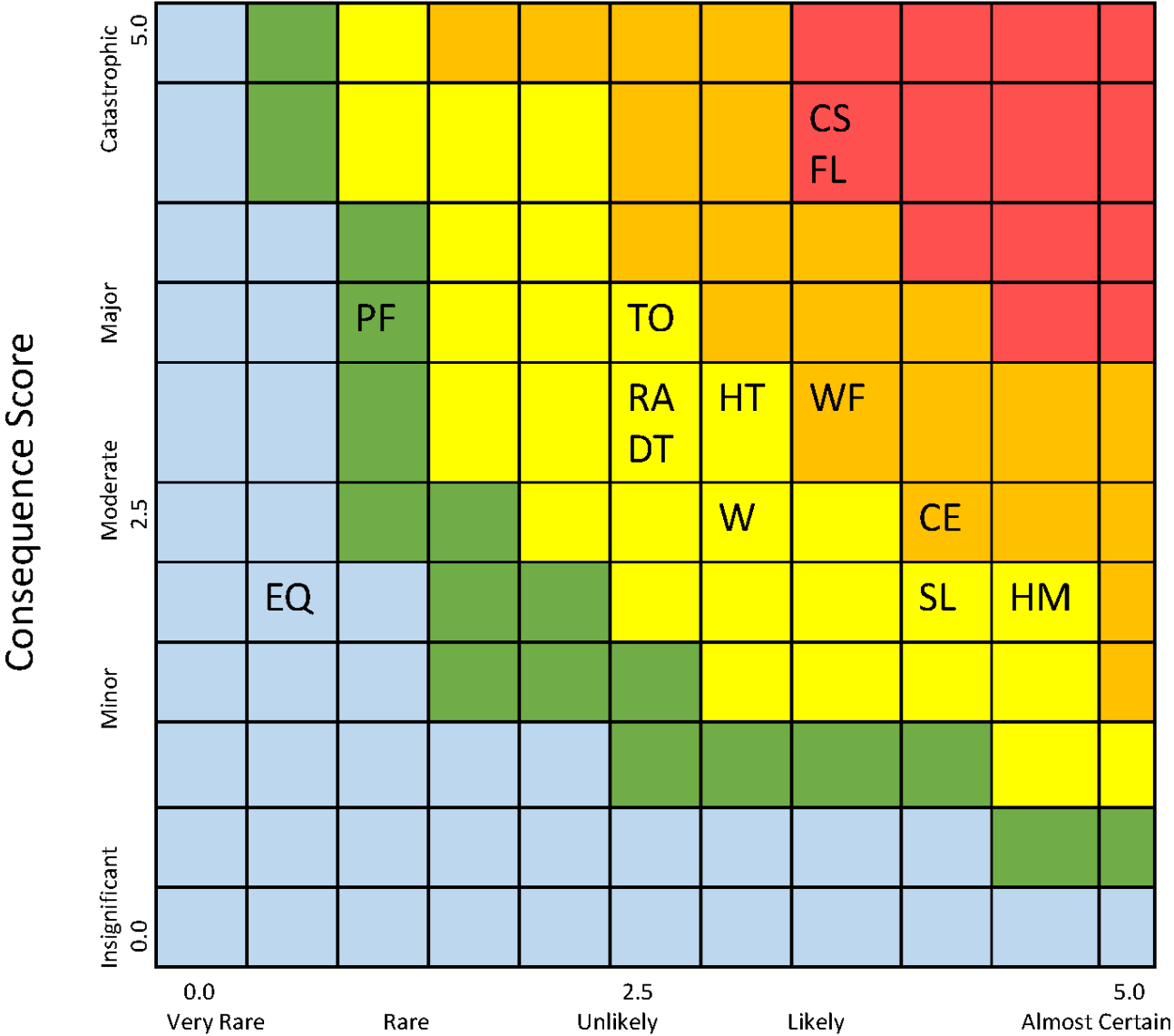
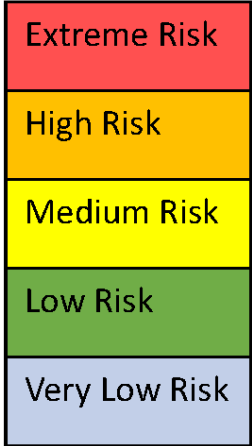
Interval	Description
1) Investigation	Monitoring & investigation of cases in humans
2) Recognition	Control outbreak, treat sick
3) Initiation	Pandemic wave begins when virus has ability to spread person to person
4) Acceleration	Focus on non-pharma interventions and medications to reduce spread/prevent death
5) Deceleration	Pandemic wave slows down when cases consistently decrease; reduce non-pharma interventions
6) Preparation	Monitor for future waves



