


Sustainable Shorelines and Community Management

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Air & Climate Public Advisory Committee
(ACPAC)
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The slide features a blue background with a wavy white line at the top. The title 'Sustainable Shorelines and Community Management' is in white. Below it, the presenter's name and title are listed. The committee name and date are also included. At the bottom, there are four logos: NVRC (Northern Virginia Regional Commission), Virginia Coastal Zone Management Program, NOAA, and NEVC.

Sustainable Shorelines & Community Management



- Collecting Data
- Assessing Vulnerability
 - Sea Level Rise
 - Storm Surge
- Developing Strategies
 - Protect
 - Accommodate
 - Retreat
- Adapting to Change





The slide has a blue background with a wavy white line at the top. The title is in white. To the right of the title is a white icon of a house. Below the title is a bulleted list of topics. To the right of the list is a photograph of a rocky shoreline with a body of water and trees. At the bottom left is the NVRC logo.

Scope of Work

VIMS Updated Shoreline Situation Report

Phase I Oct 08 – Sep 09	Phase II Oct 09 – Sep 10	Phase III Oct 10 – Sep 11+
<ul style="list-style-type: none">• Workgroup Establishment;• Broad Vulnerability Analysis;• Policy Review	<ul style="list-style-type: none">• Assessment Refinement;• Strategy Development<ul style="list-style-type: none">• Best Practices• Community Awareness	<ul style="list-style-type: none">• Strategy Refinement;• Implementation Framework;• Outreach, as appropriate



NVRC
Northern Virginia Regional Commission



Photo courtesy of Fairfax County Police Department

NVRC
Northern Virginia Regional Commission



Photo courtesy of Fairfax County Police Department



Workgroup

- Mostly land use planners
- Identify key targeted planning areas
- Provide data and information
- Shape the strategy and recommendations



Arlington County
City of Alexandria
Fairfax County
Prince William County
Town of Quantico
Town of Occoquan
George Mason University
Virginia Tech
NPS – Center for Urban Ecology
NPS – GW Memorial Parkway
Fort Belvoir
Quantico Marine Corps Base
VA DCR – Mason Neck
USFWS – Mason Neck Refuge
VA Dept of Transportation

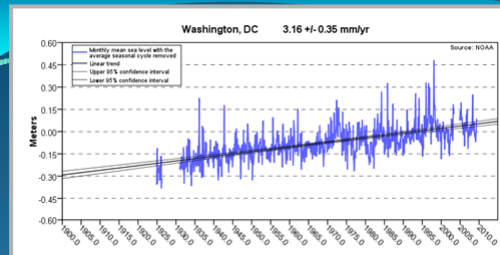


Overall End Products

- Maps showing areas at risk of inundation from SLR and Storm Surge in the region.
- Quantification of specific elements vulnerable for both the built and natural environments.
 - Building, roadways, parks, tidal wetlands, critical infrastructure, wells, septic fields, etc...
 - Economic value/Ecosystem services
- Strategies to protect, adapt or retreat communities located in areas at risk.

