

THE NFIP'S COMMUNITY RATING SYSTEM

BRIDGING ADAPTATION GAPS IN COASTAL COMMUNITIES



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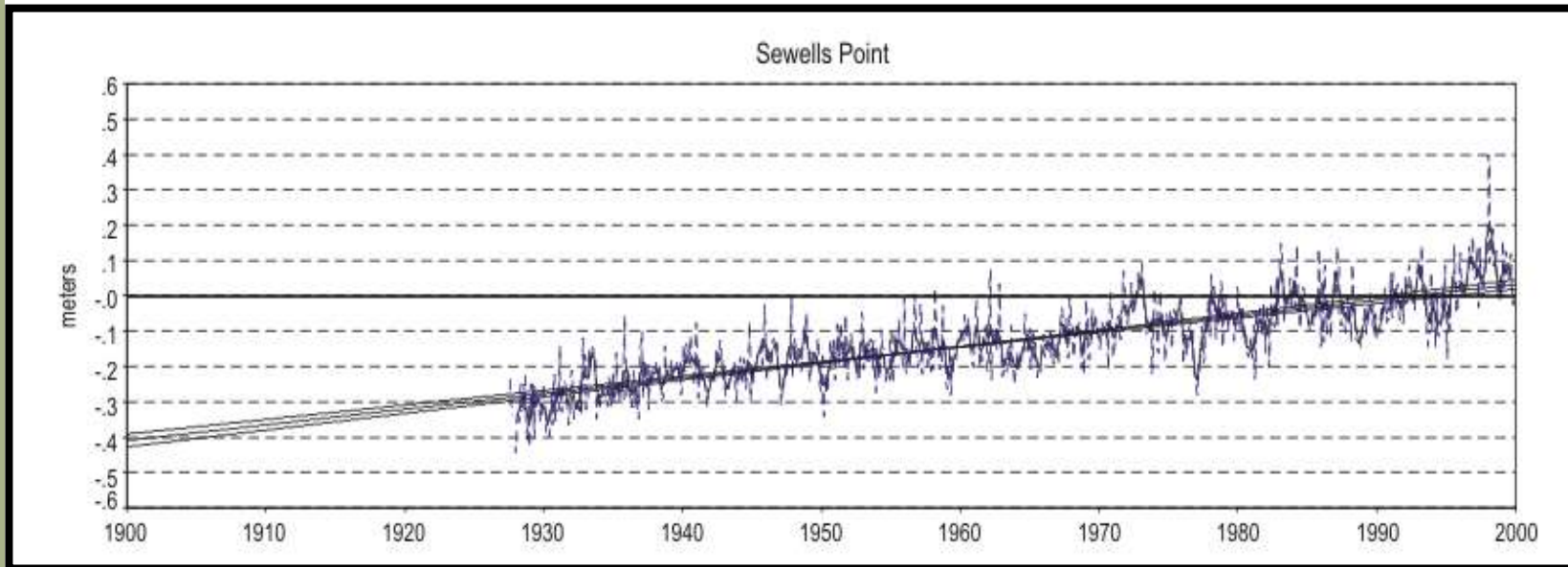
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Association of State Floodplain Managers Conference 2017



NORFOLK VIRGINIA TIDE CHART

HISTORIC SEA LEVEL: 1.5 FEET OVER PAST 100 YEARS



The mean sea level trend is 4.42 millimeters/year
(1.45 feet/century)



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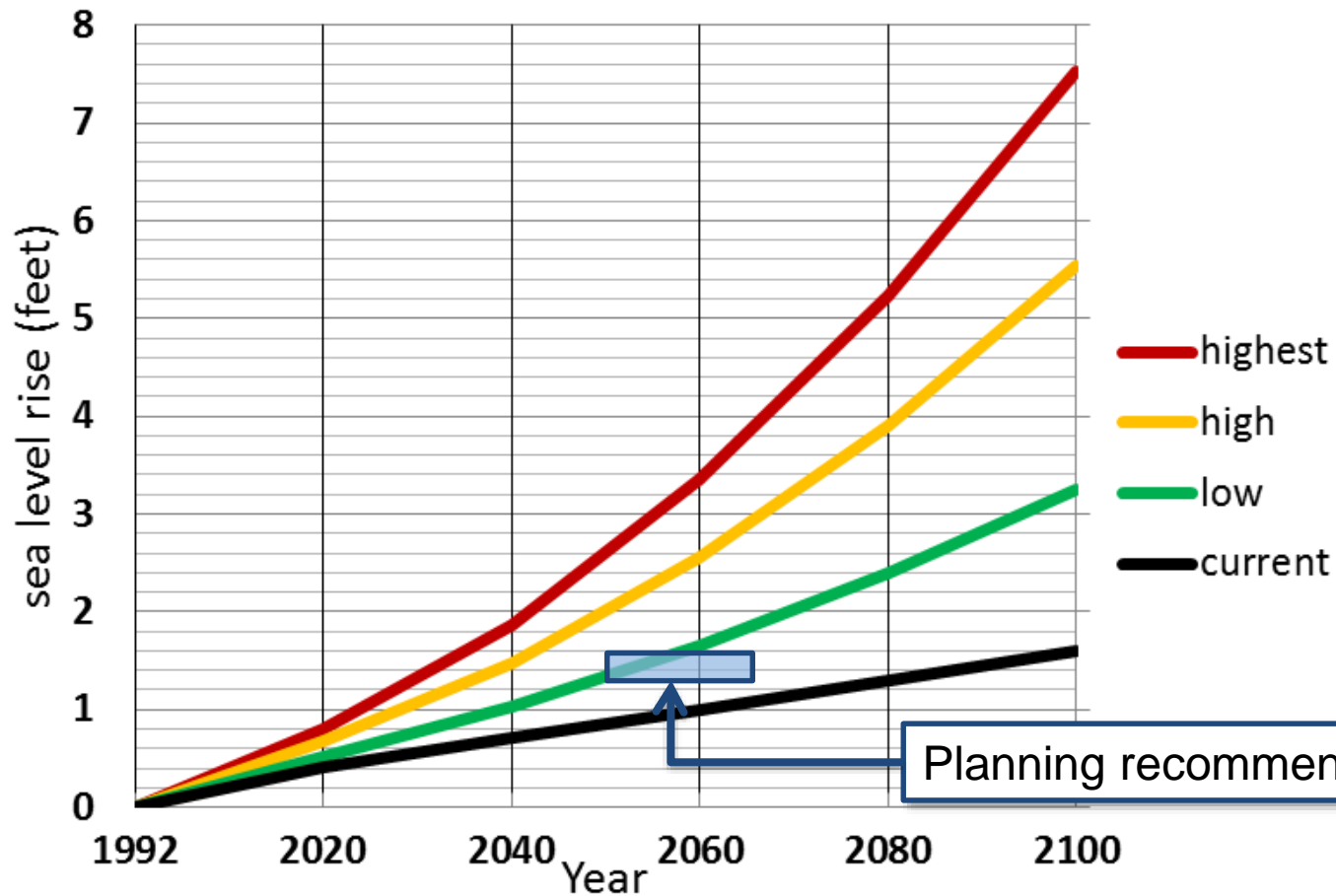
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The map above is historic flooding, not a projection.



