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FLOOD PROTECTION PAY-OFFS

A LOCAL GOVERNMENT GUIDE TO THE
COMMUNITY RATING SYSTEM



WETLANDS
WATCH

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WETLANDS WATCH

Protecting And Conserving Wetlands

EXECUTIVE SUMMARY

Virginia localities are currently faced with several challenges: insurance rates from the National Flood Insurance Program (NFIP) are increasing, sea levels are rising, budgets are strained, and there are an increasing number of regulatory requirements imposed on local governments to reduce stormwater runoff. Wetlands Watch's activities intersected many of these elements and we saw opportunities for localities to earn flood insurance discounts with a coordinated strategy meeting stormwater program requirements, thus maximizing efficient use of scarce local government funds.

The NFIP's Community Rating System (CRS) is at the center of this strategy. In exchange for advanced floodplain management efforts, the CRS provides flood insurance discounts for constituents within a locality. Reduced flood insurance rates ensure that homes remain affordable, maintaining the population and tax base.

The CRS provides credit for many existing programs in Virginia localities, such as stormwater regulations and system maintenance, building code enforcement and stringent floodplain ordinances, and open space preservation. Employing existing programs for CRS credit improves efficiency, encourages collaboration between municipal departments, and provides multiple benefits from a single action.

The challenge for localities is detailing and mapping these co-benefits. This Wetlands Watch CRS report is a guide for local governments to determine what common activities and programs may earn credit. Readers can review the basic requirements for credit, determine whether program adjustments are necessary for credit and if those adjustments are worth the investment for a locality, and learn if funding opportunities are available to assist localities in advancing creditable programs that further community goals.

Increased CRS participation provides flood insurance discounts to constituents, reduces strains on the housing market and tax base, and provides incentives to adapt to sea level rise and increased flooding, all of which can be accomplished through documenting existing programs.

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PREFACE

Adaptation to sea level rise is a central focus for Wetlands Watch as we work at the local government level to influence shoreline land use decisions. Our goal is to make the shoreline ecosystem more resilient, while ensuring the sustainability of coastal communities. To achieve this goal we leverage government policies and private sector decisions, which has led us to better understand the National Flood Insurance Program (NFIP) as a significant component of coastal management. This report is a continuation of that effort as we delve into the NFIP's Community Rating System (CRS), seeking incentives for resilient shoreline management efforts.

This report should be used in tandem with the [2013 CRS Coordinator's Manual](#). The information presented in this report is not intended to ensure receipt of credit; rather, it is intended as a quick-look guide for localities to determine which activities they should investigate further in the *CRS Manual*. Many localities may still use the 2007 manual, so it is important to recognize that some activities and points have changed.

We hope that localities find the information contained in this report useful as they consider whether to participate in the CRS, improve their rating in the program, or simply seek new ways to address coastal resiliency. Adaptation to sea level rise must be a collaborative effort among localities, the private sector, and the public, and we hope that the information presented herein will offer guidance toward achieving that goal.

NOTE: After the release of the draft version of this report, we received helpful feedback from stakeholders. While we incorporated the majority of these comments into the final version of the report, some requests were not accommodated. Requests to review new activities and to organize information differently are met through the creation of various templates, checklists, and other time-saving documents available on the Coastal Virginia CRS Workgroup website: <http://www.coastalvacrs.com/>.

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LIST OF ACRONYMS

*Note: The CRS designates an acronym for each activity credited. These can be found in the Activities and Elements sheet from the 2013 CRS Coordinator’s Manual.

- ASFPM: Association of State Floodplain Managers
- BFE: Base Flood Elevation
- BMP: Best Management Practice
- CBPA: Chesapeake Bay Preservation Act
- CELCP: Coastal and Estuarine Land Conservation Program
- CORS: Continuously Operating Reference Station
- CRS: Community Rating System
- CZMA: Coastal Zone Management Act
- DCR: Department of Conservation and Recreation (Virginia)
- DOF: Department of Forestry (Virginia)
- EWP-FPE: Emergency Watershed Protection – Floodplain Easement Option
- FEMA: Federal Emergency Management Agency
- FIRM: Flood Insurance Rate Map
- GIS: Geographic Information System
- HOA: Home Owners Association
- IBC: International Building Code
- ISO: Insurance Services Office
- LID: Low Impact Development
- LiDAR: Light Detection and Ranging
- LiMWA: Limit of Moderate Wave Action
- LWCF: Land and Water Conservation Fund
- MS4: Municipal Separate Storm Sewer System
- NFIP: National Flood Insurance Program
- NPDES: National Pollution Discharge Elimination System
- NRCS: Natural Resource Conservation Service
- NSRS: National Spatial Reference System
- NWS: National Weather Service
- PDC: Planning District Commission
- PDR: Purchase of Development Rights
- PUD: Planned Unit Development
- RPA: Resource Protection Area
- SFHA: Special Flood Hazard Area
- TMDL: Total Maximum Daily Load
- TDR: Transfer of Development Rights
- UMC: Uniform Minimum Credit
- VAC: Virginia Administrative Code
- VIMS: Virginia Institute of Marine Science
- VLCF: Virginia Land Conservation Foundation
- VPDES: Virginia Pollution Discharge Elimination System
- VSMP: Virginia Stormwater Management Program
- WIP: Watershed Implementation Plan

HOW TO USE THIS REPORT

This guide should NOT replace use of the [CRS Coordinator's Manual](#). The *CRS Manual* provides substantially more detail and should be used for full explanations of credit criteria, activity descriptions, and credit adjustments. Page numbers from the *CRS Manual* appear throughout the report to allow for easy reference. Localities should consult their Insurance Services Office (ISO) representative when in doubt or in need of additional clarification.

The purpose of this report is to guide local governments in conducting multi-departmental assessments to identify where existing programs can earn credit through the Community Rating System (CRS). The report requires that local governments work collaboratively to identify, track, and potentially modify existing programs and policies for CRS credit. The report is specifically designed to allow users to identify activities that may apply in their locality, review the basic CRS requirements, and determine whether pursuing credit for that activity is worthwhile. The document is not meant to be read through, but to be used as a guide, allowing readers to pick and choose sections most relevant to their locality or region.

Most sections include a table outlining creditable CRS activities. The tables include basic CRS information, governance guidance (including statutory, regulatory, or policy language that a locality could use as a model or cite as an authority), a list of co-benefits, and recommendations to maximize CRS credit and co-benefits. The tables are intentionally detailed and inclusive, ensuring that each can stand alone and provide necessary information for readers interested only in particular activities. Readers who review multiple tables in one section will recognize similarities and some repetition.

CRS credit opportunities are divided into “probable” and “potential” categories. Most activities reviewed in this report will likely earn credit in at least one CRS activity (“probable” category), but may earn credit in other activities if they meet additional criteria (“potential” category). **An ISO representative ultimately determines whether an activity submitted by a locality fulfills the credit criteria.**

The number of points awarded for each CRS activity is commonly determined by an **impact adjustment**, used to reflect the impact of the activity on the locality’s insured buildings. Impact adjustments are often a ratio of the area or number of buildings affected by a CRS activity compared to the total area or number of buildings in the SFHA. Impact adjustments vary by activity and are described in more detail in the [CRS Coordinator's Manual](#).

Credit for several CRS activities is based on the **regulatory floodplain**. In most instances, the regulatory floodplain mirrors the **Special Flood Hazard Area (SFHA)**. However, some localities regulate areas outside of the SFHA. In these localities, credit is increased for many activities because they regulate a **larger flood zone area than required**. The *CRS Coordinator's Manual* explains this impact on CRS credit in greater detail after each relevant activity.

The CRS [Activities and Elements Chart](#) in [Appendix A](#) is a useful guide to understand CRS activities. It may be helpful to print this chart for reference while reviewing this report.

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.

I. INTRODUCTION

The National Flood Insurance Program’s (NFIP) Community Rating System (CRS) provides an excellent opportunity for local governments to achieve multiple community goals with a single action, improving efficiency and providing multiple benefits. Localities already implement, as state requirements or voluntary local programs, many activities rewarded in the CRS. This report makes it easy to identify these existing creditable activities to simplify and maximize participation in the CRS. Advanced participation in the CRS eases the burden of increasing flood insurance rates on policyholders, while improving floodplain management and encouraging adaptation to sea level rise.

Many Virginia localities already require or enforce creditable CRS activities, such as watershed management planning, MS4 and TMDL compliance, building code enforcement, and open space preservation. Virginia establishes stormwater management regulations and building codes; localities must enforce these state standards. Open space preservation is not required by state law, but is a common practice in Virginia. These locality-implemented mandatory or voluntary activities, deemed “co-benefits” in this report, provide an efficient way to achieve multiple goals.²

Effective CRS programs require multi-departmental and cross community collaboration and involvement. The CRS offers credit in many categories; a successful program must coordinate between all departments. Examples of departments and offices critical to the CRS include planning, public works, public information, geographic information systems or other mapping, emergency management, and the clerks office. Involvement with community stakeholders, such as land conservation organizations or public outreach community groups, is critical.

This report guides local governments through CRS credit for common programs in Virginia. The intention is to encourage localities to join the program or improve their rating, while providing constituents with flood insurance discounts and increasing citizen support for pursuing further advanced floodplain management measures. Insurance discounts offer a powerful incentive for localities seeking greater citizen support for funding and implementation of advanced flood risk reduction and sea level rise adaptation measures.

CRS Overview

The CRS rewards improved floodplain management and flood risk reduction with reduced flood insurance premiums for NFIP policyholders within a locality. The program offers discounts in five percent increments, up to forty-five percent, to localities that implement certain advanced floodplain management activities.

The primary goals of the CRS are to:

- Reduce and avoid flood damage to insurable property
- Strengthen and support the insurance aspects of the NFIP
- Foster comprehensive floodplain management

Participation in the CRS requires at least one year of locality membership in the regular phase of the NFIP, full compliance with basic NFIP requirements, commitment to maintain all Elevation Certificates, compliance with repetitive loss analysis criteria, maintenance of any required flood insurance policies on all locality-owned buildings, and inclusion of the Limit of Moderate Wave Action (LiMWA) line on locality Flood Insurance Rate Maps.

The Community Rating System is administered by a FEMA contractor called Insurance Services Office (ISO). There are approximately twenty-five employees at ISO that operate the CRS program with a series of external consultants. Seventeen representatives work with communities; each representative works with about one-hundred CRS localities. Five specialists assist in reviewing more technical issues and work with community specialists to determine locality credit qualifications and class ratings.

For CRS purposes, in this report the terms locality and community are used interchangeably.

NOTE: After the release of the draft version of this report, we received helpful feedback from stakeholders. While we incorporated the majority of these comments into the final version of the report, many of the more substantial requests could not be accommodated. Requests to review new activities and recommendations to organize information differently are met through the creation of various templates, checklists, and other time-saving documents available on the Coastal Virginia CRS Workgroup website: <http://www.coastalvacrs.com/>.

II. LAND USE PLANNING

Land use planning, including comprehensive plans, green infrastructure plans, natural and critical area plans, adopted policies, zoning, subdivision, and other ordinances can generate CRS credit. These local government land-use tools may earn credit directly, or upon implementation of recommend actions. According to state law, Virginia localities must develop and adopt a Comprehensive Plan for the “coordinated, adjusted, and harmonious” physical development of land within the locality.³ A Comprehensive Plan itself may not earn significant credit, but is an effective tool when used to guide and fund implementation of many credit-earning activities.

Plans must include methods for implementing recommendations and actions through the use of many tools, such as maps, a capital improvement plan, and subdivision and zoning ordinances. Localities may adopt action plans, policies, programs, and ordinances that encourage or require the use of open space; sustainable conservation, green infrastructure, and/or low impact site design; and other development techniques that minimize impervious surfaces and site disturbance, maximize preservation of open space, keep development out of floodplains, and protect natural resources. When these planning and regulatory tools are used to protect open space and limit development in the floodplain, they can earn CRS credit.



A. ADOPTED LAND USE PLANS: COMPREHENSIVE, GREEN INFRASTRUCTURE, AND NATURAL AND CRITICAL AREA PLANS

In the CRS program, Comprehensive Plans only receive credit for incorporating natural areas, recommending open space incentives, and including maps located within the plans. However, the actions and further mapping that result from these plans can earn significant credit within the CRS program. These credit opportunities are outlined below.

Examples of natural area plans that could earn credit include programs designating critical open space, such as state sensitive-areas programs restricting development or statewide inventories and plans for exemplary, rare, or endangered species. If adopted by the locality, the following may qualify for credit: critical habitat designations such as the U.S. Fish and Wildlife Service’s Threatened and Endangered Species Critical Habitat Designations, private programs such as The Nature Conservancy’s Heritage Program Inventory, the National Wildlife Federation’s Wildlife Corridors, the Virginia Coastal Zone Management Program’s Coastal Natural Resource Areas, some Special Area Management Plans, the Virginia Natural Heritage Program, State or Local Park Master Plans/Parks and Recreation Plans, or a Watershed Master Plan addressing natural floodplain functions. Credit is also available for a locality-specific plan addressing one or all natural floodplain functions or native, rare, threatened, or endangered shoreline species (this may include the required enclosure of Resource Protection Areas in the comprehensive plan). For more information on credit for land protected under these programs, see [*Open Land Managed in its Natural State*](#).

CRS CREDIT OPPORTUNITIES: Natural Floodplain Functions Plans and Mapping

CRS ACTIVITIES

Potential Credit, Activity 512c, Natural Floodplain Functions Plan (NFP)
Up to 100 points, *CRS Manual*, 510-35

Creditable Activities

- Plans addressing natural floodplain functions in locality
- Plans for habitat conservation/protection/restoration, green infrastructure, open space, or natural floodplain functions elements in a comprehensive plan (for Tidewater localities, may be accomplished by inclusion of RPA discussion and maps in Comprehensive Plan)

Requirements

- Plans may cover multiple communities
- Plans must be adopted by locality seeking credit
- Plans must be updated at least every 10 years
- Plans must include action items for protecting natural floodplain functions and one or more species of importance
- Plans must include a comprehensive inventory of natural floodplain habitat. Exception: single-issue plan
- Areas identified in plan will receive extra credit when preserved as open space under Activity 422c, Natural Functions Open Space (NFOS)

Documentation

- Copy of the NFP plans with documentation of adoption

Potential Credit, Activity 422e, Open Space Incentives (OSI)
Up to 10 points, *CRS Manual*, 420-20

Creditable Activities

- Land use or comprehensive plans recommending open space use or low-density development of flood-prone areas

Additional Information

- Credit determined based on amount of regulatory floodplain covered by plan's recommendations (credit cannot apply to developed areas or parcels already credited as open space in CRS)
- Up to 250 points available in this Activity for requirements or incentives to keep flood-prone lands open (discussed under [Open Space Planning Tools](#))

Documentation

- Copy of the adopted ordinance language that pertains to this credit.
- The impact adjustment map used for OSP credit must also indicate the areas where

OSI applies

- The ISO Specialist may look on Google Earth to confirm incentive compliance, where applicable.