Damages & Frequency

Hazard	Average Annual Estimated Losses
Sea Level Rise and Land Subsidence	\$130.8 million by 2040
Tropical/Coastal Storm	\$86,913,000
Flooding	\$44,261,400
Tornado	\$24,265,000
Earthquake	\$1,119,000
Winter Storm	\$805,000
Hazardous Materials Incident	\$67,500
Wildfire	\$36,900
Extreme Heat	\$0
Flooding Due to Impoundment/High Hazard Dam	Not quantified
Landslide/Coastal Erosion	Not quantified
Radon Exposure	Not quantified
Pandemic Flu or Communicable Disease	Not quantified
Drought	Not quantified

Re-ranking the Hazards for 2022



- FL – Flooding (and Impoundment Failure)
- SL – Sea Level Rise and Land Subsidence
- CS – Tropical/Coastal Storm
- CE – Landslide/Coastal Erosion
- TO – Tornado
- W – Winter Storm
- EQ – Earthquake
- WF – Wildfire
- DT – Drought
- HT – Extreme Heat
- HM – Hazardous Materials Incident
- PF – Pandemic Flu or Communicable Disease
- RA – Radon Exposure

Re-ranking the Hazards for 2022

CRITICAL HAZARD - HIGH RISK	FLOODING TROPICAL/COASTAL STORM SEA LEVEL RISE AND LAND SUBSIDENCE
CRITICAL HAZARD - MODERATE RISK	WINTER STORM TORNADO HAZARDOUS MATERIALS INCIDENT
NONCRITICAL HAZARD - LOW RISK	EARTHQUAKE WILDFIRE FLOODING DUE TO IMPOUNDMENT FAILURE/HIGH HAZARD DAM PANDEMIC FLU/COMMUNICABLE DISEASE RADON EXPOSURE
NEGLIGIBLE	EXTREME HEAT LANDSLIDE/ShORELINE EROSION DROUGHT

Revised Planning Goals

Goal 1: Increase community resiliency by reducing vulnerability to hazards.

Objective 1.1: Reduce damage to all repetitively flooded properties, not just NFIP-insured structures

Objective 1.2: Protect existing and future development

Objective 1.3: Protect critical facilities/infrastructure, including High Hazard Potential Dams

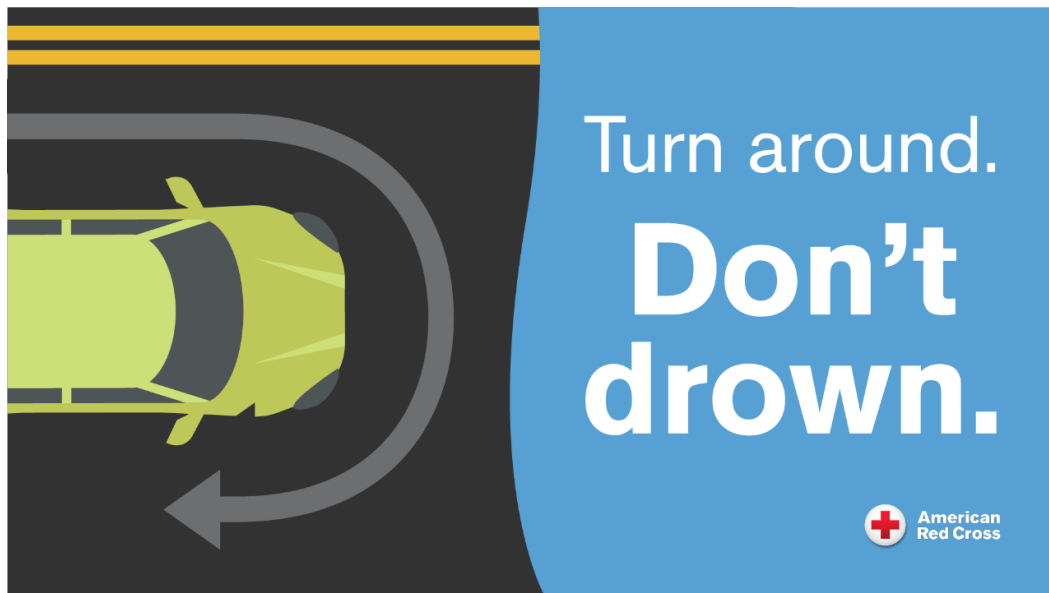
Objective 1.4: Maintain diverse, equitable and inclusive government functions and services throughout the duration of hazard events