PROJECTED SEA LEVEL RISE: 1.5 FEET MID-CENTURY

SE Virginia sea level rise scenarios

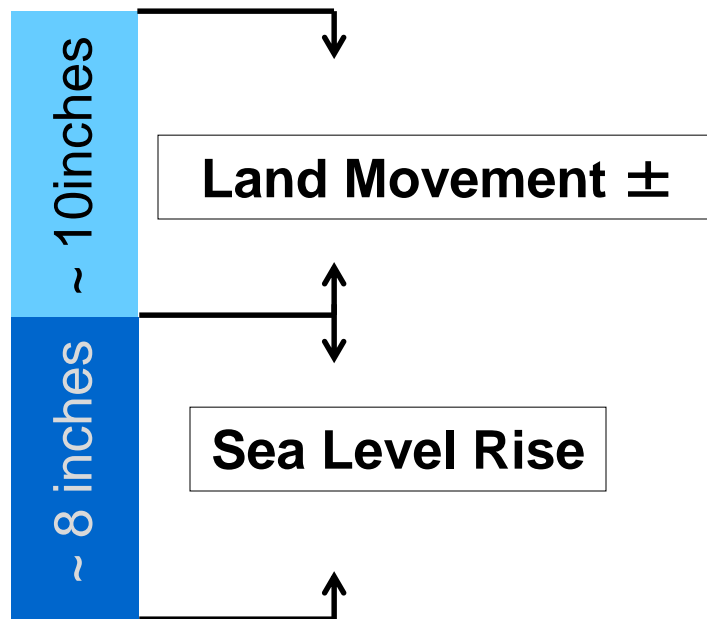


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ACCELERATED SEA LEVEL RISE IN NORFOLK VA



Isostatic Rebound – land is sinking after glaciers to north melted 20 thousand years ago.

Groundwater Withdrawal – water table down 100 feet from pre-colonial times.



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WHAT IMPACTS FROM SEA LEVEL RISE DO WE SEE?



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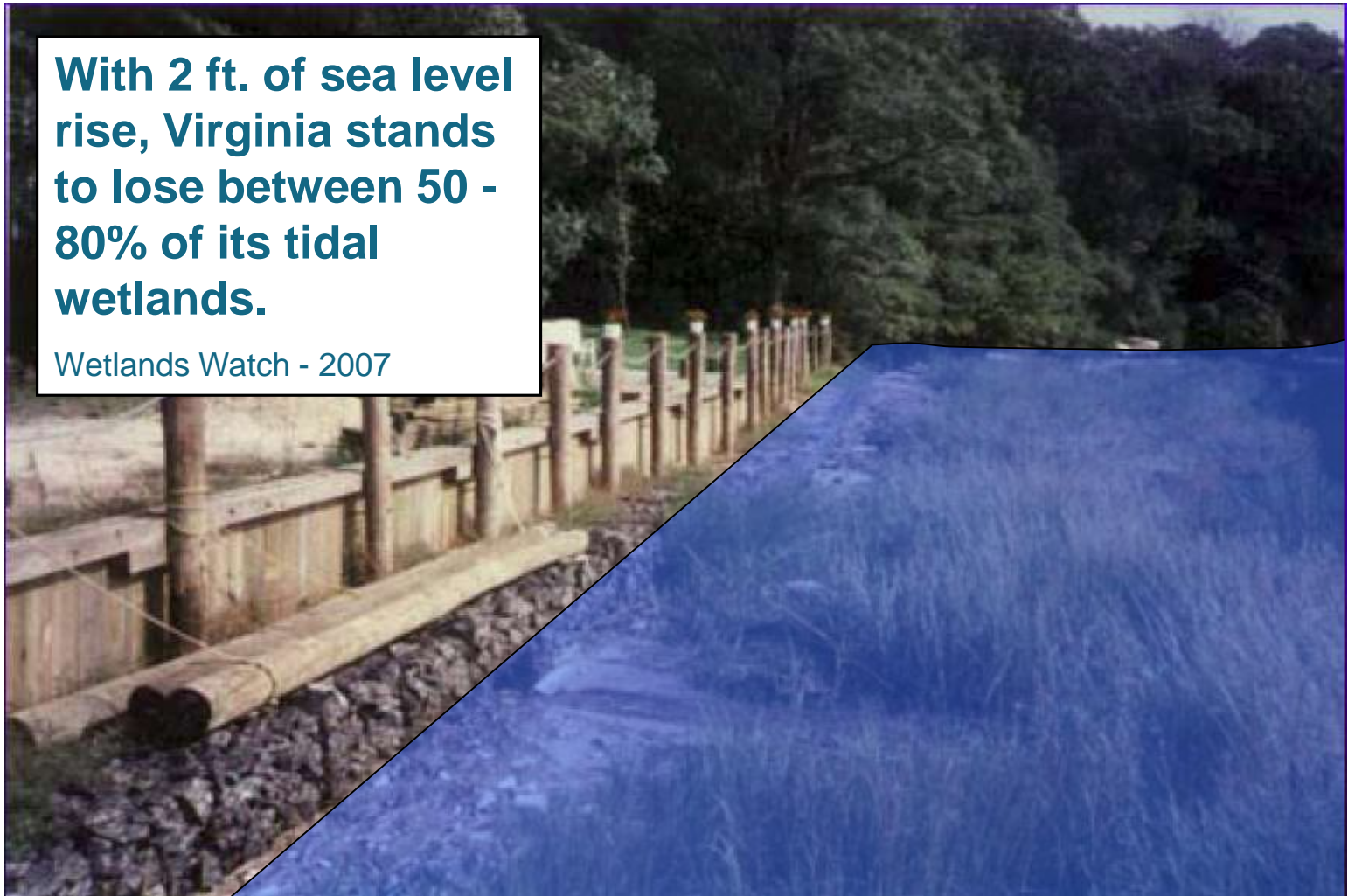
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IMPACT ON WETLANDS