Potential Credit, Activity 442a, Additional Map Data (AMD12)

Up to 14 points, *CRS Manual*, 440-3

Creditable Activities

- Inclusion of natural floodplain function layers (e.g., wetlands, Resource Protection Areas, floodwater storage areas) in advanced mapping system (e.g. GIS)

Requirements

- Map system must be used regularly by regulatory staff
- New data (e.g. restudies or map changes) must be updated annually (this will meet a prerequisite for Activity 322g below; this information can be obtained from [FEMA](#))
- Data must be made available to FEMA at least annually

Additional Information

- Credit is based on the amount of SFHA covered by data
- See [Advanced Map Systems and Data Layers](#) for more info

Documentation

- Copies of maps or databases and/or screen printouts of GIS attributes to be credited must be available.
- Impact adjustment map, if map/system does not cover the total area of the community's SFHA.

Potential Credit, Activity 322g, Natural Floodplain Functions Mapping (M17)

Up to 20 points, *CRS Manual*, 320-15

Creditable Activities

- Create publicly accessible map information service (See [Public Map Information Service](#))

Requirements

- Provide information about areas that should be protected as a result of their natural floodplain functions – inquirers must be told if property of interest falls within one of these areas

Additional Information

- See [Natural Floodplain Function Maps](#) for data sources

Documentation

- 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. Time Saver: Use this [sample log template](#) prepared by the Coastal VA CRS Workgroup.

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| <ul style="list-style-type: none"> • 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. | |
| GOVERNANCE GUIDANCE | |
| Va. Code §§ 15.2-2223; 15.2-2224 | In Comprehensive Plan and accompanying maps, localities can designate land development and preferred use (e.g. residential, business, agricultural, mineral resources, conservation, active and passive recreation, public service, flood plain and drainage), a system of community service facilities (e.g. parks, sports playing fields, forests), historic areas, and groundwater protection areas. May use zoning and subdivision ordinances to implement the Comprehensive Plan |
| Va. Code § 15.2-2223.1 | Localities can establish urban development areas (or urban growth boundaries) for high intensity growth - must incorporate principles of traditional neighborhood design, may include “preservation of natural areas” and can be designated as area for “transfer of development rights” |
| Va. Code § 10.1-213 | Dedication of natural area - Public departments, commissions, boards, counties, municipalities and all other agencies and instrumentalities of the Commonwealth and its political subdivisions can dedicate suitable areas within jurisdiction as natural area preserves included in a Natural Area Preserve System and a Natural Area Registry |
| Va. Code § 10.1-1701 | Virginia Open-Space Land Act - Any public body may acquire title or any interests or right in real property that will provide a means for the preservation or provision of open space land. Any public body may designate, retain and use any real property as open space |
| Va. Code § 10.1-2119 | All counties, cities and towns may exercise police and zoning powers to protect the quality of state waters from nonpoint source pollution |
| Va. Code § 62.1-44.15:33 | Encourage low-impact development designs, regional and watershed approaches, and nonstructural means for controlling stormwater... localities may adopt more stringent ordinances to implement adopted local or regional watershed plans |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May help achieve Comprehensive Plan goals • Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks) • Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Protects health, safety and welfare of citizens (hazard mitigation) • Provides property protection • Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, | |

conservation corridors, etc.)

- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Supports parks and recreational open space and passive recreation standards
- Supports landscaping standards of perimeter and landscape buffers

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Develop and adopt a green infrastructure plan that can double as a Natural Floodplain Functions Plan (Activity 512c)
- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- Encourage open space preservation and/or open space incentives in Comprehensive Plan (Activities 422a and 422e)
- Prohibit development and fill in the regulatory floodplain (Activity 432a)
- Review [Watershed Master Planning](#) to see if CRS requirements are met by the current Comprehensive Plan to earn credit in Activity 452b; consider including these requirements in a future update to earn credit (CREDIT GO-GETTERS)

B. OPEN SPACE PLANNING TOOLS

Open space conservation is a high credit generator in the CRS program; localities can access and implement many open space protection tools, potentially earning significant credit. Local governments in Virginia may plan for, regulate, encourage, and finance the preservation and conservation of open space. Localities may adopt local and regional community plans, land-use maps, policies, programs, and ordinances reserving, enforcing, funding, and incentivizing open space conservation through the land-use decision-making and regulatory processes.

Zoning divides a locality into land-use districts that share common characteristics and permissible land-uses. Standards and criteria concerning the use, characteristics, placement, spacing, and size of land and buildings within the respective districts are specified in local zoning and subdivision ordinances.⁴ Through zoning ordinances, Virginia localities can establish districts that restrict development in sensitive areas within and adjacent to floodplains and incentivize the use of development techniques that protect land as open space. For instance, districts that allow cluster development may offer density bonuses to developers who cluster structures on a portion of a property in order to preserve natural or recreational contiguous open space on other portions of the property. The preserved open space can provide co-benefits of flood protection, a recreational space for the neighborhood, reduced stormwater runoff, and CRS credit.

Other types of open space preservation zoning tools typically used by Virginia localities include: planned unit of developments (PUD); urban development areas; planned community or new urbanism districts; rural, agricultural, large-lot, or conservation districts (with conservation lots or conservation subdivision required); and special overlay districts (e.g., Chesapeake Bay

Protection Areas, floodplain, historic, clustering, water supply protection areas, conservation areas, agricultural and forestal, urban development areas, protective buffer zones, etc.). Development plans within these zoning districts typically require master plans with delineated and dedicated open space areas, buffers, and/or setbacks.

Localities can establish standards and criteria for open space preservation within all zoning districts and subdivision ordinances. Localities can promote further open space and natural or cultural resource preservation through a range of site design techniques (e.g., low impact design, better site design, clustering) that limit disturbance to environmentally or culturally sensitive areas including floodplains. Additionally, localities can encourage open space preservation through by-right clustering, building placement or footprint standards, and other low impact development standards.

Many of these land use practices are discussed below. Other omitted land use regulations may still qualify for CRS credit in a similar manner to those regulations discussed below.



i. General Open Space Policies, Zoning Practices, and Subdivision Ordinances



Adopted policies promoting zoning and subdivision ordinances that protect open space in the floodplain can earn CRS credit. Virginia state law authorizes and often requires that localities adopt ordinances promoting, requiring, or incentivizing the use of certain land-use development and planning techniques that preserve open space. Taking advantage of these requirements for land located in the floodplain will help localities earn CRS points, protect open space, and produce several additional co-benefits. This section reviews general policies and zoning practices that preserve open space, such as prohibiting development in the regulatory floodplain within a subdivision or requiring the siting of all buildings on high ground. Subsequent sections cover more specific tools: cluster zoning, low-density zoning, downzoning, tax credits, purchase and transfer of development rights, agricultural and forestal districts, and buffers.

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| CRS CREDIT OPPORTUNITIES: Land Use Policies, Zoning, and Subdivision Ordinances to Protect the Floodplain as Open Space |
| CRS ACTIVITIES |
| Probable Credit, Activity 422e, Open Space Incentives (OSI) Up to 250 points, <i>CRS Manual</i> , 420-20 |
| <p><u>Creditable Activities</u></p> <ul style="list-style-type: none"> • Requirements or incentives to reserve floodplain portions of new developments as open space <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Maximum credit is provided if regulations require the regulatory floodplain is left open either as open space or free from obstruction (such as a back yard) • Reduced credit available for requiring buildings to be sited on high ground, transfer of development rights/density bonuses out of the floodplain, cluster development, tax |

incentives, and land use plans recommending floodplains remain open or sparsely developed

Additional Information

- Credit determined based on the amount of the regulatory floodplain subject to open space incentives (excluding developed areas or parcels already credited as open space)

Documentation

- Copy of the adopted ordinance language that pertains to this credit.
- The impact adjustment map used for OSP credit must also indicate the areas where OSI applies
- The ISO Specialist may look on Google Earth to confirm incentive compliance, where applicable.

**Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, CRS Manual, 420-3**

Creditable Activity

- Protecting undeveloped land in the floodplain (if zoning requires land to be reserved as open space, this credit will be applicable after the land is protected)

Requirements

- Land must be part of the regulatory floodplain as defined by a locality’s floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations, development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual, development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.

- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422b, Deed Restriction (DR)
 Up to 50 extra credit points, *CRS Manual*, 420-11

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed (or local policy) with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

GOVERNANCE GUIDANCE

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| Va. Code § 15.2-2223.1 | Localities can establish urban development areas (or urban growth boundaries) for high intensity growth - must incorporate principles of traditional neighborhood design, may include “preservation of natural areas” and can be designated as area for “transfer of development rights” |
| Va. Code § 15.2-2242.8 | Gives localities authority to include in subdivision ordinances “provisions for clustering of single-family dwellings and preservation of open space developments” |
| Va. Code § 15.2-2279 | Any locality may by ordinance regulate the building of houses in the locality including the adoption of minimum setbacks and side yards and the establishment of minimum lot sizes |
| Va. Code § 15.2-2280 et seq. | Zoning ordinances generally...allows localities to establish zoning districts with adopted conditions, criteria and standards for development within the district |
| Va. Code § 15.2-2286 | Zoning provisions to allow localities to administer “incentive zoning,” establish areas and districts designated for mixed-use developments or planned unit developments, and provide tax credits to property owners willing to downzone underdeveloped or undeveloped property |
| Va. Code § 15.2-2286.1 | Requires that certain localities (population growth rate of 10% or more between the previous two census counts, but exempting those localities with population densities of more than 2,000 people per square mile) include “standards, conditions, and criteria for the |

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| | clustering of single-family dwellings and the preservation of open space developments” in their zoning or subdivision ordinances. Standards include a density calculation. These standards are applicable “to a minimum of 40% of the unimproved land contained in residential and agricultural zoning district.” |
| Va. Code § 15.2-2295.2 | A locality may by ordinance require the modification of an application for zoning modification, a conditional use permit, or a special exception for the area of a development that is proposed within a mapped dam break inundation zone |
| Va. Code § 15.2-2296 | Conditional zoning – more flexible and adaptable zoning |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May help achieve Comprehensive Plan goals • Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks) • Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Protects health, safety and welfare of citizens (hazard mitigation) • Provides property protection • Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.) • Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Consider including in the locality land use/comprehensive plan recommendations to reserve flood-prone areas as open space or low-density development • Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements • When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation • Strengthen land protection through a permanent real estate instrument (e.g., deed restriction or conservation easement) (Activity 422b) • When localities require all subdivision plats include flood zone lines, credit is earned. | |



ii. Development Limitations in the Floodplain



Restricting development (fill with or without compensatory storage, buildings, and storage of materials) in the floodplain can earn CRS credit. A locality may opt to only prohibit some buildings, such as single-family dwellings (note that prohibiting critical facilities is credited in Activity 432f; see [Critical Facilities Planning and Protection](#) for more information). Regulations

restricting development may qualify undeveloped parcels for open space credit in Activity 422a, granting higher credit than available in this activity.

CRS CREDIT OPPORTUNITIES: Limiting Fill, Buildings, or Materials Storage in the Floodplain

CRS ACTIVITIES

**Probable Credit, Activity 432a, Development Limitations
Up to 1,330 points, CRS Manual, 430-6**

Creditable Activity

- Prohibiting fill (with or without compensatory storage), buildings, and/or materials storage in the SFHA

Requirements

- Prohibition of fill (DL1, up to 280 points)
 - No Conditional Letters or Letters of Map revision based on Fill may be issued
 - Subdivision regulations must apply to all new development
 - Regulations must apply to building, infrastructure, and other floodplain uses
 - Credit can be prorated for compensatory storage requirements for new development in the floodplain at hydraulically equivalent sites up to a ratio of 1.5:1 (stormwater regulations requiring a developer compensate for runoff increases do not qualify)
- Prohibition of buildings (DL2, up to 1,000 points)
 - Prohibit new buildings in the SFHA (credit will be prorated if only certain types of buildings are prohibited or if regulations only apply to part of SFHA)
- Prohibition of storage of materials (DL3, up to 50 points)
 - Prohibit outdoor storage of materials in the regulatory floodplain OR
 - Prohibit storage of hazardous materials in the floodplain OR
 - Require hazardous materials to be stored indoors above BFE

Additional Information

- If fill, buildings, and materials storage are prohibited in the SFHA and there are still vacant areas, those vacant areas can be counted as protected open space and earn credit in Activity 422a
- Filling is permitted to protect natural floodplain functions, such as for a channel restoration project
- Credit is based on the area of the floodplain affected by the regulations compared to the area of the SFHA, excluding credited open space parcels (Activity 422a)
- Must have map indicating area where rules are effective in the regulatory floodplain (map must show areas credited as open space and undeveloped areas)

Documentation

- Adopted state or local regulation.
- Impact adjustment map indicating areas affected by the regulations, plus areas credited under OSP and areas that are undeveloped.
- Example permit records documenting appropriate implementation must be available.

| GOVERNANCE GUIDANCE | |
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| Va. Code § 15.2-2280 et seq. | Zoning ordinances generally...allows localities to establish zoning districts with adopted conditions, criteria and standards for development within the district |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Protects health, safety and welfare of citizens (hazard mitigation) • Provides property protection and improves structural safety | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Prohibit all fill, buildings, and materials storage in high risk areas of the SFHA • Restrict fill, buildings, and materials in the 500-year floodplain if possible • Prohibit critical facilities in the floodplain (Activity 432f) • Get higher credit for open space protection in Activity 422a (accomplished through the regulations credited in Activity 432a) | |



iii. Cluster Development

Promoting the use of cluster development within a locality can generate CRS credit. Cluster development is “a form of land development in which principal buildings and structures are grouped together on a site, thus saving the remaining land area for common open space, conservation, agriculture, recreation, and public and semipublic uses.”⁵ It can be used to keep floodplains open by concentrating development away from the floodplain and leaving flood-prone areas as contiguous open space. This style of development offers flood protection, creates a recreational space for the neighborhood, and reduces stormwater runoff. Cluster development may be implemented through a Planned Unit of Development or other means.

| CRS CREDIT OPPORTUNITIES: Using Cluster Development to Protect Floodplains as Open Space |
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| CRS ACTIVITIES |
| Probable Credit. Activity 422e, Open Space Incentives (OSI) Up to 25 points, <i>CRS Manual</i> , 420-20 |
| <p><u>Creditable Activities</u></p> <ul style="list-style-type: none"> • Regulations allowing cluster development <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Up to 25 points are available for regulations that allow cluster development through a planned unit development or otherwise <p><u>Additional Information</u></p> <ul style="list-style-type: none"> • Credit is determined based on the amount of the regulatory floodplain covered by open space incentives (excluding developed areas or parcels already credited as open space) |

Documentation

- Copy of the adopted ordinance language that pertains to this credit.
- The impact adjustment map used for OSP credit must also indicate the areas where OSI applies
- The ISO Specialist may look on Google Earth to confirm incentive compliance, where applicable.