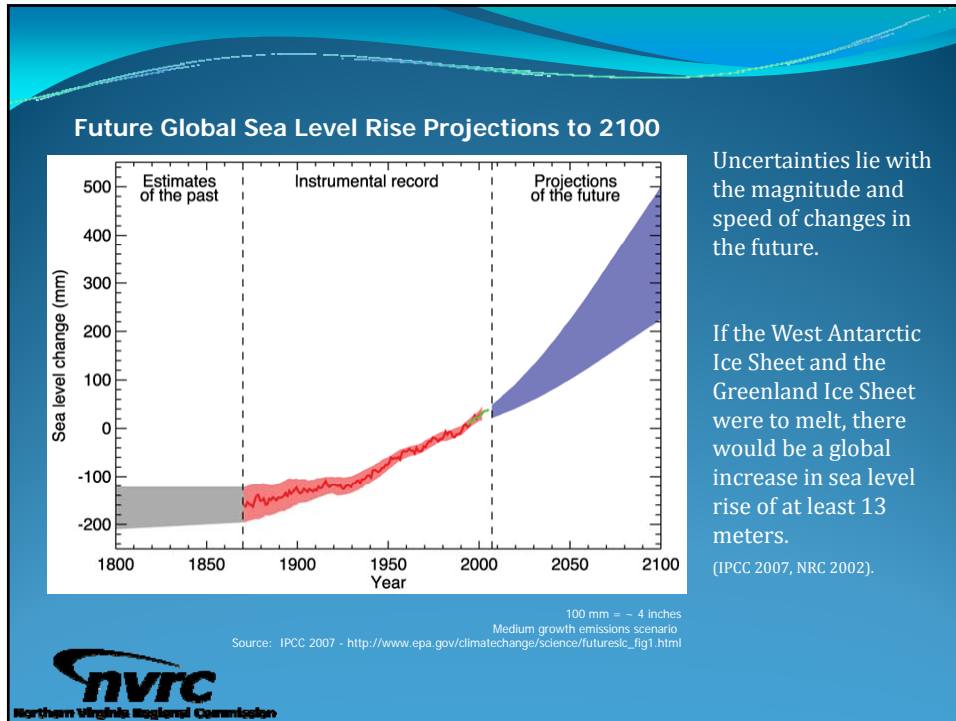


SLR Scenarios



Scenario	Definition	Relative Sea Level Rise Rate
Steady State	Observed historic trend at Washington, D.C. gage. <small>(NOAA Tides and Currents, Station 8594900)</small>	3.2 mm/year (1 foot by 2100)
Average Accelerated	Average projected sea level rise rate for the Chesapeake Bay region. <small>(IPCC, 2007; STAC, 2008; and GCCC, 2008)</small>	11.6 mm/year (1.9 feet by 2050; 3.8 feet by 2100)
Worst Case	Highest projected rate for the mid-Atlantic and Chesapeake Bay regions. <small>(STAC, 2008; and GCCC, 2008)</small>	16 mm/year (2.6 feet by 2050; 5.2 feet by 2100)



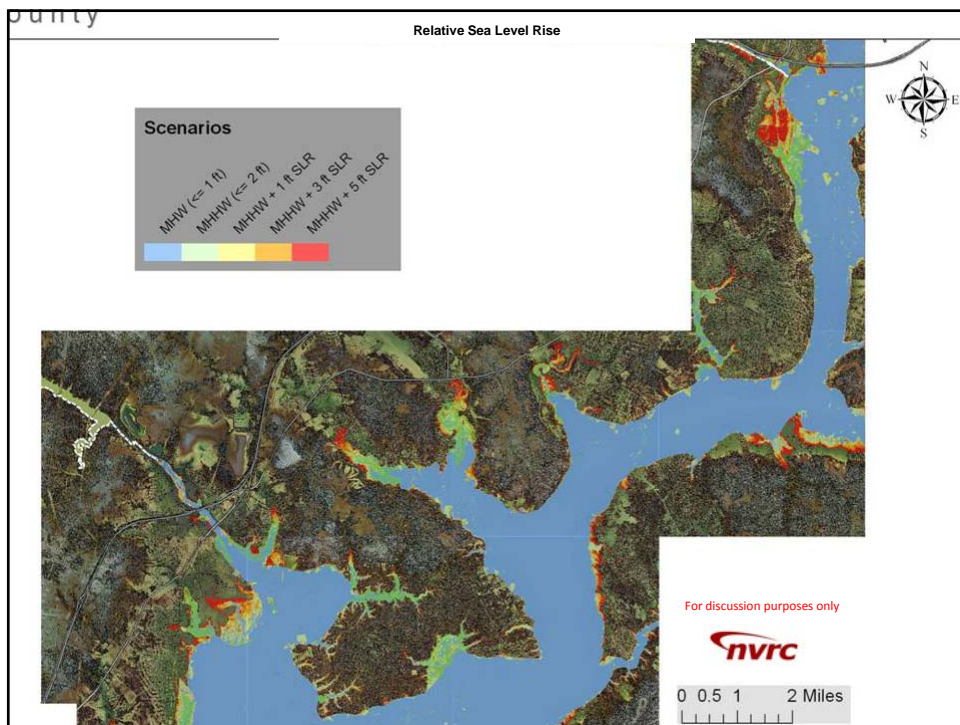
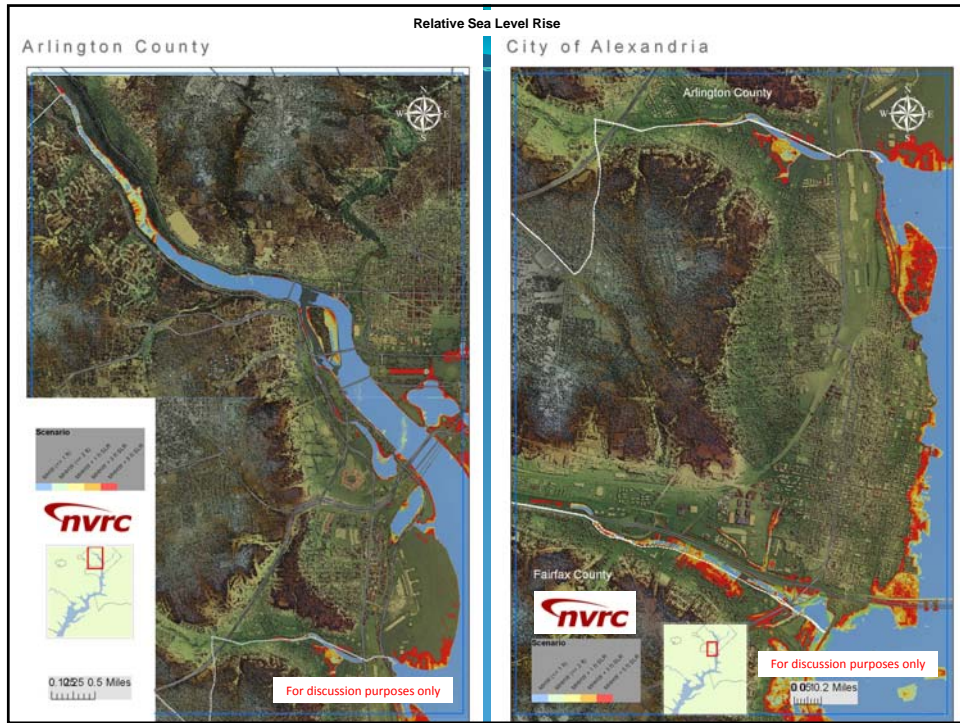