With 2 ft. of sea level rise, Virginia stands to lose between 50 - 80% of its tidal wetlands.

Wetlands Watch - 2007



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“GHOST FORESTS” ALONG THE COASTLINE



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FLOODING DUE TO INADEQUATE STORMWATER INFRASTRUCTURE & HIGH WATER TABLE



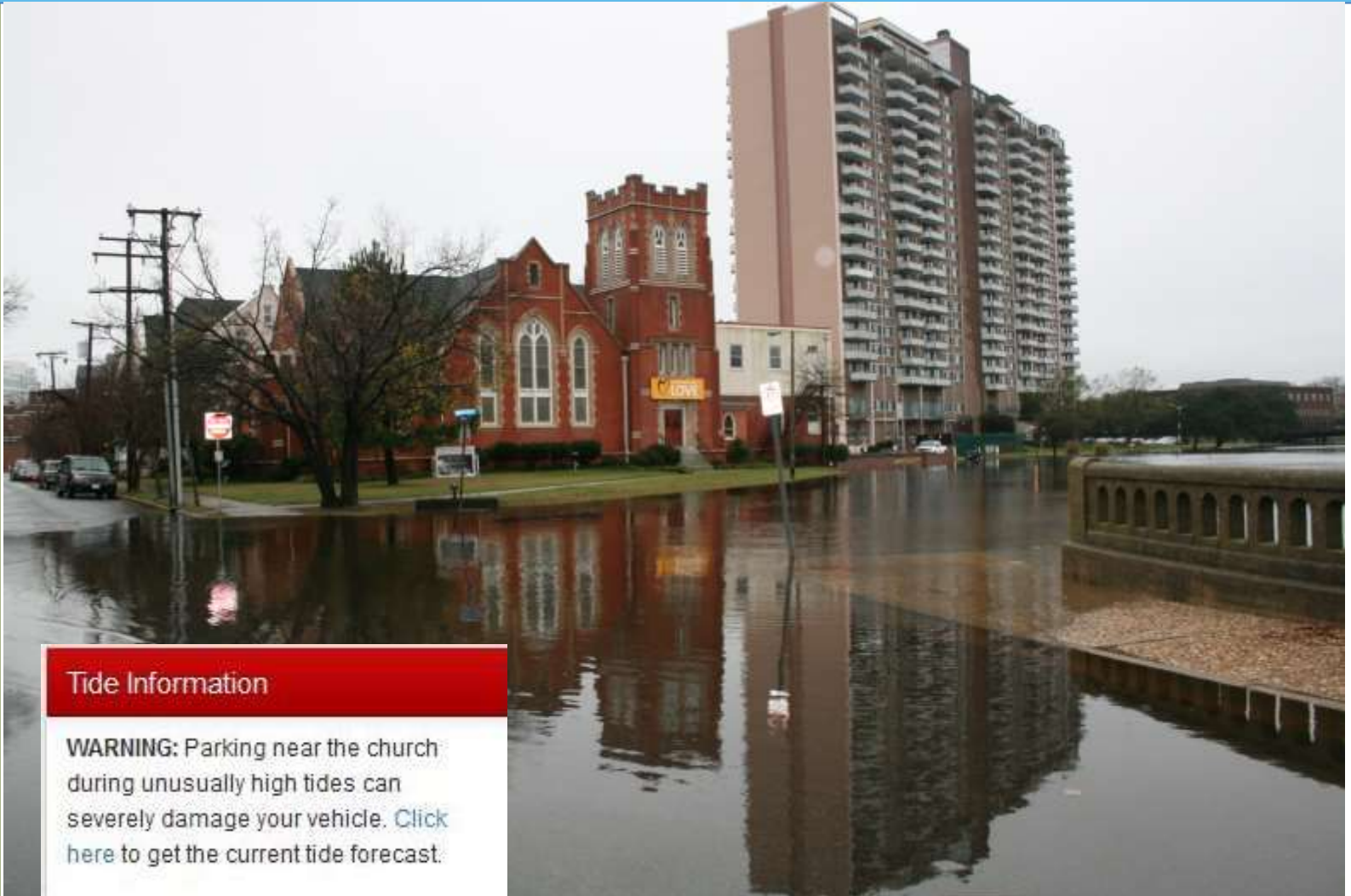
High Tide, Rain, Wind – SEPTEMBER 8, 2014, image from Virginia Pilot



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INCREASED TIDAL NUISANCE FLOODING