Potential Credit. Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, *CRS Manual, 420-3*

Creditable Activity

- Protecting undeveloped land in the floodplain (if zoning requires some land reserved as open space, this credit will be applicable after the land has been protected)

Requirements

- Land must be part of the regulatory floodplain as defined by a locality's floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations, development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual, development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422b, Deed Restriction (DR)
Up to 50 extra credit points, *CRS Manual, 420-11*

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

GOVERNANCE GUIDANCE

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| Va. Code § 15.2-2242.8 | Gives localities the authority to include in their subdivision ordinances “provisions for clustering of single-family dwellings and preservation of open space developments” |
| Va. Code § 15.2-2286.1 | Requires that certain localities (population growth rate of 10% or more between the previous two census counts, but exempting those localities with population densities of more than 2,000 people per square mile) include “standards, conditions, and criteria for the clustering of single-family dwellings and the preservation of open space developments” in their zoning or subdivision ordinances. Standards include a density calculation. These standards are applicable “to a minimum of 40% of the unimproved land contained in residential and agricultural zoning district.” |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Accomplishes open-space-related goals for localities without locality funding

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Consider including in the locality land use/comprehensive plan recommendations to reserve flood-prone areas as open space or low-density development
- Strengthen land protection through a permanent real estate instrument (e.g., deed

restriction or conservation easement) (Activity 422b)

- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- Request notification from locality Clerk's Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- Track all permanent open space set aside by developers (e.g., PUDs or cluster developments) in the mapping format used by the locality (e.g., GIS or AutoCAD) - review final subdivision plats for open space and/or require developers to submit documentation in GIS/AutoCAD format to simplify credit calculation
- Offer incentives to developers who restore and protected land in its natural state (protected land creditable in Activity 422c)



iv. Low-Density Zoning



Low-density zoning practices are eligible for CRS credit. Low-density zoning limits the number of structures built in an area to maintain rural character, agricultural use, or open space. Zoning typically limits development to lot sizes of a specific number of acres, such as 5 or 10 acres. Each locality decides what restriction size works best for their circumstances. Localities can regulate, restrict, permit, prohibit, and determine use of land for floodplain protection purposes by exercising zoning power. In the CRS program, agricultural land is more likely to get credit under low-density zoning than open space preservation (Activity 422a).

CRS CREDIT OPPORTUNITIES: Using Low Density Zoning to Protect Open Space

CRS ACTIVITIES

Probable Credit, Activity 422f, Low-Density Zoning (LZ)
Up to 600 points, *CRS Manual*, 420-26

Creditable Activity

- Use low-density zoning to protect open space

Requirements

- Lot sizes must be between 5 and 10 acres
- There must be a zoning ordinance that identifies development criteria and densities for different areas

Additional Information

- Credit is based on the area of the regulatory floodplain covered by the low density zoning regulations

Documentation

- Copy of the adopted zoning ordinance language that meets this criteria.
- The impact adjustment map used for OSP credit must also indicate the areas where LZ

applies within the SFHA.

- If application is intended for floodprone areas outside of the regulatory floodplain, then documentation is needed for how the scope of the floodplain regulation has been expanded to cover these areas.
- The ISO/CRS Specialist may look at Google Earth to verify that new developments have been constructed in accordance with the required density, or request to see documentation confirming compliance.

Probable Credit, Activity 422e, Open Space Incentives (OSI)
Up to 250 points, CRS Manual, 420-20

Creditable Activities

- Tax incentive programs to keep land undeveloped

Requirements

- 25 points are awarded for an open space tax incentive program

Additional Information

- Credit is determined based on the area of the regulatory floodplain where tax incentives apply (excluding developed areas or parcels already credited as open space)
- Other credit is provided for regulations requiring that the regulatory floodplain be left open, requiring buildings be sited on high ground, for transfer of development rights/density bonuses out of the floodplain, cluster development, and a land use plan recommending floodplains remain open or sparsely developed

Documentation

- Copy of the adopted ordinance language that pertains to this credit.
- The impact adjustment map used for OSP credit must also indicate the areas where OSI applies
- The ISO Specialist may look on Google Earth to confirm incentive compliance, where applicable.

GOVERNANCE GUIDANCE

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| Va. Code § 15.2-2286 | Downzoning permitted with land from voluntary landowner in exchange for a tax credit equal to the excess real estate taxes paid associated with the higher zoning classification |
| Va. Code § 15.2-2279 | Any locality may by ordinance regulate the building of houses in the locality including the adoption of minimum setbacks and side yards and the establishment of minimum lot sizes |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)

- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Use a minimum lot size of 5 acres when seeking credit for low-density zoning; if that is not possible, use cluster zoning or maintain other areas of open space to earn CRS credit under other activities (Activity 422f or 422a)
- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation



v. Downzoning



Downzoning is a zoning action that results in the reduction of allowable land density or use intensity for a particular parcel or area of land, while remaining consistent with the comprehensive plan and community vision. In Virginia, localities may enter into a voluntary agreement with a landowner who agrees to forego his right to develop the land he owns. The end result is a lower housing density, more undeveloped land and open space, and the property owner receives a tax credit “equal to the excess real estate taxes paid associated with the previous higher zoning classification.”⁶ This exchange can result in an area with low-density zoning (CRS credit) and provide an economic benefit to the property owner.

CRS CREDIT OPPORTUNITIES: Using Downzoning to Protect Open Space and Provide Tax Credits

CRS ACTIVITIES

Probable Credit, Activity 422f, Low-Density Zoning (LZ)
Up to 600 points, *CRS Manual*, 420-26

Creditable Activity

- Use low-density zoning to protect open space

Requirements

- Lot sizes must be between 5 and 10 acres
- There must be a zoning ordinance that identifies development criteria and densities for different areas

Additional Information

- Credit is based on the area of the regulatory floodplain covered by the low density zoning regulations

Documentation

- Copy of the adopted zoning ordinance language that meets this criteria.
- The impact adjustment map used for OSP credit must also indicate the areas where LZ applies within the SFHA.
- If application is intended for floodprone areas outside of the regulatory floodplain, then documentation is needed for how the scope of the floodplain regulation has been expanded to cover these areas.
- The ISO/CRS Specialist may look at Google Earth to verify that new developments have been constructed in accordance with the required density, or request to see documentation confirming compliance.

Probable Credit, Activity 422e, Open Space Incentives (OSI)
Up to 250 points, CRS Manual, 420-20

Creditable Activities

- Tax incentive programs to keep land undeveloped

Requirements

- 25 points are awarded for an open space tax incentive program

Additional Information

- Credit is determined based on the area of the regulatory floodplain where tax incentives apply (excluding developed areas or parcels already credited as open space)
- Other credit is provided for regulations requiring that the regulatory floodplain be left open, requiring buildings be sited on high ground, for transfer of development rights/density bonuses out of the floodplain, cluster development, and a land use plan recommending floodplains remain open or sparsely developed

Documentation

- Copy of the adopted ordinance language that pertains to this credit.
- The impact adjustment map used for OSP credit must also indicate the areas where OSI applies
- The ISO Specialist may look on Google Earth to confirm incentive compliance, where applicable.

GOVERNANCE GUIDANCE

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|----------------------|--|
| Va. Code § 15.2-2286 | Downzoning permitted with land from voluntary landowner in exchange for a tax credit equal to the excess real estate taxes paid associated with the higher zoning classification |
| Va. Code § 15.2-2279 | Any locality may by ordinance regulate the building of houses in the locality including the adoption of minimum setbacks and side yards and the establishment of minimum lot sizes |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Raise awareness of downzoning opportunities among owners of open floodplain land
- Use a minimum lot size of 5 acres when seeking credit for low-density zoning
- Where applicable, use downzoning to reduce allowable density, increase open space, and provide a tax credit to property owners
- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- Request notification from locality Clerk’s Office or applicable recordation office when land use restriction is recorded
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation



vi. Land Preservation Tax Credits



Tax incentives encouraging land conservation and preservation are eligible for CRS credit. Economic incentives can prioritize open space preservation through tax credits for private property owners. A federal income tax deduction and an estate tax exclusion are granted for real estate instruments that preserve open space land in perpetuity. These real estate instruments, most commonly called conservation easements, limit a property owner’s use of the land by eliminating the right to develop the land. These legal restrictions are bound to the land. The amount of the tax credit awarded is based on the decrease in the value of the land as a result of the imposed use restrictions.



At the state level, the federal income credit is effectively a state income deduction; the credit reduces a person’s taxable income. Virginia’s land preservation tax credit provides an income tax credit for forty-percent of the preserved land value.

In 2013, the Virginia legislature passed a bill capping the maximum state issued income tax credits at \$100 million. Any additional funds are used for land conservation programs through

the Virginia Land Conservation Fund (via the Virginia Land Conservation Foundation), Civil War Site Preservation Fund, and Virginia Farmland Preservation Fund. These additional funds could be used to purchase floodplain properties with a high risk of flooding or properties that could contribute to contiguous open space corridors. For more information, see the [Piedmont Environmental Council](#). For more information on state grants for land conservation and a listing of local land trusts in Virginia, visit the Department of Conservation and Recreation’s [Land Conservation webpage](#).

| CRS CREDIT OPPORTUNITIES: Land Preservation Tax Credit Incentive Programs |
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| CRS ACTIVITIES |
| Probable Credit, Activity 422e, Open Space Incentives (OSI) Up to 250 points. <i>CRS Manual, 420-20</i> |
| <p><u>Creditable Activities</u></p> <ul style="list-style-type: none"> • Tax incentive programs to keep land undeveloped <p><u>Requirements</u></p> <ul style="list-style-type: none"> • 25 points are awarded for an open space tax incentive program <p><u>Additional Information</u></p> <ul style="list-style-type: none"> • Credit is determined based on the area of the regulatory floodplain where tax incentives apply (excluding developed areas or parcels already credited as open space) • Other credit is provided for regulations requiring that the regulatory floodplain be left open, requiring buildings be sited on high ground, for transfer of development rights/density bonuses out of the floodplain, cluster development, and a land use plan recommending floodplains remain open or sparsely developed <p><u>Documentation</u></p> <ul style="list-style-type: none"> • Copy of the adopted ordinance language that pertains to this credit. • The impact adjustment map used for OSP credit must also indicate the areas where OSI applies • The ISO Specialist may look on Google Earth to confirm incentive compliance, where applicable. |
| Potential Credit. Activity 422a, Open Space Preservation (OSP) Up to 1,450 points, <i>CRS Manual, 420-3</i> |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • Protecting undeveloped land in the floodplain (if zoning requires some land reserved as open space, this credit will be applicable after the land has been protected) <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Land must be part of the regulatory floodplain as defined by a locality’s floodplain ordinance • If land is owned by the state or local government (not federal) or non-profit |

organizations, development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner

- If land is owned by an individual, development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422b, Deed Restriction (DR)
 Up to 50 extra credit points, *CRS Manual, 420-11*

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

GOVERNANCE GUIDANCE

Va. Code § 58.1-512

Tax credit of up to 40% of the value of the land can be applied with the conveyance of open space property

| | |
|--|---|
| Va. Code §§ 10.1-1009 et seq. | Virginia Conservation Easement Act authorizes non-profit entities to hold easements |
| Va. Code §§ 10.1-1700 et seq. | Virginia Open-Space Land Act authorizes public bodies to establish open space programs and hold easements |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May help achieve Comprehensive Plan goals • Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks) • Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Protects health, safety and welfare of citizens (hazard mitigation) • Provides property protection • Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.) • Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands) • Accomplishes open-space-related goals for localities without locality funding | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Raise awareness of the tax credits opportunities among owners of open floodplain land • Request notification from locality Clerk’s Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded • Strengthen land protection through a permanent real estate instrument (e.g., deed restriction or conservation easement) (Activity 422b) • Encourage property owners to maintain or restore protected land to its natural state (Activities 422a and 422c) • Coordinate with open space protection organizations (e.g., land trusts) to identify and map existing lands in their care and promote protection of additional open space in floodplains • When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation | |



vii. Purchase/Transfer of Development Rights



Purchase or transfer of development rights programs (PDR or TDR, respectively) can be used to generate CRS credit. Purchase of development rights allows a public or private entity to purchase development rights from a voluntary property owner, leaving the property owner with ownership of the land, limited use of the property, and a tax reduction. PDR programs are often used in Virginia to protect agricultural and forest land. Transfer of development rights removes the development rights from one property from a voluntary owner(s) (called a sending area) and

places them on another property (receiving area), increasing the density of the receiving property and leaving the sending property with the same rights listed above.

Local governments and land preservation entities may use these programs in collaboration with property owners who volunteer to remove the development rights on properties. Alternatively, a private party may exchange development rights with other private parties in a transfer. These programs allow a voluntary landowner to sell the right to develop their land (through an easement on the property), keeping the land in an undeveloped state, while compensating the landowner for this act of land protection.

Land where development rights are removed or limited through these programs may earn CRS open space credit, provided the program prohibits future development and the property is located in a floodplain. This transaction should also receive CRS credit for open space incentives. PDR programs are not explicitly recognized in the CRS, but may earn credit as an open space incentive. They should be submitted to ISO for review.



It is important to note that while PDR programs are promoted by the [Office of Farmland Preservation](#) to protect land for continued agricultural use, the CRS will only credit farmland as open space if all new development, including new farm buildings, is prohibited. Unless PDR programs meet this requirement, they will not be credited. Instead, PDR programs that protect open space to preserve rural character, adapt to sea level rise, or provide other passive use are more likely to earn credit. Agricultural land can also be credited under low-density zoning.

| CRS CREDIT OPPORTUNITIES: Removal of Development Rights for Open Space Protection |
|---|
| CRS ACTIVITIES |
| Probable Credit, Activity 422e, Open Space Incentives (OSI) Up to 70 points, <i>CRS Manual, 420-20</i> |
| <p><u>Creditable Activities</u></p> <ul style="list-style-type: none"> Regulations providing for transfers of development rights or density bonuses away from the floodplain <p><u>Requirements</u></p> <ul style="list-style-type: none"> 70 points for regulations providing transfers of development rights or density bonuses out of the regulatory floodplain 50 points for regulations that allow density transfers within the same development Though not explicitly mentioned, PDR programs may earn credit as an open space incentive – submit to ISO specialist for review <p><u>Additional Information</u></p> <ul style="list-style-type: none"> Credit is determined based on the amount of the regulatory floodplain covered by open space incentives (excluding developed areas or parcels already credited as open space) <p><u>Documentation</u></p> <ul style="list-style-type: none"> Copy of the adopted ordinance language that pertains to this credit. |

- The impact adjustment map used for OSP credit must also indicate the areas where OSI applies
- The ISO Specialist may look on Google Earth to confirm incentive compliance, where applicable.

Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, *CRS Manual, 420-3*

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of the regulatory floodplain as defined by a locality’s floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations, development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual, development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable for parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422b, Deed Restriction (DR)
Up to 50 extra credit points, *CRS Manual, 420-11*

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

GOVERNANCE GUIDANCE

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|-------------------------|--|
| Va. Code § 3.2-201 | Duties of Office of Farmland Preservation include developing model policies and practices for use by local governments in creating Purchase of Development Rights programs |
| Va. Code § 15.2-2223.1 | Localities can establish urban development areas (or urban growth boundaries) for high intensity growth - must incorporate principles of traditional neighborhood design, may include “preservation of natural areas” and can be designated as area for “transfer of development rights” |
| Va. Code § 15.2-2316.2. | Localities may provide for transfer of development rights through ordinance |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- May accomplish open-space-related goals for localities without locality funding
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Ensure that PDR and TDR programs prohibit future development in sending areas (Activity 422a)
- Expand use of PDR programs outside of traditional agricultural use to include open space
- Pursue credit under low-density zoning (Activity 422f) if agricultural land cannot be credited under open space preservation (Activity 422a)

- Strengthen land protection through a permanent real estate instrument (e.g., deed restriction or conservation easement) (Activity 422b)
- Encourage property owners to maintain or restore protected land to its natural state (Activities 422a and 422c)
- Request notification from locality Clerk’s Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation

 **viii. Use Value Taxation and Agricultural and Forestal Districts**

 Utilizing land use value taxation that promotes and protects open space is likely eligible for CRS credit. Land use value taxation can be used in most localities in Virginia for agricultural and horticultural, forestal, and open space lands. Use value taxation allows property to be assessed based on the use of the land rather than its market value.

In addition to use value taxation, localities may create agricultural and forestal districts with voluntary landowner support. The outcome is the same, but in this scenario, several contiguous or nearby properties are combined into one single district. These districts place a temporary (five years minimum) hold on land, reserving it exclusively for farm or forestry use, or for open space protection by limiting development rights for the duration of the life of the district. This also reduces property taxes for the landowner. These districts can also be used to impose low-density development, thereby producing open space. The creation of a district requires a minimum of 20 acres.⁷

 Agricultural and forestal districts are common, but will only earn credit under open space preservation if all future development, including new farm buildings, is prohibited. (Farmland may earn credit under low-density zoning, Activity 422f, instead.) Therefore, use value taxation for open space use is most likely to be credited. For more information on Use Value Taxation, visit Virginia Tech’s [Use Value Assessment Program](#) page.

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|--|--|
| CRS CREDIT OPPORTUNITIES: Land Use Value Taxation for Open Space Protection | |
| CRS ACTIVITIES | |
| Potential Credit, Activity 422a, Open Space Preservation (OSP) Up to 1,450 points, <i>CRS Manual</i> , 420-3 | |
| Creditable Activity | |
| <ul style="list-style-type: none"> • Use of agricultural, forestal or service districts to preserve open space through restrictive use zoning | |
| Requirements | |
| <ul style="list-style-type: none"> • Land must be part of the regulatory floodplain as defined by a locality’s floodplain | |

ordinance

- If land is owned by the state or local government (not federal) or non-profit organizations, development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual, development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

GOVERNANCE GUIDANCE

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|-------------------------------|--|
| Va. Code § 15.2-4405 | Localities can establish agricultural and/or forestal district program by adopting general districts program ordinance. Minimum acreage in each district is 20 acres. To conserve and protect agricultural and forestal lands which provide essential open spaces for clean air sheds, watershed protection... |
| Va. Code §§ 58.1-3229 et seq. | Localities may adopt an ordinance allowing for use value assessment and taxation; land must be used for agricultural, horticultural, forestal, or open space purposes |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)

- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Protects and conserves open space and forestal lands (economic, cultural and environmental resource)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Expand use of Agricultural and Forestal Districts outside of traditional use to include open space; Fauquier County’s [Comprehensive Plan](#) includes examples of using agricultural and forestal districts to preserve open space
- Pursue credit under low-density zoning (Activity 422f) if agricultural land cannot be credited under open space preservation (Activity 422a)
- Encourage property owners to maintain/restore protected land to its natural state (Activity 422c)
- Request notification from locality Clerk’s Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When land is open space protection, include a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation



ix. Buffers (Including Chesapeake Bay Preservation Areas)



Strategically placed undeveloped buffers in a locality can qualify for CRS credit. Undeveloped buffers are strips of land (setbacks or zones) separating, protecting, screening, or enhancing land or resources from the impacts of development or adjacent land-use. These buffers may allow for consistency with goals of comprehensive plans or other adopted plans and state open space preservation programs. Buffers can also include building setbacks from lot lines, floodplains, steep slopes, water supplies, and other protected resources, as well as easements and right-of-ways. Further, buffers can function as perimeter and landscape barriers between different zones, districts, or incompatible land-uses (e.g., around military facilities and airports within a locality). Finally, buffers may be natural or landscaped corridors.

Buffer Examples

- **Army Compatible Use Buffer Program**
- **Lot setbacks**
- **Steep slope setbacks**
- **DCR’s Conservation Reserve Enhancement Program (CREP)**
- **Chesapeake Bay Preservation Areas**
- **Wellhead Protection Buffers**
- **Buffers around eagle nests**
- **DO F’s Streamside Management Zones**

Two types of buffers are discussed below. These include non-waterfront buffers and waterfront buffers. Waterfront buffers are more likely to be located in a floodplain, meeting one of the basic

CRS credit requirements. However, non-waterfront buffers may also be located in a floodplain, meaning they still may be eligible for credit.

Non-Waterfront Buffers (Right of ways, wellhead buffers, military facilities, etc.)

Several buffers that are not waterfront buffers may be eligible to earn CRS credit if they are located in a floodplain. These buffers may include right-of-ways, lot setbacks, wellhead buffers, buffers around military facilities, critical habitat and endangered species buffers, setbacks and buffers on steep slopes. These buffers may still meet CRS requirements even though they are not waterfront setbacks.

These buffers are undeveloped, naturalized, or landscaped areas enforced or incentivized through a zoning and/or subdivision ordinance, a subdivision or site plan approval process, or through local programs and projects established to implement adopted community plans and policies. The need for, location, and characteristics of buffer areas may be prescribed and described in adopted community plans, maps and policies, or through the standards and guidance provided in the local ordinances. Any buffer prohibiting development, fill, and materials storage should be eligible for CRS credit if that buffer is also located in a floodplain.

Waterfront Buffers (Chesapeake Bay Preservation Areas, streamside buffers, drinking water supplies, etc.)

Natural resource protection buffers, often considered best management practices (BMPs) for water quality, habitat, stormwater, and erosion and sediment control, may receive CRS credit. Examples of these buffers include Chesapeake Bay Preservation Areas, other riparian or shoreline buffers, drinking water supply areas, and other natural resource buffers. Such buffers are typically regulated and enforced through environmental compliance or restoration programs overseen by the Virginia Department of Environmental Quality, Virginia Department of Conservation and Recreation, Virginia Department of Natural Heritage, Virginia Department of Forestry, Virginia Marine Resource Commission, Virginia Institute of Marine Science, Virginia Department of Game and Inland Fisheries, Virginia Department of Health, soil and water conservation districts, and local governments.

Generally, state regulations determine buffer location, size, characteristics, and other compliance standards, however, if a locality adopts more stringent standards and/or enforces larger buffer sizes, additional CRS credit is potentially granted. An additional source for buffer creation is required or recommended by state agencies through the development review or permit approval process to protect and conserve natural, cultural, or historic resources of the Commonwealth. Tax incentive setback programs encourage landowners to maintain riparian buffers in an undeveloped state and can earn open space credit, as well as credit for open space incentives.



Many localities understand CRS credit is available for open space preservation and assume that the Chesapeake Bay Preservation Act buffers will earn credit; this assumption is unfortunately not correct. Chesapeake Bay Preservation Areas include Resource Protection Areas (RPA),

which commonly require exceptions for development within at least a 100-foot setback from the Chesapeake Bay, its tributaries, and adjacent wetlands. Disturbances within the 100-foot RPA may be granted through special exceptions by local Chesapeake Bay Boards, Wetlands Boards, or through an administrative review process. Certain activities are also exempt from local Chesapeake Bay ordinance enforcement. The CRS program credits the prohibition of development and fill in the buffer zones, which is regrettably *not* required by the Chesapeake Bay Preservation Act. However, if localities used local ordinances to prohibit development, fill, and storage of materials in their RPAs without exception, they would likely earn CRS credit.

CRS CREDIT OPPORTUNITIES: Buffers in Floodplains as Protected Open Space

CRS ACTIVITIES

Potential Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, CRS Manual, 420-3

Creditable Activity

- Prohibiting development in riparian buffers in the floodplain

Requirements

- Land must be part of the regulatory floodplain as defined by a locality's floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations, development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual, development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the buffer is preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.

- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422e, Open Space Incentives (OSI)
Up to 250 points, *CRS Manual*, 420-20

Creditable Activities

- Tax incentive program to keep waterfront land undeveloped (e.g., Department of Forestry’s [Riparian Buffer Tax Credit](#))

Requirements

- 25 points are awarded for an open space tax incentive program
- Other credit is provided for regulations requiring regulatory floodplain be left open, requiring locating buildings on high ground, for transfer of development rights/density bonuses out of the floodplain, cluster development, and a land use plan recommending floodplains remain open or sparsely developed

Additional Information

- Credit is determined based on the area of the regulatory floodplain where tax incentives apply (excluding developed areas or parcels already credited as open space)

Documentation

- Copy of the adopted ordinance language that pertains to this credit.
- The impact adjustment map used for OSP credit must also indicate the areas where OSI applies
- The ISO Specialist may look on Google Earth to confirm incentive compliance, where applicable.

Potential Credit, Activity 422g, Natural Shoreline Protection (NSP)
Up to 120 points, *CRS Manual*, 420-28

Creditable Activity

- A locality must have adopted regulations that prohibit armoring, channel alterations, dredging, filling, grubbing, removal of vegetation, or any beach alteration on private and/or public lands
- Chesapeake Bay Preservation Areas can earn credit with a policy to issue no permits in these areas for the activities prohibited by the CRS in this activity

Requirements

- Development, fill, armoring, beach nourishment, dune alteration, etc. must be prohibited

Additional Information

- Human alterations of natural shorelines are only permitted when the action improves natural floodplain functions
- Shoreline protection regulations subject to a portion of a locality’s shoreline can earn some credit

- Credit is based on the length of protected shoreline compared to the locality’s entire shoreline length
- These programs can also earn 25 points under Activity 452b, Watershed Master Plan (WMP7)

Documentation

- Copy of regulation or policy.
- For rehabilitation projects, a description of the project must also be submitted.
- Impact adjustment map which indicates shoreline to be credited in addition to all streams, ditches and lake shorelines in the community.
- The ISO/CRS Specialist may look at Google Earth to verify that they qualify for the credit.

Potential Credit, Activity 432a, Development Limitations (DL)
Up to 280 points, CRS Manual, 430-6

Creditable Activity

- Restricting fill in floodplains

Requirements

- For full credit, all fill in regulatory floodplain must be prohibited unless needed to protect or restore natural functions
- Must apply to all new development in the floodplain

Documentation

- Adopted state or local regulation.
- Impact adjustment map indicating areas affected by the regulations, plus areas credited under OSP and areas that are undeveloped.
- Example permit records documenting appropriate implementation must be available.

Prorated credit is available for regulations that require compensatory storage at hydraulically equivalent sites

Potential Credit, Activity 442a, Additional Map Data (AMD12)
Up to 14 points, CRS Manual, 440-3

Creditable Activity

- Natural floodplain functions map layers within an advanced mapping system maintained by the locality

Requirements

- Use of natural floodplain function layers (e.g. wetlands, Resource Protection Areas, floodwater storage areas) in an advanced mapping system (e.g. GIS)
- The map system must be used regularly by regulatory staff
- New data (e.g. restudies or map changes) must be updated annually (can be obtained from [FEMA](#))
- Data must be made available to FEMA at least annually

- Credit is based on the area of the SFHA that is covered by that data layer
- See [Advanced Map Systems and Data Layers](#), for more information

Documentation

- Copies of maps or databases and/or screen printouts of GIS attributes to be credited must be available.
- Impact adjustment map, if map/system does not cover the total area of the community's SFHA.

**Potential Credit, Activity 322g, Natural Floodplain Functions Mapping (M17)
Up to 20 points, CRS Manual, 320-15**

Creditable Activity

- Map data layer of natural floodplain functions within the locality; must provide the information to inquirers

Requirements

- Create a publicly accessible map information service (See [Public Map Information Service](#))
- Provide information about areas that should be protected as a result of their natural floodplain functions – inquirers must be told if the property of interest falls within one of these areas
- See [Natural Floodplain Function Maps](#) for data sources

Documentation

- 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. Time Saver: Use this [sample log template](#) prepared by the Coastal VA CRS Workgroup.
- 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.

GOVERNANCE GUIDANCE

Chesapeake Bay Preservation Area Designation and Management Regulations

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|-----------------------------------|--|
| 9 VAC 10-20-80 | Requires a buffer area of at least 100 feet from the shoreline and adjacent wetlands (Resource Protection Areas). State law does not prohibit development in RPA buffers |
| 9 VAC 10-20-60 9 VAC 25-830-60 | Requires local governments to adopt a map delineating Chesapeake Bay Preservation Areas |
| 9 VAC 25-830-130 | “Land development shall minimize impervious cover” |

Other Authorities

| | |
|----------------------|--|
| Va. Code § 10.1-2119 | All counties, cities and towns are authorized to exercise their police and zoning powers to protect the quality of state waters from |
|----------------------|--|

| | |
|--|---|
| | nonpoint source pollution as provided in this Code |
| Va. Code §15.2-2223 | Ground water protection provisions for local governments to consider when developing Comprehensive Plans and/or zoning ordinances |
| Va. Code § 58.1-339.10 4 VAC 25-31-10 | Riparian Forest Buffers Protection for Waterways Tax Credit Program rewards landowners who keep riparian buffers in a timbered state for a minimum of 15 years. “The riparian buffer must be at least 35 feet wide but no greater than 300 feet wide.” |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May help achieve Comprehensive Plan goals • Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks) • Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Protects health, safety and welfare of citizens (hazard mitigation) • Provides property protection • Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.) • Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands) • Complies with building setbacks from lot-lines, right-of-ways, steep slopes • Supports Comprehensive, Community Development or Growth Containment (including protective areas established around airports, military installations, or historic/cultural resources) Plans • Conformance with existing regulatory and voluntary buffer programs (e.g., Chesapeake Bay Preservation Act, DOF Streamside Management Zone, DCR Conservation Reserve Enhancement Program, etc.) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Prohibit development and fill in buffer zones in the regulatory floodplain (Activity 432a) • Maintain the Chesapeake Bay Preservation Areas map to make documentation easier for CRS credit • Consider offering a tax incentive for developers that impose a larger waterfront setback than required (Activity 422e) • Encourage landowners to participate in DOF’s Riparian Buffer Tax Credit program (Activity 422e) • Encourage participation in DCR’s Conservation Reserve Enhancement Program (CREP) that provides financial incentives for farmers who restore Riparian forest, grass and shrub, and wetland buffers (Activity 422e) • The locality’s CRS Coordinator should request notification when a conservation easement or other land use restriction is filed • Use buffers as a nonstructural BMP that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements | |

- Incorporate recommendations to prohibit development and fill in buffer zones in the regulatory floodplain in adopted Comprehensive Plans, hazard mitigation plans, and any other land use plans/policies for buffer areas
- Track all undeveloped buffers by including documentation in the mapping format used by the locality (e.g., GIS or AutoCAD) to simplify credit calculation

III. LOCALITY MAPPING AND GEOGRAPHIC INFORMATION SYSTEMS

Many localities use Geographic Information Systems (GIS), or other advanced mapping services, to map and display locality-specific geographic data, a practice eligible for CRS credit. Mapping systems that rely on non-digital or non-computer based models may also receive credit. Specifically, the use of mapping abilities and programs and the presence of certain data layers earn CRS credit. Mapping in general is often required to earn CRS credit for other activities, such as open space, stormwater management, or drainage system maintenance. The resource requirements for participation in the CRS and for earning additional credit are greatly reduced when localities already utilize relevant maps or data layers.