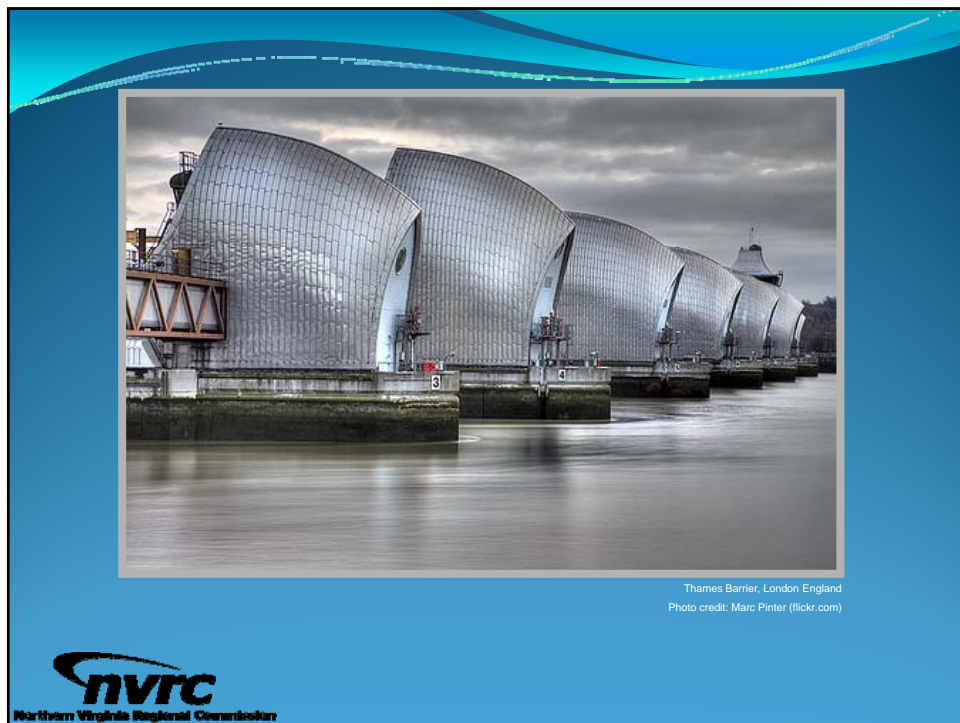
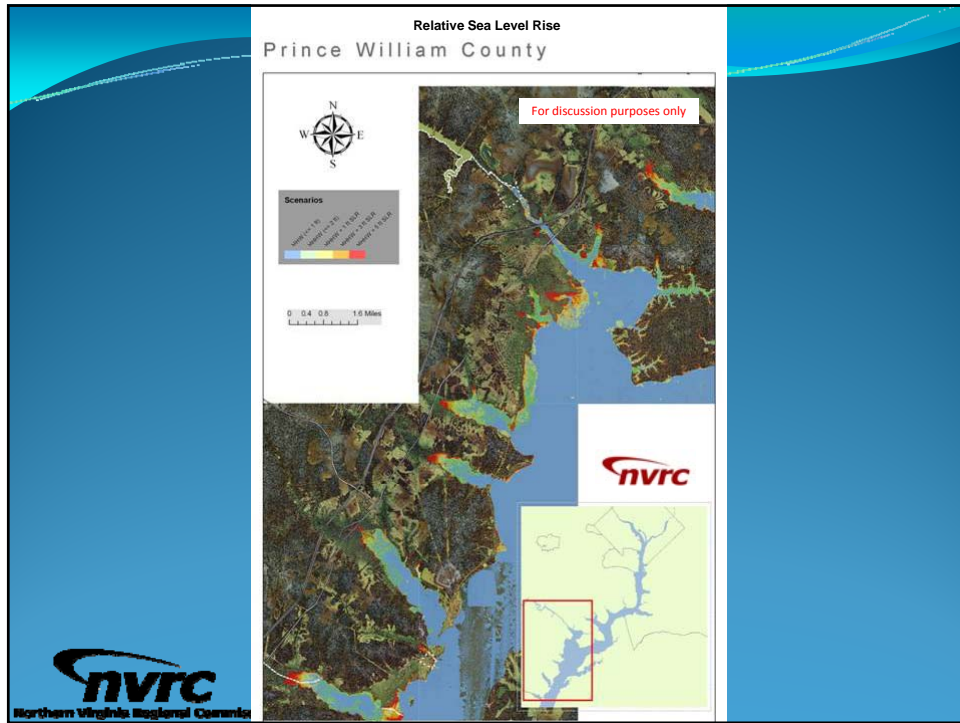
Areas at Risk