Tide Information

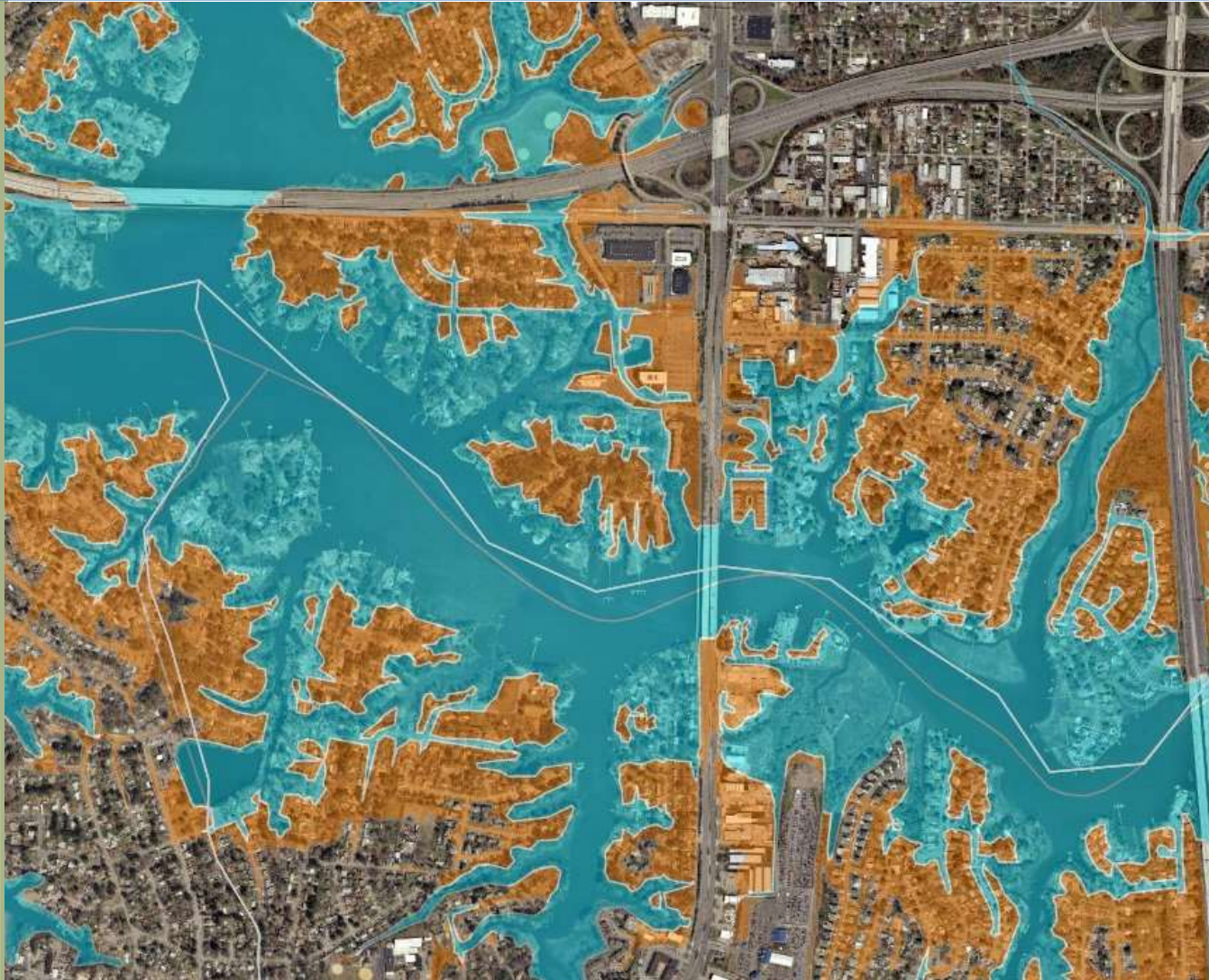
WARNING: Parking near the church during unusually high tides can severely damage your vehicle. [Click here](#) to get the current tide forecast.



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WHY IS NUISANCE FLOODING ON THE RISE? TODAY'S FLOOD MAP FOLLOWS YESTERDAY'S CREEKS



Blue – 100 yr
flood

Orange – 500
year flood



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SEA LEVEL RISE ADAPTATION: STRATEGIES & ESTABLISHMENT OF FLOODPLAIN MANAGEMENT PROGRAM

- **SLR Adaptation Strategies**
 - **Protection (sea walls)**
 - **Accommodation (elevations)**
 - **Retreat or managed retreat (acquisition)**
- **Retreat fell dead in the water – Mayor of Norfolk said retreat once & never again**
- **Need better way to incentivize wetlands protection, shoreline restoration, open space in the floodplain, etc.**
- **Realized NFIP leading all development decisions along shoreline**
- **NFIP research began right before Superstorm Sandy**