A. IMPORTANT DATA LAYERS FOR CRS

Regulatory Floodplain: A locality's floodplain is the most important mapped data layer in a locality. This layer may mirror the Special Flood Hazard Area (SFHA), as designated on the locality's Flood Insurance Rate Map (FIRM). If the locality regulates an additional area outside of the SFHA, such as the X-Zone, through its ordinance, then the locality's map should reflect this expanded regulatory floodplain. For those localities using computer-based mapping programs, it is helpful if the data layer is a polygon shapefile, which allows a user to easily calculate area. This ability is important for calculating credit for several activities – credit is often based on the percentage of the area of the floodplain affected by the credited activity (e.g. building codes and open space land).

The locality should also make its FIRMs readily available to the public. Credit is available under Section 320, Map Information Service, when the FIRM is searchable by street address, aiding a constituent's accurate search for information about a particular property. FIRM data is downloadable in several formats from [FEMA Region III's Risk MAP](#); this website also provides a searchable FIRM that could be credited if used in the locality's Map Information Service. For more information, see [Public Map Information Service](#).

Stormwater/Conveyance/Drainage System: A locality's stormwater system is also an important data layer for credit in Section 540, Drainage System Maintenance. The map must cover all system components, including rivers, creeks, natural streams, open channels, ditches requiring maintenance, and storage basins in developed areas (mapping of rural areas is not necessarily required). All structures and channel segments must be labeled in a manner

appropriate for each individual locality. Drainage System Maintenance credit also requires an inventory of all components, a description of components subject to the locality's inspection and maintenance program, and problem sites requiring maintenance.

For more information about the drainage system mapping requirements, see pages 540-6 to 540-8 in the [CRS Coordinator's Manual](#). Please note that although the *Manual* stipulates that each mapped segment must be no longer than one-fifth (1/5) of a mile long, this requirement is flexible if longer segments are more appropriate for a large locality.

Repetitive Loss Areas: A locality with any repetitive loss properties must prepare a repetitive loss map as part of the repetitive loss prerequisites (see [Repetitive Loss Plans](#) for more information). These maps can also earn credit in Section 320 as part of a [Map Information Service](#) (see below).

Open Space Parcels: A locality seeking credit for open space land (Section 420) must create a data layer with all credited open space parcels within the locality. Note that some parcels, most notably federally-owned open space, do not earn credit in the CRS and should be excluded from those calculations. Calculation of the percentage of open space located within the regulatory floodplain is accomplished by comparing the total area of open space to the area of the regulatory floodplain or the Special Flood Hazard Area (the regulatory floodplain is defined by locality ordinance; it may be the same as the SFHA or extend beyond the SFHA). If your locality does not currently map open space, the Department of Conservation and Recreation's [Managed Land Conservation Map](#) is a good resource to help a locality begin.

LiDAR (Light Detection and Ranging): New LiDAR data is available in the Hampton Roads area (Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Virginia Beach, and York). This LiDAR data is financed by the US Geological Survey, National Geospatial-Intelligence Agency, Hampton Roads Planning District Commission, Old Dominion University, and the Hampton Roads Sanitation District.

The use of LiDAR data can receive up to 10 points in Activity 442a (AMD8), if used in an advanced mapping system (e.g. GIS) for regulatory purposes. However, to receive higher credit for this data in Activity 412a (New Study), 412b (Leverage), or 412d (Higher Study Standards), the data must be used in a new floodplain study that results in more accurate floodplain delineation and base flood elevations. If and when a new flood study is completed, localities must regulate to the new maps to earn credit. New LiDAR data should also be submitted to FEMA to ensure that FEMA has the most accurate data available for the next FIRM update.

Additional credit may be available to the entities that paid for and conducted the collection of new data, and intend to continue data collection. These entities could enter into a Cooperating Technical Partner agreement with FEMA and earn additional credit (see Activity 412g) for their collaborative work. This new data and mapping may include updated topographic data, mapping regional county drainage, hydrologic and hydraulic modeling, and floodplain mapping, etc.



B. ADVANCED MAP SYSTEMS AND DATA LAYERS

CRS credit is provided for advanced map systems, such as geographic information systems (GIS), computer-aided design (CAD), database management programs, or transparent map overlays. Credit is determined based on the data that the system uses; flood zone data is available for download and use in digital and paper format from FEMA Region III's [Risk Map Portal](#) or the [Virginia Flood Risk Information System](#).

| CRS CREDIT OPPORTUNITIES: Map Data Layers in a Flood Data Maintenance System (e.g. Geographic Information System) | |
|--|--|
| CRS ACTIVITIES | |
| Probable Credit, Activity 442a, Additional Map Data (AMD) Up to 160 points (sum of elements below), <i>CRS Manual, 440-3</i> | |
| <u>Creditable Activity</u> | |
| <ul style="list-style-type: none"> • Use of a flood data maintenance system within the locality and the inclusions of any data layers below | |
| <u>Requirements</u> | |
| <ul style="list-style-type: none"> • The map system must be used regularly by regulatory staff • New data (e.g. restudies or map changes) must be updated annually (this information can be obtained from FEMA) • Data must be made available to FEMA at least annually | |
| <u>Additional Information</u> | |
| <ul style="list-style-type: none"> • Credit is based on the data included in the map system and the amount of the regulatory floodplain that is covered by that data | |
| <u>Documentation</u> | |
| <ul style="list-style-type: none"> • Copies of maps or databases and/or screen printouts of GIS attributes to be credited must be available. • Impact adjustment map, if map/system does not cover the total area of the community's SFHA. | |
| DATA LAYERS | |
| Up to 20 points | <ul style="list-style-type: none"> • SFHA boundaries, corporate limits, streets, parcel or lot boundaries |
| Up to 26 points | <ul style="list-style-type: none"> • Buildings, building outlines, or building footprints that are kept up-to-date with new construction (aerial photos are acceptable) |

| | |
|--|--|
| 6 – 14 points each | <ul style="list-style-type: none"> • Floodways or coastal high hazard areas • Base flood elevations • FIRM zone attributes (e.g. AO, VE, etc.) • 500-year-flood boundaries or elevations • Areas subject to other natural hazards (e.g. erosion, subsidence, soils unsuitable for septic fields) • Topographic contour lines OR topographic contour lines at a smaller interval than US Geological Survey digital orthophoto quarter quads (DOQQ) (new LiDAR data should qualify here) • Inclusion of updated floodplain data in tax assessment database • Inclusion of all FIRMs since the locality joined the CRS • Other regulatory or mitigation data, such as zoning overlays, Hazus or the locality’s repetitive loss area (Section 510) • Natural floodplain functions (e.g. wetlands, Resource Protection Areas, floodwater storage areas) (See Natural Floodplain Functions Maps for data sources) • Digital building elevation data |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Encourages use of existing map system and data layers • Improves data maintenance and organization • Simplifies CRS participation | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Use existing GIS/map systems for accuracy in floodplain management • Keep data layers up-to-date and submit updates to FEMA regularly • Use FEMA Region III’s Risk Map Portal or the Virginia Flood Risk Information System for FIRM information | |



C. FIRM MAINTENANCE

CRS credit is available for providing and maintaining historic Flood Insurance Rate Maps (FIRMs) and related NFIP-created products within a locality from the date they joined the NFIP. In most cases FEMA provides these maps through the [Map Service Center](#), making the pursuit of this credit extremely easy for localities.

CRS CREDIT OPPORTUNITIES: Maintaining Historic Flood Insurance Rate Maps and Related Products

CRS ACTIVITIES

Probable Credit, Activity 442b, FIRM Maintenance (FM)
 12 – 15 points, *CRS Manual*, 440-8

Creditable Activity

- Maintaining historic FIRMs and related products

Requirements

- All historic FIRMs, Flood Insurance Studies, and Flood Boundary Floodway Maps must be kept by the locality
- Maintaining copies of Flood Hazard Boundary Maps (before the first FIRM) earns an additional 3 points
- Maps must be readily accessible and available to the public in paper, microfilm, or electronic format

Documentation

- Copies of old FIRM and FBFM panels and FIS reports.

CO-BENEFITS

- Encourages use of existing map system and data layers
- Improves data maintenance and organization
- Informs emergency management process with better accuracy (hazard mitigation)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Keep copies of all historic FIRMs and related studies and maps
- Download all locality maps from FEMAs [Map Service Center](#) for easy credit
- Post maps on locality website for easy public access (Activity 322a)

D. ELEVATION BENCHMARK MAINTENANCE

Elevation benchmarks are important to accurately measure elevation; use and maintenance of these benchmarks should generate CRS credit. The accuracy provided by maintained benchmarks aids the precision of building elevations and Elevation Certificates, helping ensure new structures are built above the base flood elevation and meet any freeboard requirements.

Credit is available for benchmarks that are permanent monuments or are in the National Spatial Reference System (NSRS), maintained by the National Geodetic Survey. If a locality does not have enough NSRS benchmarks to meet the NSRS prerequisites, local surveyors may add more. For more information, visit the [NSRS database](#).

Credit is also available for Continuously Operating Reference Stations (CORS), operated by the National Geodetic Survey. CORS provide three-dimensional positioning and geophysical application satellite data. At least three CORS within 30 miles are necessary for highly accurate elevation data. CORS are independently owned and operated. Visit the [CORS webpage](#) for more information and to determine whether at least three CORS are located within 30 miles of your locality.

CRS CREDIT OPPORTUNITIES: Maintenance of Elevation Benchmarks

CRS ACTIVITIES

Probable Credit, Activity 442c, Benchmark Maintenance (BM)

Up to 27 points, CRS Manual, 440-9

Creditable Activity

- Maintaining elevation benchmarks that allow for improved accuracy in surveying and elevation measurements

Requirements

- There must be a list of benchmarks/CORS and a description of locations
- Each benchmark must be in the NSRS database, be a permanent monument, or be a CORS
- If not a CORS, each benchmark must have been recovered in the last 5 years, be a first- or second-order vertical control benchmark, have a stability rating of A or B, and be within 1 mile of the SFHA
- To get credit for CORS, there must be at least 3 within 30 miles of the SFHA (can be in a neighboring locality)

Additional Information

- Credit is provided based on the portion of the SFHA within range of benchmarks. Credit can be earned for both CORS and other benchmarks

Documentation

- List of benchmarks in the form of either the NSRS list or professional surveyor signed statements that each benchmark meets appropriate criteria.
- Impact adjustment map if not applicable communitywide.

CO-BENEFITS

- Improves surveying and elevation accuracy
- Better accuracy improves structure safety from flood damage
- Protects health, safety and welfare of citizens (hazard mitigation)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Work with appropriate locality departments to ensure benchmarks are maintained
- Encourage installation of additional benchmarks

E. ADDITIONAL DATA COLLECTION AND STUDIES (NEW STUDIES, SEA LEVEL RISE, AND LIDAR)

Localities can earn CRS credit in Section 410 for collecting data and completing new studies for the creation of new maps. Examples include, conducting a new flood study, obtaining and using

Light Detection and Ranging (LiDAR) elevation data, creating sea level rise projection maps, or creating land subsidence maps. However, to earn credit a locality must regulate floodplain development based on those maps and an entity other than FEMA must pay for at least a portion of the study and data collection. See Section 410 of the *CRS Coordinator's Manual* for more information.

New Floodplain Studies: Communities can earn up to 290 points in Activity 412a (New Studies) for conducting and/or paying for new studies of the floodplain. Eligible creditable studies include delineating existing approximate flood zones, obtaining flood elevations, or delineating a floodway. The studies must be displayed on a map and the map or data must be used in floodplain regulations. The study must be completed using a FEMA or Insurance Services Office (ISO) approved technique. If the study affects the length of a stream or shoreline, the impact must be submitted to FEMA to update the FIRM. For more information, see Section 410 in the *CRS Coordinator's Manual*.

LiDAR (Light Detection and Ranging): New LiDAR data is available in the Hampton Roads area (Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Virginia Beach, and York). This LiDAR data is financed by the US Geological Survey, National Geospatial-Intelligence Agency, Hampton Roads Planning District Commission, Old Dominion University, and the Hampton Roads Sanitation District.

The use of LiDAR data can receive up to 10 points in Activity 442a (AMD8), if used in an advanced mapping system (e.g. GIS) for regulatory purposes. However, to receive higher credit for this data in Activity 412a (New Study), 412b (Leverage), or 412d (Higher Study Standards), the data must be used in a new floodplain study that will result in more accurate floodplain delineation and base flood elevations. If and when a new flood study is completed, localities must regulate to the new maps to earn credit. Localities should also submit new LiDAR data to FEMA for a more accurate future FIRM update.

Additional credit may be available to the entities that paid for and conducted the collection of new data, and intend to continue data collection. These entities could enter into a Cooperating Technical Partner agreement with FEMA and earn additional credit (see Activity 412g) for their collaborative work. This new data and mapping may include updated topographic data, mapping regional county drainage, hydrologic and hydraulic modeling, and floodplain mapping, etc.

Sea Level Rise: Though CRS credit is available for sea level rise mapping, credit is only available if the maps are used for regulatory purposes. Many localities require freeboard, which is less controversial, yet essentially achieves the same regulation goals as the use of mapped sea level rise projections.

F. PUBLIC MAP INFORMATION SERVICE

Localities can earn CRS credit for providing mapped flood-related information to inquirers through a publicized service that offers person-to-person contact. This information will likely be

based on existing data and should require minimal effort for communities with established mapping programs. The more information shared with inquirers, the more credit available.

i. Public Map Information Service Prerequisites

To receive credit a locality must provide basic information from the Flood Insurance Rate Maps to residents upon request; additional credit is available for additional information. A Map Information Service will most likely consist of data layers available in the locality, staff members who have access to and understand the use of the data, and a record of all information shared. There are several prerequisites that must be met to earn credit in this activity.

Map Information Service Prerequisites

- Information from the FIRM needed to rate an insurance policy must be provided to any inquirer (credited in MI1, below)
- Additional information, including relevant regulations and precautions, must be volunteered – e.g. if the property is in the SFHA, the inquirer must be informed of the mandatory purchase requirement if applicable
- Service must be able to locate a property by street address
- Must provide option for personal contact (phone or in-person)
- Service (including all additional information the locality is willing to share) must be publicized annually through outreach
- FIRM information (e.g. new studies or map revisions) must be updated annually and is required for credit in Section 440 (this information can be obtained from FEMA, but must be kept locally)
- All FIRMs since 1999 must be kept - they can be obtained from the Map Service Center (this is a prerequisite to participation in the CRS; Up to 15 points are available for maintaining old FIRMs in Section 440)
- A record of all flood zone determination inquiries must be kept and provided for credit documentation
- Please see Section 320 for additional details

Map Information Service Sub-Elements

- **Basic FIRM Information (Up to 30 points)**
- **Coastal Barrier Resources System, Limit of Moderate Wave Action Line, Floodways (Up to 20 points)**
- **Sea Level Rise, Local Drainage Problems, or Dam Failure Inundation Zone Maps (Up to 20 points)**
- **Flood Depth Data (Up to 20 points)**
- **Coastal Erosion, Land Subsidence, and Regulated Coastal A Zone Maps (Up to 20 points)**
- **Repetitive Flood/Historical Flood Problem Areas (Up to 20 points)**
- **Natural Floodplain Function Maps (Up to 20 points)**

This section of the *CRS Manual* is structured differently than others, requiring a deviation from the typical organization of this document. There are several sub-elements dependent on the requirements listed in the chart below.