- Sea Level Rise = Hot Spots (i.e. the lowest lying areas in the region)

Areas Most Impacted by Potential Sea Level Rise	
Arlington	<ul style="list-style-type: none"> • National Airport • Four Mile Run
Alexandria	<ul style="list-style-type: none"> • Four Mile Run • Dangerfield Island • Old Town • Jones Point
Fairfax County	<ul style="list-style-type: none"> • Huntington • Belle Haven/New Alexandria • Dyke Marsh • Several Tidal Embayments • Hallowing Point
Prince William County	<ul style="list-style-type: none"> • Occoquan NWR • Tidal Embayments • Town of Quantico • Occoquan River

NVRC
Northern Virginia Regional Commission





Local Government Responsibilities

Health
Safety
Welfare

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Adaptation Approach

Built Environment

- Existing Development
- Future Development

Natural Environment

Health, Safety, and Awareness

Protect
Accommodate
Retreat

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Policy Inventory - Existing Toolbox

- Public Health Programs
- Hazard Mitigation Planning
- Land Use Planning





Public Health Programs

- Awareness & Alerts
 - Air Quality
- Immunizations & Vaccinations
- Pollution Prevention
- Pest Surveillance & Control



Air Quality Rating	Steps to Protect Your Health and Our Environment
GOOD 0-50	Enjoy the great outdoors
MODERATE 51-100	Some Pollution - poses risk to the highly sensitive • Carpool, use public transit, bike, or walk • Limit driving, consolidate trips • Reduce car idling
UNHEALTHY for Sensitive Groups 101-150	Pollution levels harmful to children, the elderly and anyone with respiratory or heart conditions - limit activity outdoors • Follow all action steps above • Refuel after dark, use fuel-efficient vehicles • Avoid driving, use transit, carpool • Avoid using aerosol products
UNHEALTHY 151-200	Pollution levels harmful to all - sensitive groups should avoid outdoor activities, when should limit outdoor exertion • Follow all action steps above • Avoid using any gas-powered equipment • Wait to paint until air quality improves
VERY UNHEALTHY 201-300	Pollution levels very unhealthy for everyone - avoid any physical activity outdoors



Hazard Mitigation Planning

- Natural Hazards
 - Flooding
 - Winter Storms
 - Drought
 - Wildfires
- Mitigation Goals & Objectives
- Implementation Strategy

Northern Virginia Hazard Mitigation Plan Update	
Critical Facility and Building Risk.....	75
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Land Use Planning

- Comprehensive Plan
 - Floodplain Management
 - Shoreline Management
 - Zoning Ordinances
 - Overlay Districts
 - Subdivision Ordinances
 - Wetlands Ordinances
 - Open Space & Recreation
 - Chesapeake Bay Preservation
- Master Plans
 - Public Space
 - Waterfront/Shoreline
 - Watershed
- Local Initiatives
 - Eco-City Charters
 - Smart Growth
 - Cool Counties
 - Cool Cities