Objective 1.5: Reduce hazard-related impacts on daily routines

Objective 1.6: Preserve and enhance benefits of natural areas



Revised Planning Goals



Goal 2: Educate the public about hazard vulnerabilities and ways to reduce risk

Objective 2.1: Encourage citizens and businesses ~~property owners~~ to assume responsibility for reducing vulnerability

Objective 2.2: Ensure that information and hazard education opportunities are available to all elements of the communities

Objective 2.3: Pursue public/private partnerships that help facilitate access to hazard-related educational opportunities and gather feedback from citizens

Revised Planning Goals

Goal 3: Strengthen and develop partnerships for mitigating hazard impacts

Objective 3.1: Integrate mitigation concepts into local and regional government plans, policies and actions

Objective 3.2: Improve and standardize hazard data collection and mapping

Objective 3.3: Leverage shared resources in pursuit of funding for hazard mitigation projects

Objective 3.4: Develop partnerships among private, local, regional, national, and international organizations



TYPES OF MITIGATION STRATEGIES

1. PUBLIC EDUCATION & AWARENESS
2. PREVENTION
3. PROPERTY PROTECTION
4. NATURAL RESOURCE PROTECTION
5. STRUCTURAL PROJECTS
6. EMERGENCY SERVICES



Regional Mitigation Action Plan



1. Use existing or create new Elevation Certificates to collect lowest floor elevation data for flood-prone structures in the region, focusing initially on repetitive loss areas in each community.
2. Use AHAC structure and HRPDC resources to develop additional regional mitigation strategies and initiate annual workshop on mitigation project funding.
3. Analyze and update the platform, availability, and accuracy of HAZUS input data and output results for the purposes of conducting future, more detailed vulnerability analyses.

Regional Mitigation Action Plan

4. Use commercially available radon test kits to determine radon levels in structures. Evaluate radon data against known geological formations in the region to determine geographic variability in vulnerability. End product will be a refined map of radon zones.
5. Partner with VDEM to review repetitive flood loss data from FEMA on a regular basis, update repetitive flood loss area polygons and shapefiles, and analyze data for patterns, errors and mitigation opportunities.
6. Address high and significant hazard dam safety in the region, to include: Investigate and conduct risk assessments on dams using risk prioritization methodology; Conduct alternatives analyses to identify preferred plans for dam rehabilitations and the estimated costs for design and construction; Repair, removal, or any other structural or nonstructural measures to rehabilitate an eligible high hazard potential dam, including development of conceptual, preliminary, and final design plans; Conduct additional inundation studies, and use dam inundation data and flood depths to determine if retrofits to affected critical facilities may be necessary.



Regional Mitigation Action Plan

7. Provide regional leadership regarding the new NFIP's new Risk Rating 2.0 system and renewal policy planning, to include assistance with:

- 1) Evaluation of rating accuracy and “minus-rated” policies;
- 2) Messaging and outreach to homeowners;
- 3) Elevation Certificate correction; and
- 4) Mitigation assistance for property protection.