Note that older versions of the 2013 *CRS Coordinator's Manual* include an impact adjustment for this activity. This is discarded in the new manual; there is no impact adjustment for this activity. Total credit, not to exceed 90 points, is the sum of each sub-element of the Map Information Service, discussed below. If credit is earned in every category discussed below, the total would equal 150 points, but the locality will only be awarded 90 points.

| |
|---|
| CRS CREDIT OPPORTUNITIES: Public Map Information Service |
| CRS ACTIVITIES |
| Probable Credit, Map Information Service (Section 320) <i>CRS Manual, 320-2</i> |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • Providing flood zone determinations and associated information about flood risk to constituents <p><u>Requirements</u></p> <ul style="list-style-type: none"> • See prerequisites above • See subsequent sections for more information <p><u>Documentation</u></p> <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 |



ii. Basic Flood Insurance Rate Map Information

Providing basic information about Flood Insurance Rate Maps (FIRMs) to inquirers is required for any credit in Section 320 and is eligible for up to 30 points (Activity 322a, MI1). This includes all information required to rate an insurance policy, such as flood zone, Base Flood Elevation, community information, etc. If the property in question is located in the Special Flood Hazard Area, the inquirer must be informed of the mandatory purchase requirement.

iii. Coastal Barrier Resources System, Limit of Moderate Wave Action Line, Floodways

If a locality shares information shown on the FIRM, but not necessary for rating an insurance policy, it can receive up to 20 points (Activity 322b, MI2). If relevant to the inquiry, localities must share information on the Coastal Barrier Resource System, Limit of Moderate Wave Action lines, and floodway demarcations, all of which are shown on applicable FIRMs. See above for prerequisites to earning this credit.

iv. Sea Level Rise, Local Drainage Problems, or Dam Failure Inundation Zone Maps

If a locality shares mapping information about sea level rise projections, local drainage problems, or dam failure inundation maps it can receive up to 20 points (Activity 322c, MI3). See above for prerequisites to earning this credit.

- Sea level rise projection maps are available from the Virginia Institute of Marine Science's [Comprehensive Coastal Management Portal](#). Eventually, this data will be available statewide, but is currently only available for some localities. Many nationwide groups created sea level rise projection viewers, such as the [National Oceanic and Atmospheric Administration](#) and [Climate Central](#). Planning District Commissions or local governments may conduct their own studies, producing maps that may also be available. Using information from any of these sources would likely qualify for credit.
- Local drainage problems may be included in a locality's existing GIS data. Wetlands Watch created a smartphone app called [Sea Level Rise](#) that helps track these problems. Ultimately, this data will be available to local governments in a GIS shapefile. (See [Wetlands Watch's "Sea Level Rise" Flooding App](#) for more ways the app can earn credit.)
- Dam failure inundation maps are required by state law⁸ and should therefore exist for all dams. A locality can elect to share publically available dam information with any inquirers. The Department of Conservation and Recreation's Dam Safety Program is creating shapefiles of each map for use in GIS programs. These can be obtained from [regional Dam Safety Engineers](#). The State is also incorporating this information into the [Flood Risk Information System](#).

v. Flood Depth Data

If a locality provides information on flood depths, or heights above ground (rather than a base flood elevation tied to a vertical datum) it can receive up to 20 points (Activity 322d, MI4). This information presents residents with a much better understanding of what a 1%-annual-chance-flood will look like on their property and the extent of damage they can expect. This data is available on the [Virginia Flood Risk Information System](#) (VFRIS). See above for prerequisites to earning this credit.

vi. Coastal Erosion, Land Subsidence, and Regulated Coastal A Zone Maps

If a locality provides information regarding coastal erosion, land subsidence, or regulated Coastal A Zones (if they are credited under Activity 432k) it can receive up to 20 points (Activity 322e, MI5). See above for prerequisites to earning this credit.

- Mapped coastal erosion problems can earn credit if inquirers are told whether the area of interest is at risk from coastal erosion.
- Land subsidence can earn credit if inquirers are told the land is subsiding. Credit is also awarded for sharing subsidence rates. Localities may reference a joint [report](#) between the US Geological Survey and the Hampton Roads Planning District Commission,⁹ which contains land elevation change rate maps that can be used in a Map Information Service or GIS system.
- Coastal A Zones regulated within a locality, and mapped as such, can earn credit. Credit is provided for informing an inquirer if the property of interest is located in a Coastal A Zone and the corresponding applicable regulations. Note that explaining the LiMWA line is credited under MI2 for additional FIRM data.

vii. Repetitive Flood/Historical Flood Problem Areas

Localities with at least one repetitive loss property must meet certain prerequisites to participate in the CRS program (see [Repetitive Loss Plans](#) for more details). Part of the analysis is a map of all repetitive loss areas in the locality. This map can also be used to earn up to 20 points if a locality volunteers the information to inquirers requesting information located in or near one of these areas and if the availability of such information is published annually (Activity 322f, MI6). Credit can also be earned in this category for additional information on historical flood areas not captured by FEMA flood claim data, if there is a nearby high water mark, or through photos of past flooding. See above for prerequisites to earning credit in this section.

viii. Natural Floodplain Functions Maps

If a locality provides information about areas that should be protected as a result of natural floodplain functions it can earn up to 20 points (Activity 322g, MI7). Credit is provided for informing an inquirer that the property of interest falls within one of these areas. Several qualifying databases exist; some examples are provided below. See above for prerequisites to earning credit in this section.

- Parcels receiving Natural Functions Open Space credit (422c, NFOS), already mapped as a condition of receiving that CRS credit
- Parcels identified in a Natural Floodplain Functions Plan (credited under Activity 512c)
- Resource Protection Areas that must be mapped according to Chesapeake Bay Preservation Act
- US Fish and Wildlife’s [National Wetlands Inventory](#)
- US Fish and Wildlife’s [Critical Habitat Portal](#)
- Virginia Department of Conservation and Recreation’s [Virginia Outdoors Plan Mapper](#)
- Virginia Department of Conservation and Recreation’s [Managed Land Conservation Map](#)
- Virginia Department of Conservation and Recreation’s [Natural Heritage Website](#)
- Virginia Coastal Zone Management Program’s [Coastal GEMS](#), including conservation planning and prioritization

IV. FLOODPLAIN PROTECTION PROGRAMS

Locality actions designed to protect floodplains generate CRS credit. Land use and preservation is among the most important factors contributing to floodplain safety. If land is left undeveloped, people and property are protected and communities are more resilient. In addition, ecological functions can operate properly, and a recreational area, likely providing access to water, can be provided. If land is not left open, careful plans for its use can help minimize flood damage and enhance resiliency. The major focus of this section will be open space, because it is the best use of a floodplain from the perspectives of resilience and ecological value, and credit offered for open space preservation is among the largest amount of CRS credit available for a single activity.



A. OPEN SPACE PROTECTION



For CRS credit, lands can be preserved as open space through many mechanisms, including easements, deed restrictions, written notices from the owner indicating existing open space will not be developed (for non-profit or public lands), purchase of development rights, preservation service districts, and other means. A restriction on the land or an in-writing agreement from the property owner preventing development is required; a written agreement is sufficient only for lands owned by a public entity or non-profit organization. Exceptions for structures built to advance the use of the land, such as playgrounds or welcome centers may be present on parcels larger than 10 acres. The area of any existing structures or impervious surfaces (such as parking lots) is subtracted from the area of the open space land submitted for credit. Open space must be located within the locality’s regulated floodplain for credit.

Many organizations may hold or acquire conservation easements or open-space easements. In addition, several organizations provide funding for the holding or acquiring of open space easements; examples include the Civil War Trust and the Civil War Sites Preservation Fund. A comprehensive list of conservation organizations, land trusts, and conservancies in Virginia can be accessed [here](#). To see if lands purchased or held through these programs may earn credit, review the tables below or consult the *CRS Coordinator’s Manual*.



i. General Open Space Protection – Public and Private



When public or non-profit entities acquire lands located in a floodplain for either the purpose of protecting open space from development or for a use that requires the land to remain free of development, that land is likely to qualify for open space credit through the CRS. This section addresses open land in general; several methods and types of land preservation and acquisition are addressed in more detail below.

Types of open space lands that may qualify for CRS credit include: public recreation areas, school fields, public beaches, non-profit golf courses, local and state (not federal) parks and preserves, camping areas or church retreats, floodplain easements granted to a locality by a developer, hunting club lands owned or held by entities such as Ducks Unlimited, and other preserves or conservation lands held in trust or owned by a public entity or organizations, such as the Audubon Society, The Nature Conservancy, Trust for Public Land, local land and conservation trusts, historic preservation societies, and other non-profit entities. Each parcel must be addressed individually; open space lands have many unique qualities and some will qualify for CRS credit while others do not. The most important factors are that development must be prohibited and the land must be located in the floodplain. Additional credit associated with public access and use may be available in Section 330, Outreach Projects, for any educational materials regarding floodplains located on the property.

CRS CREDIT OPPORTUNITIES: Protection of Open Space in the Floodplain

CRS ACTIVITIES

**Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, CRS Manual, 420-3**

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of the regulatory floodplain as defined by a locality’s floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations, development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual, development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain

- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 332a, Outreach Projects (OP)
 Up to 200 points (for several projects), *CRS Manual*, 330-6

Creditable Activity

- Public outreach projects regarding flood-related issues

Requirements

- Projects must discuss one of 6 flood-related topics (see page 330-4 in the Manual or [Table 3](#))
- At least one project must address flood insurance
- Projects can include informational materials, general outreach and presentations, or targeted to specific audiences
- Projects must be conducted on at least an annual basis (can be a brochure made available to the public)

Additional Information

- Follow the guidance in the *CRS Manual* (Section 330) for information on topics and delivery methods

Documentation

- Copies of the outreach materials that have been produced and disseminated.
- Organization helps ISO visits run smoothly: Use this [Excel file](#) to track your locality’s outreach across different departments and by various staff. (Coastal VA CRS Workgroup Doc)
- ISO created an [Excel file](#) that automatically scores each outreach project, giving you an idea of how many credit points your locality could earn.

GOVERNANCE GUIDANCE

| | |
|----------------------|---|
| Va. Code § 10.1-1701 | Virginia Open-Space Land Act - Any public body (including service districts: § 15.2-2403) may acquire title or any interests or |
|----------------------|---|

| | |
|---|--|
| | right in real property that will provide a means for the preservation or provision of open space land. Any public body may designate, retain and use any real property as open space |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May help achieve Comprehensive Plan goals • Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks) • Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Protects health, safety and welfare of citizens (hazard mitigation) • Provides property protection • Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.) • Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Include floodplain open space goals in Comprehensive Plans • Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements • Use Soil and Water Conservation Districts to manage open space (e.g., Charlottesville’s Thomas Jefferson Soil and Water Conservation District) • Request notification from locality Clerk’s Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded • When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation • Coordinate with open space protection organizations (e.g., land trusts) to identify and map existing lands in their care and promote protection of additional open space in floodplains • To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation’s Managed Conservation Lands Map (Note: federal lands do not qualify for CRS credit) • Strengthen land protection through a permanent real estate instrument (e.g., deed restriction or conservation easement) (Activity 422b) • Make educational resources available at publicly accessible open space properties to improve the public’s knowledge of floodplain functions (Activity 332a) | |



ii. *Open Land Managed in its Natural State*



All open space properties are different; those that preserve natural floodplain functions can earn other credit in addition to open space credit. Floodplain functions may include natural flood and erosion control, water quality protection, groundwater recharge, ecosystem services, and



protection of fish and wildlife habitats. These lands may be included in programs that identify and designate critical protection areas such as state sensitive-area programs that restrict development, critical habitat designations such as the U.S. Fish and Wildlife Service’s Threatened and Endangered Species Critical Habitat Designations, private programs such as The Nature Conservancy’s Heritage Program Inventory, the National Wildlife Federation’s Wildlife Corridors, or the Virginia Coastal Zone Management Program’s Coastal Natural Resource Areas.

CRS CREDIT OPPORTUNITIES: Protection of Natural-State Open Space in the Floodplain

CRS ACTIVITIES

Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, *CRS Manual*, 420-3

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of the regulatory floodplain as defined by a locality’s floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations, development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual, development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Probable Credit, Activity 422c, Natural Functions Open Space (NFOS)
Up to 350 extra credit points, *CRS Manual*, 420-13

Creditable Activity

- Extra credit for open space parcels preserved in or restored to their natural state

Requirements

- Land must qualify for open space credit (Activity 422a)
- Land must be managed to retain its natural state
- Land must be in an undeveloped/natural state or restored to a natural state (areas designated as worthy of preservation by a federal or state public program or nationally-recognized private program typically qualify)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated as critical habitat, if land is part of a planned open space corridor, and if educational materials are provided
- Credit is determined by ratio of area of open space to area of the regulatory floodplain

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate the areas where NFOS applies.
- The ISO/CRS Specialist may visit a sample of the sites to verify that the credit criteria are met.

Potential Credit, Activity 512c, Natural Floodplain Functions Plan (NFP)
Up to 100 points, *CRS Manual*, 510-36

Creditable Activities

- Plans addressing natural floodplain functions in locality
- Plans may be for habitat conservation/protection/restoration, green infrastructure, open space, or natural floodplain functions elements in a comprehensive plan

Requirements

- Plans may cover multiple communities
- Plans must be adopted by the locality and updated at least every 10 years
- Plans must include action items for protecting natural floodplain functions and one or more species of importance
- Plans must include a comprehensive inventory of natural floodplain habitat, unless it is a single-issue plan
- Areas identified in this plan will receive extra credit when preserved as open space under Activity 422c, Natural Functions Open Space (NFOS2)

Documentation

- Copy of the NFP plans with documentation of adoption

Potential Credit, Activity 332a, Outreach Projects (OP)
 Up to 200 points (for several projects), *CRS Manual, 330-6*

Creditable Activity

- Public outreach projects regarding flood-related issues

Requirements

- Projects must discuss one of 6 flood-related topics (see page 330-4 in the Manual or [Table 3](#))
- At least one project must address flood insurance
- Projects can include informational materials, general outreach and presentations, or targeted to specific audiences
- Projects must be conducted on at least an annual basis (can be a brochure made available to the public)

Additional Information

- Follow the guidance in the *CRS Manual* (Section 330) for information on topics and delivery methods

Documentation

- Copies of the outreach materials that have been produced and disseminated.
- Time-Saver: Use this [Excel file](#) to track your locality’s outreach across different departments and by various staff. (Coastal VA CRS Workgroup Doc)
- Time-Saver: ISO created an [Excel file](#) that automatically scores each outreach project, giving you an idea of how many credit points your locality could earn.