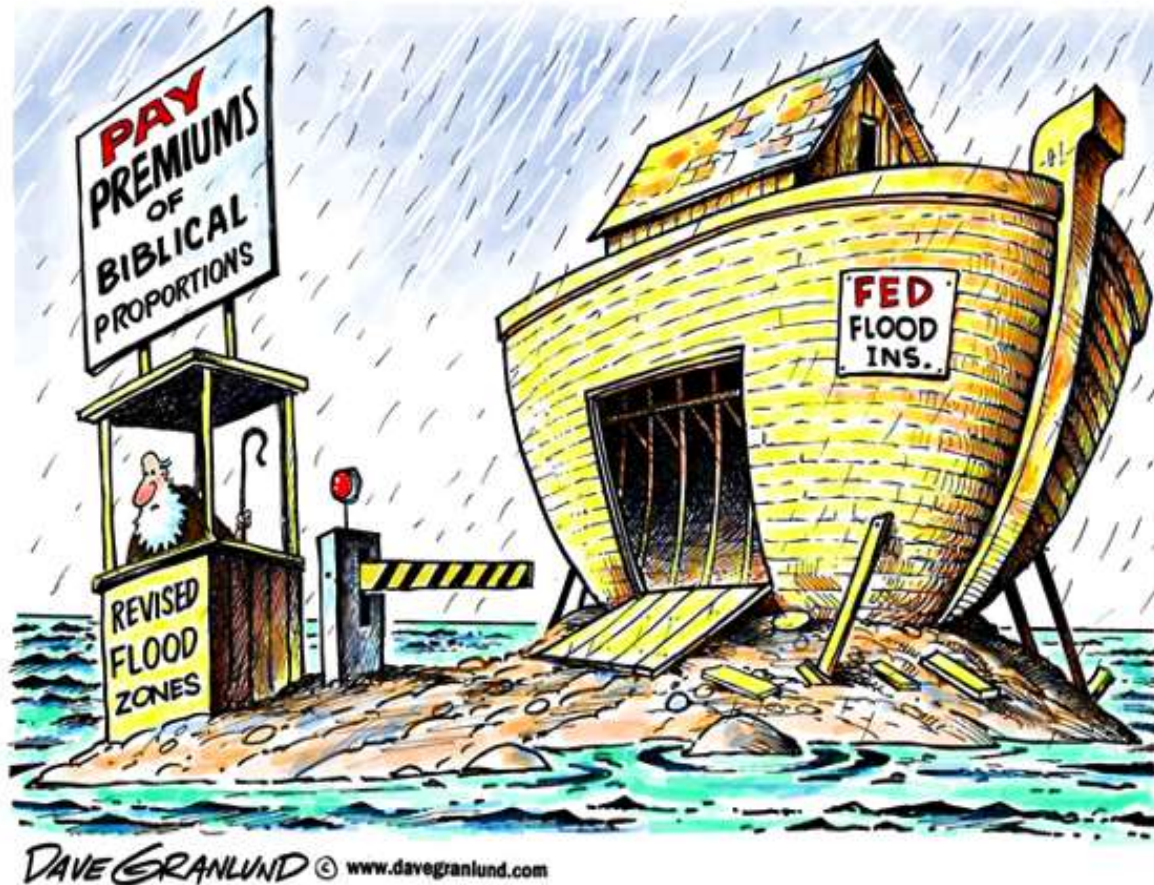


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NEW FIRMS, NEWLY MAPPED AREAS, & RISING FLOOD INSURANCE PREMIUMS SLAMMING COASTAL VA



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Source: www.davegranlund.com



THE NFIP COMMUNITY RATING SYSTEM

Saving Money and Shorelines

- Voluntary NFIP program offers discounts on flood insurance to reward good floodplain management within a community
- Various activities to improve floodplain management/earn credit
- Administered by “community” = government division with land use authority (locality)



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CRS RATING TABLE

Class	Points	Premium Reduction
1	4500+	45%
2	4000-4499	40%
3	3500-3999	35%
4	3000-3499	30%
5	2500-2999	25%
6	2000-2499	20%
7	1500-1999	15%
8	1000-1499	10%
9	500-999	5%
10	0-499	0%



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THE NFIP COMMUNITY RATING SYSTEM

Saving Money and Shorelines

- Wetlands Watch secured grant to study CRS as a sea level rise adaptation & resilience tool in 2013
- First opportunity to monetize shoreline features (wetlands, un-developed floodplains, etc.)
- Congressional reforms (BW & HFIAA) increased premiums & rates as Wetlands Watch stepped into CRS field



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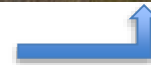
WHY DOES WETLANDS WATCH CARE ABOUT THE CRS?

- INCENTIVIZING LOCAL GOVERNMENT PLANNING FOR RESILIENCE

Highest CRS Credit Earning Activities:
Promote Resilience and Adaptation to Increased Flooding



Open Space Preservation



Acquisition &
Relocation



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Source: Port of Seattle
(www.portseattle.org)



CRS OPEN SPACE PRESERVATION CREDIT

FLOOD PROTECTION VALUE OF WETLANDS



US coastal wetlands protect an estimated \$20 billion in damage reduction each year

Superstorm Sandy (2012): Coastal wetlands reduced property damage by \$625 million in impact area; protected against average ~ 10% damage reduction in each state impacted

Tropical Storm Irene (2011): In Middlebury VT, floodplains & wetlands reduced damages by 84% - 95%: ~ \$1.8 million in damages



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Source: Lloyds, Coastal Wetlands & Flood Damage Reduction, 2016.

Source: <http://www.vermontbiz.com/news/study-floodplains-saved-middlebury-18-million-damage>

ADDRESSING BARRIERS TO CRS SUCCESS & RESILIENCE

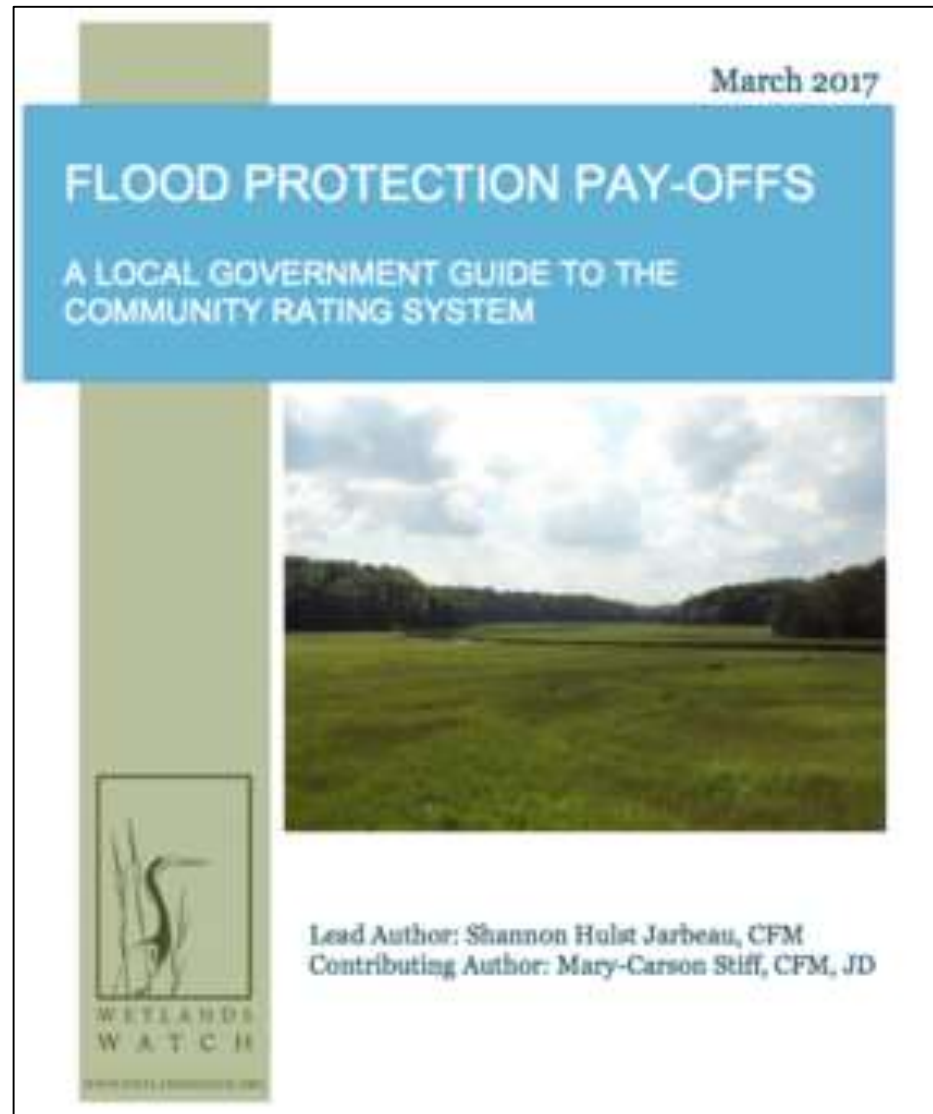
- **Low CRS ratings in coastal VA** → sitting down with localities to find out barriers to success
- **Manual complicated & counter intuitive to local staff** → CRS Virginia Specific Report: focus on co-benefits
- **Localities meet A LOT on resilience issues so collaboration should be easy** → Chair the Coastal Virginia CRS Workgroup
- **Locality staff have little time to learn program & decision makers not prioritizing work** → Grant to improve local government usability via time-saving tools & provide one-on-one consultations
- **Localities adapting to sea level rise, but actions not always creditable in CRS** → Proposing potential changes to the CRS to benefit localities