Regional Mitigation Action Plan

8. Strengthen existing and create new regional transportation networks and hubs for evacuation and sheltering. The purposes and needs for evacuation and sheltering are evolving, and communities are moving away from traditional, large shelters to house large populations toward a more targeted approach that tries to anticipate disaster-related needs more specifically. Educating the public about these changes is an important component to this type of regional planning.
9. Work with private companies to advance continuity of operations, including but not limited to power, gas, and water service restoration. Mitigation actions may include implementation of system redundancies, mutual aid agreements or other partnerships to address critical capability gaps. Physical retrofits may increase resilience of critical infrastructure, such as burying power lines and provision of dependable backup power to water and wastewater treatment facilities.



Hampton's Mitigation Action Plan

1. Maintain participation in National Flood Insurance Program and Community Rating System, with goal of obtaining Class 6 CRS rating. Continue enforcement of standards in existing ordinance that meet and exceed NFIP minimum requirements. **(Existing action)**
2. Acquire, elevate, relocate, retrofit or floodproof structures in flood prone areas. This action includes acquisition/demolition of repetitive and severe repetitive losses from trustee sales/tax sales. **(Reorganized existing actions)**
3. Provide flood, wind and heat protection and dry access/egress for critical facilities and infrastructure. Retrofits may include, but are not limited to: elevate and harden communication sites, provide generator backup or prewire evacuation shelters for quick hook-ups, and upgrade sewer pump stations. **(Existing action)**
4. Adopt and implement holistic water plans to mitigate flooding on a watershed level. **(Existing action)**
5. Maximize use of social media before, during and after hazard events. **(Existing action)**
6. Develop a Resilient Hampton Education Plan, which may include a CRS Plan for Public Information. **(New action)**
7. Improve stormwater management capacity of existing system, to include improving drainage system maintenance using increased sediment and debris clearance, and ongoing analysis of the current system's status of functionality. **(Expanded existing action)**
8. Coordinate with owners of post-FIRM structures that are NFIP "minus-rated" to help property owners determine reason for rating and implementing solutions. Identify funding sources to help identify and fund retrofits. **(Expanded existing action)**

Hampton's Mitigation Action Plan

9. Conduct repetitive loss area analyses of repetitive flood loss areas, partnering with HRPDC and VDEM where relevant. Include outreach to homeowners regarding potential mitigation options. **(Existing action)**
10. Continue to build resiliency into the city's approach to social, economic and physical challenges. Incorporate resilience strategies into City plans (community plan, capital improvement plan, master plans, etc.). Develop a tool to evaluate how City decisions align with resiliency goals. **(Expanded existing action)**
11. Maintain storm-resistant public beaches. **(Existing action)**
12. Ensure safe ramp access is provided for rapid extraction of City-owned boats prior to Tropical/Coastal storm. **(New action)**
13. Develop, finalize and implement Disaster Recovery Plan. **(New action)**
14. Develop a plan to collect surveyed high water mark data following flood events. **(New action)**
15. Provide business resiliency planning services to the City's business owners, particularly Virginia Department of Minority Business Enterprise (DMBE)-certified SWaM businesses that may have access to fewer resources than larger establishments. Workshops and outreach would identify businesses interested in further planning, with more detailed assistance then provided to assist businesses with details regarding risk and vulnerability assessment, preparedness, continuity of operations planning and adaptation/recovery. Help businesses identify specific mitigation projects and sources of funding to reduce vulnerability and increase resiliency. **(New action)**
16. Implement structural and nature-based flood control projects in flood prone areas, such as tide gates, berms, constructed wetlands, roadway elevations, etc. This action includes projects identified by the Resilient Hampton Initiative plans. **(Reorganized existing action)**

Removed Actions from 2017 Plan

Completed:

- Implement ordinance to create and enforce no-wake zones in flooded areas.

Replaced:

- Implement warning system for coastal storms.
- Expand capacity/training for CERT groups and neighborhood-serving organizations to include communication about mitigation, building code requirements response.
- Prepare public outreach materials. Educate elected officials and residents on the importance of the NFIP and the City's floodplain management efforts, maintaining flood insurance coverage, the benefits of City's CRS participation, and methods for mitigating flood damage.



Recommendation

Planning Commission and
Staff recommend **approval** of
Item #22-0231

With the 2022 Hazard Mitigation Plan
replacing the 2017 Plan