GOVERNANCE GUIDANCE

| | |
|----------------------|---|
| Va. Code § 10.1-1701 | Virginia Open-Space Land Act - Any public body may acquire title or any interests or right in real property that will provide a means for the preservation or provision of open space land. Any public body may designate, retain and use any real property as open space |
|----------------------|---|

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways,

conservation corridors, etc.)

- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Saves money on property maintenance

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Target areas for open space preservation that are in or can be restored to their natural state (Activity 422c)
- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- Request notification from locality Clerk's Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation's [Managed Conservation Lands Map](#) (Note: federal lands do not qualify for CRS credit)
- Create a natural floodplain functions or green infrastructure plan that maps and covers all natural-state open space in the locality (Activity 512c)
- Make educational resources available at publicly accessible open space properties to improve the public's knowledge of floodplains (Activity 332a)
- Establish a locality policy requiring lands under easement be maintained or restored to its natural state (Activities 422a and 422c)
- Strengthen land protection through a permanent real estate instrument (e.g., deed restriction or conservation easement) (Activity 422b)
- Partner with organizations that manage and preserve open space lands to identify and map existing open space lands in their care
- Coordinate with open space protection organizations (e.g., land trusts) to identify and map existing lands in their care and promote protection of additional open space in floodplains areas
- Take advantage of state grant, cost share, and tax credit programs that incentivize local implementation of open space preservation (see [funding sources](#) list from DCR)



iii. Public Access Authority Lands



Public Access Authorities provide a potential opportunity to receive CRS credit. These authorities are entities of Planning District Commissions (PDC) that hold land to provide public access to water. Virginia's current Public Access Authorities include the Middle Peninsula



Chesapeake Bay Public Access Authority and the Northern Neck Chesapeake Bay Public Access Authority; other PDCs are considering pursuing Authorities as well. Based on their waterfront character, at least some of the land likely falls within the regulatory floodplain, making it eligible for CRS credit. In addition, education, which can earn CRS credit if materials address floodplain

issues, is an important component of Public Access Authorities. Finally, the Master Plan accompanying Public Access Authorities may be eligible for credit as a Natural Floodplain Function Plan if it addresses natural floodplain issues.

| CRS CREDIT OPPORTUNITIES: Protected Public Access Authority Lands in the Floodplain |
|---|
| CRS ACTIVITIES |
| Probable Credit, Activity 422a, Open Space Preservation (OSP) Up to 1,450 points, <i>CRS Manual</i> , 420-3 |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • Protecting undeveloped land in the floodplain <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Land must be part of a regulatory floodplain as defined by a locality’s floodplain ordinance (existing Public Access Authorities manage land likely located in the floodplain) • If land is owned by the state or local government (not federal) or non-profit organizations, development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner • If land is owned by an individual, development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land <p><u>Additional Information</u></p> <ul style="list-style-type: none"> • Federally-owned lands are not eligible for credit • Active farmland may not be creditable • Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain • Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres • Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks) • Additional credit is available if the land is preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d) <p><u>Documentation</u></p> <ul style="list-style-type: none"> • Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited. • A map plotting each parcel that has been preserved as open space. • Calculations reflecting the portion of regulatory floodplain area retained as open space. • The ISO Specialist will likely look on Google Earth to confirm parcel is not developed. |
| Potential Credit, Activity 422b, Deed Restriction (DR) |

Up to 50 extra credit points, *CRS Manual*, 420-11

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

Potential Credit. Activity 332a, Outreach Projects (OP)

Up to 200 points (for several projects), *CRS Manual*, 330-6

Creditable Activity

- Public outreach projects regarding flood-related issues

Requirements

- Projects must discuss one of 6 flood-related topics (see page 330-4 in the Manual or [Table 3](#))
- At least one project must address flood insurance
- Projects can include informational materials, general outreach and presentations, or targeted to specific audiences
- Projects must be conducted on at least an annual basis (can be a brochure made available to the public)

Additional Information

- Follow the guidance in the *CRS Manual* (Section 330) for information on topics and delivery methods

Documentation

- Copies of the outreach materials that have been produced and disseminated.
- Time-Saver: Use this [Excel file](#) to track your locality's outreach across different departments and by various staff. (Coastal VA CRS Workgroup Doc)
- Time-Saver: ISO created an [Excel file](#) that automatically scores each outreach project, giving you an idea of how many credit points your locality could earn.

Potential Credit, Activity 512c, Natural Floodplain Functions Plan (NFP)

Up to 100 points, *CRS Manual*, 510-36

Creditable Activities

- Plans addressing natural floodplain functions in locality

- Plans may be for habitat conservation/protection/restoration, green infrastructure, open space, or natural floodplain functions elements in a comprehensive plan

Requirements

- Plans may cover multiple communities
- Plans must be adopted by locality and updated at least every 10 years
- Plans must include action items for protecting natural floodplain functions and one or more species of importance
- Plans must include a comprehensive inventory of natural floodplain habitat, unless it is a single-issue plan
- Areas identified in this plan will receive extra credit when preserved as open space under Activity 422c, Natural Functions Open Space (NFOS2)

Documentation

- Copy of the NFP plans with documentation of adoption

GOVERNANCE GUIDANCE

| | |
|--|--|
| Va. Code §§ 15.2-6600 et seq. (Middle Peninsula) | Creation and powers of the Middle Peninsula Chesapeake Bay Public Access Authority |
| Va. Code §§ 15.2-6626 et seq. (Northern Neck) | Creation and powers of the Northern Neck Chesapeake Bay Public Access Authority |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Accomplishes open-space-related goals for localities without locality funding

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Work with local PDC to create a Public Access Authority
- Public Access Authorities should prohibit development on land, perhaps by deed restriction (Activities 422a and 422b)
- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- Request notification from locality Clerk’s Office or applicable recordation office when

land use restriction (e.g., conservation easement) is recorded

- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation’s [Managed Conservation Lands Map](#) (Note: federal lands do not qualify for CRS credit)
- Strengthen land protection through a permanent real estate instrument (e.g., deed restriction or conservation easement) (Activity 422b)
- Make educational resources available at publicly accessible open space properties to improve the public’s knowledge of floodplain functions (Activity 332a)



iv. Coastal Zone Management Program Land Protection Grants

Coastal Zone Management Program 306A Land Acquisition Grants



Virginia’s Coastal Zone Management Program may use up to 10% of its annual funding associated with Section 306A of the federal Coastal Zone Management Act on coastal land acquisition that could earn CRS open space credit. In Virginia, the Coastal Zone Management Program dedicates \$200,000 annually for land acquisition purposes. The Program targets lands with rare habitats and opportunities for passive public recreation; those targeted lands located in the floodplain may be eligible for CRS credit. For more information about the program in Virginia, visit the [Coastal Zone Management Program’s Land Acquisition website](#).



Coastal and Estuarine Land Conservation Program Easements

The Coastal and Estuarine Land Conservation Program (CELCP) within the National Ocean and Atmospheric Administration may provide an opportunity for CRS credit. Congress created CELCP in 2002 to provide matching funds to state and local governments, enabling them to purchase or obtain conservation easements on threatened coastal and estuarine lands. Land must have ecological, historic, scenic, or recreational value. CRS credit will likely be available for open space, potentially for open space preserved in its natural state, and the Plan that accompanies the Virginia CELCP. Although unfunded in recent years, the program may receive funding in the future. For more information on the CELCP in Virginia, visit [the Coastal Zone Management Program website](#).

CRS CREDIT OPPORTUNITIES: Protecting Floodplains through Coastal Zone Management Funding

CRS ACTIVITIES

Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, *CRS Manual*, 420-3

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of the regulatory floodplain as defined by a locality's floodplain ordinance (coastal zone lands likely located in the floodplain)
- If land is owned by the state or local government (not federal) or non-profit organizations, development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual, development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422b, Deed Restriction (DR)
Up to 50 extra credit points, *CRS Manual, 420-11*

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.

- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

Probable Credit, Activity 422c, Natural Functions Open Space (NFOS)
 Up to 350 extra credit points, *CRS Manual*, 420-13

Creditable Activity

- Extra credit for open space parcels preserved in or restored to their natural state

Requirements

- Land must qualify for open space credit (Activity 422a)
- Land must be managed to retain its natural state
- Land must be in an undeveloped/natural state or restored to a natural state (areas designated as worthy of preservation by a federal or state public program or nationally-recognized private program typically qualify)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated as critical habitat, if land is part of a planned open space corridor, and if educational materials are provided
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate the areas where NFOS applies.
- The ISO/CRS Specialist may visit a sample of the sites to verify that the credit criteria are met.

GOVERNANCE GUIDANCE

| | |
|----------------------|---|
| Va. Code § 10.1-1701 | Virginia Open-Space Land Act - Any public body may acquire title or any interests or right in real property that will provide a means for the preservation or provision of open space land. Any public body may designate, retain and use any real property as open space |
| 16 U.S.C. § 1455a | Coastal Zone Management Act Section 306A - State CZM programs may use up to 10% of federal funding to acquire interests in land. |
| 16 U.S.C. § 1456-1 | Coastal Zone Management Act Section 307A – Authorizes Coastal and Estuarine Land Conservation Program |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem)

services (species/habitat protection), cultural landmarks)

- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Accomplishes open-space-related goals for localities without locality funding

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Participate in the program to offset local costs of open space protection in floodplains
- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- Request notification from locality Clerk's Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation's [Managed Conservation Lands Map](#) (Note: federal lands do not qualify for CRS credit)
- Prioritize lands with natural floodplain functions (Activity 422c)
- Create a natural floodplain functions or green infrastructure plan that maps and covers all natural-state open space in the locality (Activity 512c)
- Strengthen land protection through a permanent real estate instrument (e.g., deed restriction or conservation easement) (Activity 422b)



v. Virginia Natural Area Preserve System



Created to protect significant natural areas in Virginia, the Virginia Natural Area Preserve System could generate CRS credit for localities. A property in the System is either owned by or dedicated to the Department of Conservation and Recreation and managed by the Division of Natural Heritage. The management and legal restrictions placed on Preserve System lands should qualify these properties for open space credit and natural floodplain functions open space credit. Credit may also be available for the Virginia Natural Heritage Program and/or the Natural Area Preserve Management Plans, which are written for all dedicated preserves in the state. Finally, credit may be available for public education efforts required of the System by statute if these efforts discuss floodplain-related issues. For more information, visit the [Preserve System website](#).

CRS CREDIT OPPORTUNITIES: Protecting Open Space in the Floodplain through the Virginia Natural Area Preserve System

CRS ACTIVITIES

Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, *CRS Manual*, 420-3

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of the regulatory floodplain as defined by a locality's floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner (Natural Area Preserve requirements should meet this criteria)
- If land is owned by an individual: development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422b, Deed Restriction (DR)
Up to 50 extra credit points, *CRS Manual*, 420-11

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

Probable Credit, Activity 422c, Natural Functions Open Space (NFOS) Up to 350 extra credit points, *CRS Manual*, 420-13

Creditable Activity

- Extra credit for open space parcels preserved in or restored to their natural state

Requirements

- Land must qualify for open space credit (Activity 422a)
- Land must be managed to retain its natural state (accomplished by statute)
- Land must be in an undeveloped/natural state or restored to a natural state (accomplished by Preserve System requirements)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated as critical habitat, if land is part of a planned open space corridor, and if educational materials are provided
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate the areas where NFOS applies.
- The ISO/CRS Specialist may visit a sample of the sites to verify that the credit criteria are met.

Potential Credit, Activity 512c, Natural Floodplain Functions Plan (NFP) Up to 100 points, *CRS Manual*, 510-36

Creditable Activities

- Plans addressing natural floodplain functions in locality
- Plans may be for habitat conservation/protection/restoration, green infrastructure, open space, or natural floodplain functions elements in a comprehensive plan

Requirements

- Plans may cover multiple communities
- Plans must be adopted by locality and updated at least every 10 years
- Plans must include action items for protecting natural floodplain functions and one or more species of importance
- Plans must include a comprehensive inventory of natural floodplain habitat, unless it is a single-issue plan

Additional Information

- Areas identified in this plan will receive extra credit when preserved as open space under Activity 422c, Natural Functions Open Space (NFOS2)

Documentation

- Copy of the NFP plans with documentation of adoption

Potential Credit, Activity 332a, Outreach Projects (OP)
 Up to 200 points (for several projects), *CRS Manual*, 330-6

Creditable Activity

- Public outreach projects regarding flood-related issues

Requirements

- Projects must discuss one of 6 flood-related topics (see page 330-4 in the Manual or [Table 3](#))
- At least one project must address flood insurance
- Projects can include informational materials, general outreach and presentations, or targeted to specific audiences
- Projects must be conducted on at least an annual basis (can be a brochure made available to the public)

Additional Information

- Follow the guidance in the *CRS Manual* (Section 330) for information on topics and delivery methods

Documentation

- Copies of the outreach materials that have been produced and disseminated.
- Time-Saver: Use this [Excel file](#) to track your locality’s outreach across different departments and by various staff. (Coastal VA CRS Workgroup Doc)
- Time-Saver: ISO created an [Excel file](#) that automatically scores each outreach project, giving you an idea of how many credit points your locality could earn.

GOVERNANCE GUIDANCE

| | |
|---|---|
| Va. Code § 10.1-1701 | Virginia Open-Space Land Act - Any public body may acquire title or any interests or right in real property that will provide a means for the preservation or provision of open space land. Any public body may designate any real property retained and used as open space |
| Va. Code § 10.1-208 | Department of Conservation and Recreation authority to acquire fee simple title or easements to open space property |
| Va. Code §§ 10.1-209-10.1-217 | Natural Areas Preserve System |
| Va. Code § 10.1-213 | Natural Area Preserve dedication |
| Va. Code § 10.1-209 | “Natural area” means any are of land, water, or both that retains or has re-established its natural character or which is important in preserving species, ecological systems, or geological, natural, historical, or scenic features |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May help achieve Comprehensive Plan goals • Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks) • Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Protects health, safety and welfare of citizens (hazard mitigation) • Provides property protection • Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.) • Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Coordinate with the Department of Natural Heritage to track lands in the Natural Area Preserve System located within the locality • Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements • Request notification from locality Clerk’s Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded • When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation • To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation’s Managed Conservation Lands Map (Note: federal lands do not qualify for CRS credit) | |



vi. Virginia Outdoors Foundation/Open-Space Lands Preservation Trust Fund



Land held by the Virginia Outdoors Foundation (VOF) could receive CRS credit. Established by state statute, VOF promotes the preservation of open space lands and encourages private donations to preserve natural, scenic, scientific, open space, and recreational lands of the state. The Foundation can hold land itself or open-space easements on privately owned land. The Open-Space Lands Preservation Trust Fund, operated by VOF, assists in the preservation of open space. Lands held by VOF are likely eligible for CRS open space credit if they are located in a floodplain and prohibit future development. If the agency’s strategic plan incorporates a discussion of floodplains and natural floodplain functions, it may be eligible for credit in Activity 512c, Natural Floodplain Functions Plans. For more information about VOF and the Open-Space Lands Preservation Trust Fund, visit the [VOF website](#).