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VA SPECIFIC CRS GUIDE: DRAFT 2015, UPDATE 2017



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CRS REPORT: EMPHASIS ON CO-BENEFITS OF PROGRAM

- **Created in response to increased CRS interest caused by Congressional reforms (increase premiums) & map updates**
- **Get credit for what local governments are already doing!**
 - Reviews activities & programs already enforced/implemented
 - Attempts to simplify CRS manual & make CRS program more accessible for local government staff
- **Reviews CRS credit opportunities for each activity, basic CRS requirements, easy or hard to get credit, & co-benefits**
- **Lots of co-benefits**

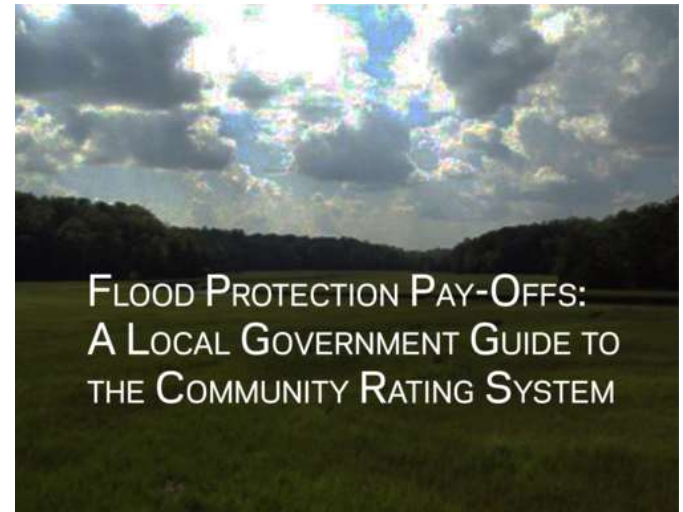
For example, **open space preservation** can be used for:

- Stormwater management
- Meet TMDL & MS4 goals
- Green infrastructure
- Reducing flood risk
- Public access
- Recreational value, etc.



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CRS REPORT: ICON ORGANIZATION

ICON GUIDE

Sea Level Rise Adaptation Icons

Three approaches to sea level rise adaptation are identified by the Virginia Institute of Marine Science: Management/ Retreat, Accommodation, and Protection.¹ This report uses VIMS' definitions of these strategies to categorize activities that fall within each adaptation approach.



Management/Retreat actions include zoning policies preventing development in high-risk areas, policies discouraging rebuilding in high-risk areas, and reclamation or abandonment of highly flood prone lands.



Accommodation actions include raising buildings and roads above flood levels, establishing evacuation routes and warning systems, and creating or enhancing stormwater system capacity.



Protection typically involves some form of engineering to protect existing land uses. Hard engineering solutions such as seawalls are best known, however, there is a growing interest in soft engineering structures, such as marsh creation.



Wetlands Watch Approved: Adaptation activities approved by Wetlands Watch.

Community Rating System Icons



Easy Credit signifies activities that can earn easy credit.



High Credit signifies activities that can earn 200 points or more.



Difficult Credit signifies those activities that require a substantial amount of time, resources, or political capital to meet the requirements.



Uniform Minimum Credit signifies those CRS-creditable activities that are implemented or required by state law. To receive credit, the law must apply in a locality and the locality must provide proof of enforcement.



Outside Funding signifies funding sources or economic incentives available to accomplish an activity or goal without using locality revenues. [Appendix B](#) provides a list of additional funding and incentives resources.



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CRS REPORT: ACTIVITY TABLES

CRS CREDIT OPPORTUNITIES: Public Map Information Service
CRS ACTIVITIES
Probable Credit, Map Information Service (Section 320) <i>CRS Manual, 320-2</i>
<u>Creditable Activity</u> <ul style="list-style-type: none"> • Providing flood zone determinations and associated information about flood risk to constituents
<u>Requirements</u> <ul style="list-style-type: none"> • See prerequisites above • See subsequent sections for more information
<u>Documentation</u> <ul style="list-style-type: none"> • Documentation that shows how the service is publicized annually, and includes an opportunity for personal contact. • A log of the service, which records information about each inquiry received. • Be prepared to provide an explanation of how the community keeps the FIRM updated. • Copies of earlier FIRMs that have been in effect since the date your community applied for credit must be maintained.
CO-BENEFITS
<ul style="list-style-type: none"> • Encourages use of existing map system and data layers • Informs emergency management process with better accuracy (hazard mitigation) • Protects health, safety and welfare of citizens (hazard mitigation)
RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS
<ul style="list-style-type: none"> • Create and publicize an official flood map information/flood zone determination service; no maps or data other than FIRMs are required for basic credit • Use basic FIRM information available from FEMA's Map Service Center • If/when additional information on buildings and repetitive flood areas becomes available in the future through the Flood Risk Information System, include this data in the Map Information Service



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COASTAL VIRGINIA CRS WORKGROUP

HAMPTON ROADS REGIONAL CRS WORKGROUP



WORKING TOGETHER TOWARDS A STRONGER VIRGINIA



What are we?