Common Strategies & Resources

- Educating & reaching out
- Integrating vulnerability assessment and adaptation options into HazMit planning processes
- Increasing freeboard and setback requirements
- Encouraging the transfer of development rights
- Creating rolling easements or specific overlay districts



www.epa.gov/CRE



City of Alexandria's Energy and Climate Change Action Plan 2012 - 2020
http://alexandriava.gov/uploadedFiles/tes/oeq/info/EnergyandClimateActionPlan_April-20-2011-EPC.pdf

Preliminary List of Climate Change Impacts and Preparedness Goals and Actions

Impact 1*: Sea-level rise and the likely increase in hurricane intensity and associated storm surge will be among the most serious consequences of climate change	
Goal:	Preparedness Action:
Reduce property damage from erosion, flooding event level rise, high events	<ul style="list-style-type: none"> • Update the flood management program to take into account anticipated rises in Potomac River levels and the increased intensity of storm-related flooding
Impact 4*: Ecological thresholds are expected to be crossed throughout the region, causing major disruptions to ecosystems and to the benefits they provide to people	
Goal:	Preparedness Action:
Reduce shore erosion	<ul style="list-style-type: none"> • Preserve ecological buffers to allow for inland beach migration • Enhance shoreline protection where retreat and accommodation are not possible • Restore and stabilize stream banks of all urban streams to minimize erosion
Maintain or enhance shoreline habitat	<ul style="list-style-type: none"> • Preserve ecological buffers to allow for inland migration of wetlands, salt marshes, and other habitat systems • Restore and stabilize stream banks of all urban streams to promote healthy habitat and biotic integrity • Preserve, protect, and enhance existing wetlands in the city
Protect and enhance tree canopy and terrestrial habitats	<ul style="list-style-type: none"> • Engage citizens to assist in the improvement of riparian buffers through continued efforts toward invasive species eradication and enhanced planting programs • Utilize low impact landscape practices where possible, such as perennial and native plant species, rain gardens, and encouraging the removal of invasive species • Promote and expand programs where individuals or organizations can purchase trees through the City and have them planted and maintained throughout the city • Ensure that all City plantings are non-invasive, flood- and drought-tolerant, 80% perennial plants, and that native plants are used wherever possible
Impact 5*: Quality of life will be affected by increasing heat stress, water scarcity, severe weather events, and increased use of permeable surfaces to reduce stormwater runoff	
Goal:	Preparedness Action:
Reduce flooding and erosion impacts on roads and bridges	<ul style="list-style-type: none"> • Conduct vulnerability assessment of major roadways and bridges in the city to projected rises in Potomac River levels • Increase capacity of stormwater collection systems to accommodate projected changes in precipitation • Use permeable surface treatments wherever possible
Impact 2*: Decreased water availability is very likely to affect the region's economy and natural systems	
Goal:	Preparedness Action:

EN5.11 Request courtesy review of erosion control plans for all federal and state projects in Prince William County.

EN5.12 Amend the Zoning Ordinance to establish minimum standards and thresholds that limit clearing and grading on cluster developments.

EN5.13 Promote the use of vegetative or "soft" stabilization techniques along shorelines to maintain a natural buffer.

EN5.14 Address issues of sea level rise along shorelines in the County. Utilize current data and information on sustainable shorelines to protect shorefronts and property and incorporate sea level rise into County policy.

...to be designed in a manner that minimizes clearing and grading to the minimum area needed to construct the proposed use.

December 14, 2010 ENV-7

PRINCE WILLIAM COUNTY 2008 COMPREHENSIVE PLAN Environment
From the Piedmont to the Potomac

Challenges to Implementation

- “Climategate” & Skeptics
- Enabling Authority
- Private Land Rights & By-Right Development
- Land Use Nomenclature
- Maintenance & Service Politics
- Engineering & Tradeoffs
- Funds

Lessons-Learned

- Recognize that this is an iterative process, each piece will build upon previous work.
- Ideas from diverse workgroup will strengthen the outcomes of any process. Learn together.
- Stick to the facts & recognize uncertainty.
- Focus on what local governments are responsible for, if a huge structural engineered project isn't a ready or welcome solution.
- Don't create something new. Explore opportunities to integrate climate change/SLR into existing efforts.
- One size does not fit all...work to develop a suite of options that jurisdictions can select from.



On-going Efforts

- Regional Hazard Mitigation Plan development
 - Economic Evaluation
- Knowledge, attitudes, opinions of residents
- Continue assessment with VIMS August 2010
Shoreline Situation Reports for City of Alexandria,
Fairfax & Prince William Counties



Acknowledgements



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Thank you!

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