A community of practice, supporting strong floodplain management & success in the CRS program.

Who are our members?

Staff from local governments, planning district commissions, state agencies, federal agencies, academic institutions, & businesses

Where are our members from?

As far west as Isle of Wight County, east as Accomack County, and north as the City of Richmond

How often do we meet & where?

Every other month

Town Center, Newport News



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Website:

www.coastalvacrs.com



CRS WORKGROUP WEBSITE - INFO AVAILABLE

WWW.COASTALVACRS.COM

- **NFIP/CRS Statistics**
- **Past Meeting Materials**
 - Meeting notes & speaker PowerPoint presentations
- **Important CRS Information**
 - Organized by CRS Activity: time saving & organizational documents to help reduce burden on locality staff
- **Workgroup Work Products**
 - Template letters and forms created by CRS members and used for easy plug-and-play credit
- **CRS Successes & Lessons Learned**
 - Insight from local government staff presentations to Workgroup members
- **NFIP / CRS News Blasts**
 - News stories & events – sent via email monthly



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CRS WORKSHEET: THE SAME WORK, DIFFERENT CREDITS

COASTAL PROGRAM CONSULTING NATURE EDUCATION GROUP
NIPICRS
REVISION 1/2012 FOR A 2/2012 VERSION



How Different Outreach Projects Can Get You Credit

Outreach Project Type	Points Per OP Topic (see Table 330-1)	Materials/Projects Examples	Credit Calculation Example
Informational Materials	1 Point Per Topic	Brochures, flyers, etc. available upon request or on display in a set location (public library, city hall, municipal offices)	Brochure in library on building responsibly & knowing your hazard (2 topics). 1 (informational material) x 2 (2 topics covered in brochure) = 2 points of credit Brochure in library, city hall, welcome center, & permit counter. 1 (info material) x 2 (topics) x 4 (locations) = 8 points
General Outreach Projects	2 Points Per Topic	Signs, newspaper articles, & annual presentations that "reach out" to the general public.	Brochure ↑ handed out during a presentation becomes a general outreach project 2 (general outreach) x 2 (topics) = 4 points Hand out brochure twice a year 2 (GO) x 2 (topics) x 2 = 8
Targeted Outreach Projects	6 Points Per Topic	Letters to a specific resident or presentation at a neighborhood meeting Materials are specifically intended for a person or a group of people because the message would be helpful to share with them for a particular reason.	Brochure ↑ mailed to floodplain residents each year becomes a targeted outreach project 6 (targeted outreach) x 2 (topics) = 12 points TOTAL CREDITS FOR COMBINED PROJECT DISTRIBUTION Community puts brochure in four locations, hands out twice a year at presentations, & mails to floodplain residents: 8 + 8 + 12 = 28 points



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CRS WORKGROUP - NFIP / CRS News Blasts

COASTAL VIRGINIA COMMUNITY RATING SYSTEM WORKGROUP



WORKING TOGETHER FOR A STRONGER VIRGINIA

News Blast: December 2015

FL – Study Reveals Sea Level Rise May Lose \$1Billion Assets By 2050

http://www.globest.com/news/12_1249/miami/asset_management/These-Losses-Could-Average-1B-by-2050-363887-1.html

TX – City Uses FEMA Hazard Mitigation Funds to Finance Flood Reducing Pumps

http://www.mswmag.com/online_exclusives/2015/11/water_pumps_help_texas_community_reduce_flooding

Study Calculates Yearly Flood Damage Estimates for Commercial Real Estate & Other Industries

<https://www.bisnow.com/national/news/commercial-real-estate/httpswww.evernote.com/homeactionn9a5659e4-fdca-477c-86ca-ac9ce3609ffases4sh2sds5-53113>

CO – Lessons Learned from Erosion Control Project

<http://www.estormwater.com/erosion-control-highways-building>

SC – State Expected to Pay \$114 Million of \$1.2 Billion Estimated Flood Damage Cost

<http://www.claimsjournal.com/news/southeast/2015/12/04/267428.htm>

TX – County Commissioners Vote to Include Properties in Regulatory Floodplain That Were Recently Mapped Out of SFHA Post Flooding

<http://www.newsradioklbj.com/news/austin-local-news/travis-county-commissioners-place-homes-destroyed-october-floods-back-flood>

Most Costly US Floods

<http://www.businessinsurance.com/gallery/20151201/PHOTOS/120109999>

India – Flooding in Chennai Reaches Historic Levels: Claims Surge Higher

http://www.propertycasualty360.com/2015/12/07/insurers-see-claims-in-india-rising-to-decade-high?eNL=5665e1f4140ba0d4268b45a1&utm_source=PC360_Daily&utm_medium=EMC-Email_editorial&utm_campaign=12072015&_LID=179800241

SD – City Accepts Flooded Land From Homeowner

http://www.dailyleaderextra.com/news/local/article_67cc6238-9df7-11e5-a14d-b79d6f20b16a.html

Buyouts Gaining Popularity: FEMA spent \$900M since 1998 on buyouts in 28 states (7% coastal buyouts)

<http://www.governing.com/topics/transportation-infrastructure/rising-tide-of-state-buyouts-fights-flooding.html>



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WORKING ONE-ON-ONE WITH LOCALITIES

- **City of Hampton (Class 8)**
 - Comprehensive open space review
 - Comprehensive CBPA RPA submittal
 - General assistance with ISO cycle visit
 - *Credit is pending: review Dec 2016*
- **James City County (Class 7)**
 - Comprehensive open space review
 - Revised language in Park & Recreation Master Plan
 - *Review not until fall 2017*
- **City of Newport News (Joining)**
 - Serving as advisor on City CRS Committee
- **City of Chesapeake (Class 8)**
 - Comprehensive open space review
 - *Review date unknown*



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CITY OF HAMPTON COMPREHENSIVE OPEN SPACE REVIEW

Parcel ID	Credit Import.	Parcel Name	Parcel Owner	Assessor Description	Assessor ID	Extra 420 Credit	Notes	Acres
1	High	Grandview Nature Preserve	HAMPTON CITY OF	Exempt: Hampton - Parks	Parks	DR, NFOS1, NFOS2, NFOS3, NFOS4, NSP	DR: Development not permitted; NFOS1: Park is a nature preserve - stays in its natural state; NFOS2: Preserve mentioned in multiple plans related to shoreline management (Comp Waterways Mgmt Plan, Floodplain Study & Protection Plan); NFOS3: Federal/state species protection (Map Endangered Species & Grandview Plan pg 13); NFOS4: Open Space Corridor - Comprehensive Waterways Management Plan & Wildlife Management Plan; Generally Relevant Docs: Resource Management Plan for Grandview Nature Preserve (2009) & Comp Plan.; NSP: No hard shoreline erosion management allowed (Comp Waterways Mgmt Plan, Floodplain Study Plan, Grandview Nature Preserve Plan)	592.66
2	High	Sandy Bottom Nature Park	HAMPTON CITY OF	Exempt: Hampton - Parks	Parks	DR, NFOS1, NFOS3, NFOS4, NSP	DR: Development not permitted; NFOS1: Park is for enjoyment of nature - stays in its natural state; NFOS3: Federal/state species protection (Map Endangered Species & Comp Plan pg EN-8); NFOS4: Open Space corridor -Sandy Bottom Resource Management Plan & Wildlife Management Plan; Generally Relevant Doc: Sandy Bottom Resource Management Plan (http://www.hampton.gov/988/Resource-Management-Plan) & Comp Plan.; NSP: No hard shoreline erosion management allowed (Sandy Bottom Resource Management Plan)	69.37
3	High	Gosnold's Hope Park	HAMPTON CITY OF	Exempt: Hampton - Parks	Parks	DR, NFOS1, NFOS2, NFOS4	DR: Development not permitted; NFOS1: Park is a recreational park - trails are valued in their natural state & living shorelines discussed in Comp Waterways Mgmt Plan; NFOS2: Park mentioned in plan for shoreline management (Comp Waterways Mgmt Plan); NFOS4: Open Space Corridor - Comprehensive Waterways Management Plan); Generally Relevant Doc: Comp Plan.	87.26

NEEDED CRS PROGRAM REFORMS: NATURE-BASED FLOOD REDUCTION ACTIVITIES

- Confirmed credit for Chesapeake Bay Preservation Act's Resource Protection Area (100-foot buffers + water features)
- Need **better credit** for living shorelines
 - *Coastal localities installing as flood reduction practice*
- CRS credit for RPA & living shorelines = Impacts:
 - Incentivizes localities to strengthen CBPA ordinances
 - Promotes better decision making at Wetlands Boards (fewer exemptions granted)
- Need credit for voluntary stormwater management practices
 - Need credit for individual parcel level water management practices
 - *Coastal localities requiring parcel level water management to mitigate flooding*
 - **Many small actions → great impacts!**



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CHESAPEAKE BAY PRESERVATION AREA BUFFER CREDIT 100 FEET + WATER FEATURES



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STAFFORD COUNTY: PENDING 1,065 OPEN SPACE CREDITS → \$25,584+ COUNTY WIDE SAVINGS

Community:	STAFFORD COUNTY *	State:	VIRGINIA
County:	STAFFORD COUNTY ▼	CID:	510154

Current CRS Class = 8

[\[Printable Version\]](#)

		TOTAL	SFHA *	X-STD/AR/A99 **	PRP ***
PIF		613	150	27	436
PREMIUM		\$399,079	\$219,303	\$23,114	\$156,662
AVERAGE PREMIUM		\$651	\$1,462	\$856	\$359
CRS Class					
09	Per Policy	\$22	\$81	\$45	\$0
	Per Community	\$13,400	\$12,183	\$1,217	\$0
08	Per Policy	\$42	\$162	\$45	\$0
	Per Community	\$25,584	\$24,367	\$1,217	\$0
07	Per Policy	\$62	\$244	\$45	\$0
	Per Community	\$37,767	\$36,550	\$1,217	\$0
06	Per Policy	\$83	\$325	\$90	\$0
	Per Community	\$51,167	\$48,734	\$2,433	\$0
05	Per Policy	\$103	\$406	\$90	\$0
	Per Community	\$63,351	\$60,918	\$2,433	\$0
04	Per Policy	\$123	\$487	\$90	\$0
	Per Community	\$75,534	\$73,101	\$2,433	\$0
03	Per Policy	\$143	\$569	\$90	\$0



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NATURE-BASED FLOODWATER REDUCTION SOLUTIONS

Localities requiring parcel level water management as sea level rise adaptation strategy



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NATURE-BASED STORMWATER SOLUTIONS CASE STUDIES

- **Norfolk, Virginia**
 - Living shoreline, rain gardens, bio-retention systems, ground level cisterns with plant beds
 - When modeled against 2009 nor'easter, designs reduce floodwater volume more than 90% (*EPA Stormwater Management Model*)
- **Nashville, Tennessee**
 - City's Storm Busters volunteers plant trees, create rain gardens, clean waterways, & restore river/stream beds
 - Green infrastructure mitigates = 2.5 million gallons of stormwater
- **Milwaukee, Wisconsin**
 - BaseTerns, green streets, bio-retention, green roofs, rain gardens
 - Green infrastructure = 14 million gallon stormwater capacity
- **National Wildlife Federation**
 - Report claims natural infrastructure offers equal or better flood protection than traditional gray infrastructure



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QUESTIONS?



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