CRS CREDIT OPPORTUNITIES: Protecting Open Space in the Floodplain through the Virginia Outdoors Foundation/Open-Space Lands Preservation Trust Fund

CRS ACTIVITIES

Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, CRS Manual, 420-3

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of the regulatory floodplain as defined by a locality’s floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual: development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422b, Deed Restriction (DR)
Up to 50 extra credit points, *CRS Manual, 420-11*

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

Potential Credit, Activity 422c, Natural Functions Open Space (NFOS)
Up to 350 extra credit points, *CRS Manual, 420-13*

Creditable Activity

- Extra credit for open space parcels preserved in or restored to their natural state

Requirements

- Land must qualify for open space credit (Activity 422a)
- Land must be managed to retain its natural state
- Land must be in an undeveloped/natural state or restored to a natural state (areas designated as worthy of preservation by a federal or state public program or nationally-recognized private program typically qualify)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated as critical habitat, if land is part of a planned open space corridor, and if educational materials are provided
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate the areas where NFOS applies.
- The ISO/CRS Specialist may visit a sample of the sites to verify that the credit criteria are met.

GOVERNANCE GUIDANCE

| | |
|-------------------------------|--|
| Va. Code § 10.1-1701 | Virginia Open-Space Land Act - Any public body may acquire title or any interests or right in real property that will provide a means for the preservation or provision of open space land. Any public body may designate any real property retained and used as open space. |
| Va. Code §§ 10.1-1800 et seq. | Establishment of Virginia Outdoors Foundation |
| Va. Code § 10.1-1801.1 | Establishment of Open-Space Lands Preservation Trust Fund |
| Va. Code § 10.1-1801.1(D)(1) | Conditions of Open-Space Lands Preservation Trust Fund include perpetual open-space easement |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Accomplishes open-space-related goals for localities without locality funding

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Ensure that the required open space easement prohibits development, fill, and materials storage (Activity 432a)
- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- Encourage property owners of large open space tracts to work with VOF and consider putting their land under an open space easement
- Include discussion of floodplain functions in the strategic plan (Activity 512c)

- Coordinate with the Virginia Outdoors Foundation to track lands held by VOF
- Request notification from locality Clerk’s Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- To map existing open space within your locality (including VOF held easements), it may be helpful to begin with the Department of Conservation and Recreation’s [Managed Conservation Lands Map](#) (Note: federal lands do not qualify for CRS credit)



vii. Virginia Land Conservation Foundation



Funding from the Virginia Land Conservation Foundation (VLCF) may be used to protect properties that could earn CRS credit. VLCF provides matching funding from the Virginia Land Conservation Fund to establish permanent conservation easements, purchase open spaces and parks, promote natural area protection, and promote historic area, farmlands, and forest preservation. If these properties are in a floodplain, they should be eligible for various open space credits in the CRS. For more information on VLCF, visit the VLCF [website](#).

CRS CREDIT OPPORTUNITIES: Protecting Open Space in the Floodplain through the Virginia Land Conservation Foundation

CRS ACTIVITIES

Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, *CRS Manual*, 420-3

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of the regulatory floodplain as defined by a locality’s floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner (VLCF requirements should meet this criteria)
- If land is owned by an individual: development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land (VLCF requirements should meet this criteria)

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special

Flood Hazard Area and the regulatory floodplain

- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422b, Deed Restriction (DR)
Up to 50 extra credit points, *CRS Manual, 420-11*

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

Probable Credit, Activity 422c, Natural Functions Open Space (NFOS)
Up to 350 extra credit points, *CRS Manual, 420-13*

Creditable Activity

- Extra credit for open space parcels preserved in or restored to their natural state

Requirements

- Land must qualify for open space credit (Activity 422a)
- Land must be managed to retain its natural state
- Land must be in an undeveloped/natural state or restored to a natural state (areas designated as worthy of preservation by a federal or state public program or

nationally-recognized private program typically qualify)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated as critical habitat, if land is part of a planned open space corridor, and if educational materials are provided
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate the areas where NFOS applies.
- The ISO/CRS Specialist may visit a sample of the sites to verify that the credit criteria are met.

GOVERNANCE GUIDANCE

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|-------------------------------|---|
| Va. Code § 10.1-1701 | Virginia Open-Space Land Act - Any public body may acquire title or any interests or right in real property that will provide a means for the preservation or provision of open space land. Any public body may designate any real property retained and used as open space |
| Va. Code §§ 10.1-1017 et seq. | Virginia Land Conservation Foundation established |
| Va. Code § 10.1-1020 | Purpose of foundation includes acquiring fee simple title or other rights, including the purchase of development rights, to interests or privileges in property for protection or preservation |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Accomplishes open-space-related goals for localities without locality funding

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Make use of VLCF funding to protect open land in floodplains
- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- Put a deed restriction on the land if possible (Activity 422b)
- Request notification from locality Clerk's Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation's [Managed Conservation Lands Map](#) (Note: federal lands do not qualify for CRS credit)
- Strengthen land protection through a permanent real estate instrument (e.g., deed restriction or conservation easement) (Activity 422b)



viii. Land and Water Conservation Fund



Lands protected through the Land and Water Conservation Fund may earn CRS credit. The federal Land and Water Conservation Fund Act of 1965 created the Land and Water Conservation Fund (LWCF) to protect natural areas and cultural heritage and to provide recreational opportunities to the public. LWCF uses royalties from offshore oil and gas to meet these goals. The Fund, administered by the Virginia Department of Conservation and Recreation, makes matching grants available to help the Commonwealth and local governments protect land. Funding is normally available on an annual basis.

The statute authorizing the Fund stipulates that while the land must be used only for outdoor recreation purposes in perpetuity, development is permissible for trails, playgrounds, skate parks, etc.¹⁰ This stipulation meets the CRS open space requirements because it does not provide for the construction of insurable buildings. CRS credit calculation subtracts any impervious surfaces from the total area of the parcel. Depending on the specific circumstances of each property, it may also qualify for additional CRS open space credit. The Virginia Outdoors Plan that accompanies the LWCF may be eligible for credit as a Natural Floodplain Functions Plan if it contains information regarding floodplain protection and functions and is adopted by the locality (see [Adopted Land Use Plans](#) above for more information). Visit the [Land and Water Conservation Fund website](#) and the [Department of Conservation and Recreation](#) for more information on the program in Virginia.

CRS CREDIT OPPORTUNITIES: Protecting Open Space in the Floodplain through the Land and Water Conservation Fund

CRS ACTIVITIES

Probable Credit, Activity 422a, Open Space Preservation (OSP)

Up to 1,450 points, CRS Manual, 420-3

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of a regulatory floodplain as defined by a locality's floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual: development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land (likely accomplished by LWCF statute)

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422b, Deed Restriction (DR)

Up to 50 extra credit points, CRS Manual, 420-11

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

GOVERNANCE GUIDANCE

| | |
|------------------------------------|---|
| Va. Code § 10.1-1701 | Virginia Open-Space Land Act - Any public body may acquire title or any interests or right in real property that will provide a means for the preservation or provision of open space land. Any public body may designate any real property retained and used as open space |
| Va. Code § 10.1-208 | Department of Conservation and Recreation authority to acquire fee simple title or easements to open space property |
| Va. Code §10.1-200 | Provides state entities the authority to receive and distribute federal money for the purpose of outdoor recreation |
| Use of Land: 16 USC § 4601-8(f)(3) | No property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Accomplishes open-space-related goals for localities without locality funding

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Make use of LWCF funding to protect open land in floodplains
- Request notification from locality Clerk’s Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation’s [Managed Conservation Lands Map](#) (Note: federal lands do not qualify for CRS credit)

- Strengthen land protection through a permanent real estate instrument (e.g., deed restriction or conservation easement) (Activity 422b)



ix. Virginia Clean Water Revolving Loan Fund Land Conservation Loan Program



Revolving loan funding for clean water may provide an opportunity for CRS credit. The Virginia Clean Water Revolving Loan Fund Land Conservation Loan Program provides low interest loans to localities for property acquisitions that protect or improve water quality and prevent pollution of state waters. The land must remain as open space, which should qualify the land for CRS credit if it is located in a floodplain. Money is available in fiscal years when all local government requests for wastewater facility improvement loans are fulfilled. For more information, visit [the Department of Environmental Quality website](#).



CRS CREDIT OPPORTUNITIES: Protecting Open Space in the Floodplain through the Virginia Clean Water Revolving Loan Fund Land Conservation Loan Program

CRS ACTIVITIES

**Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, CRS Manual, 420-3**

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of the regulatory floodplain as defined by a locality’s floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner (likely accomplished by statute)
- If land is owned by an individual: development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land (likely accomplished by statute)

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)

- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422b, Deed Restriction (DR)
Up to 50 extra credit points, *CRS Manual, 420-11*

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

Probable Credit, Activity 422c, Natural Functions Open Space (NFOS)
Up to 350 extra credit points, *CRS Manual, 420-13*

Creditable Activity

- Extra credit for open space parcels preserved in or restored to their natural state

Requirements

- Land must qualify for open space credit (Activity 422a)
- Land must be managed to retain its natural state
- Land must be in an undeveloped/natural state or restored to a natural state (areas designated as worthy of preservation by a federal or state public program, or nationally-recognized private program, typically qualify)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated as critical habitat, part of a planned open space corridor, educational materials are provided

- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate the areas where NFOS applies.
- The ISO/CRS Specialist may visit a sample of the sites to verify that the credit criteria are met.

GOVERNANCE GUIDANCE

| | |
|----------------------|--|
| Va. Code § 10.1-1701 | Virginia Open-Space Land Act - Any public body may acquire title or any interests or right in real property that will provide a means for the preservation or provision of open space land. Any public body may designate any real property retained and used as open space. |
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| Va. Code § 62.1-229.3 | Loans may be made for acquiring fee simple title, permanent conservation easement, or open space easement that will “(i) protect or improve water quality...and (ii) protect the natural or open-space values of the property” |
|-----------------------|--|

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- Request notification from locality Clerk’s Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation

- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation’s [Managed Conservation Lands Map](#) (Note: federal lands do not qualify for CRS credit)
- Strengthen land protection through a permanent real estate instrument (e.g., deed restriction or conservation easement) (Activity 422b) Establish a locality policy requiring lands under easement be maintained or restored to its natural state (Activities 422a and 422c)
- Create a natural floodplain functions or green infrastructure plan that maps and covers all natural-state open space in the locality (Activity 512c)



x. Emergency Watershed Protection Program – Floodplain Easement Option



Land preserved through the Emergency Watershed Protection Program – Floodplain Easement Option (EWP-FPE) is likely to receive CRS credit. The EWP-FPE is a program of the U.S. Department of Agriculture’s Natural Resources Conservation Service (NRCS). Established by Section 382 of the Federal Agricultural Improvement and Reform Act of 1996, it provides for the purchase of easements on floodplain properties to minimize the risk of flood damage to life and property. Once protected, the land is restored to maximize natural floodplain functions of flood storage and flow and erosion control.

Funds are most commonly available after a federally declared disaster, and typically in conjunction with other Emergency Watershed Protection projects. After Hurricane Sandy millions of dollars became available in this program, but not all funds were expended. Use of the program is not common in Virginia, but the opportunities provided are great. If a locality is aware of the program, it can take advantage of funds when they become available.

To be eligible, the land must have experienced damage from flooding within the previous year or experienced at least two instances of flood damage within the previous ten years. Other floodplain land that does not meet these criteria may be eligible if restoration would contribute to improved flood storage and flow, erosion control, or improve practical management of the floodplain easement. Finally, lands subject to damage from a dam breach are eligible. If funding is available as a result of a recent disaster, the damage must be a result of that disaster.

Once an application is accepted, the NRCS pays the property owner the market value of the property, removes all buildings on the property, and places a conservation easement on the property. A local government partner (legal subdivisions of the state: state land-holding agencies, local governments, planning district commissions, soil and water conservation districts, tribal entities, etc.) must then purchase the remaining value of the land after the structures are removed and the easement is placed. This will make the land eligible for CRS open space credit, as well as potential additional credits for a deed restriction and protecting natural floodplain functions. For more information, visit the [Emergency Watershed Protection Program – Floodplain Easement Option](#) website.

CRS CREDIT OPPORTUNITIES: Removing Structures and Protecting Open Space through the Emergency Watershed Protection Program – Floodplain Easement Option

CRS ACTIVITIES

Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, *CRS Manual*, 420-3

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of a regulatory floodplain as defined by a locality's floodplain ordinance (accomplished by EWP-FPE requirements)
- If land is owned by the state or local government (not federal) or non-profit organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner (likely accomplished by statute)(accomplished by EWP-FPE requirements)

Additional Information

- Federally-owned lands are not eligible for credit (the federally-owned easement should be acceptable; the land is still owned locally)
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Probable Credit, Activity 422b, Deed Restriction (DR)
Up to 50 extra credit points, *CRS Manual*, 420-11

Creditable Activities

- Extra credit for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings (likely accomplished by EWP-FPE requirements)
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

**Probable Credit, Activity 422c, Natural Functions Open Space (NFOS)
Up to 350 extra credit points, CRS Manual, 420-13**

Creditable Activity

- Extra credit for open space parcels preserved in or restored to their natural state

Requirements

- Land must qualify for open space credit (Activity 422a)
- Land must be managed to retain its natural state
- Land must be in an undeveloped/natural state or restored to a natural state
- (All requirements likely met by EWP-FPO requirements)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated as critical habitat, part of a planned open space corridor, and educational materials are provided
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate areas where NFOS applies.
- ISO/CRS Specialists may visit a sample of sites to verify that credit criteria are met.

GOVERNANCE GUIDANCE

Va. Code § 10.1-1701

Virginia Open-Space Land Act - Any public body may acquire title or any interests or right in real property that will provide a means for the preservation or provision of open space land. Any public

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| | body may designate any real property retained and used as open space |
| 7 C.F.R. 6240.10 | Natural Resource Conservation Service may purchase floodplain easements from landowners voluntarily. |
| Use of Land: 16 USC § 4601-8(f)(3) | No property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Accomplishes open-space-related goals for localities without locality funding

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Compile a list of eligible property owners interested in buyouts and be prepared to apply after an eligible federally declared disaster
- Local governments, planning district commissions, soil and water conservation districts, and land trust entities should work together to provide funding to purchase these low-cost properties to complete the funding requirements
- Request notification from locality Clerk’s Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation’s [Managed Conservation Lands Map](#) (Note: federally-owned lands do not qualify for CRS credit)
- Create a natural floodplain functions or green infrastructure plan that maps and covers all natural-state open space in the locality (Activity 512c)



B. WETLAND PRESERVATION AND MITIGATION BANKS



A critical part of our ecosystem, wetlands may be eligible for CRS credit when protected, restored, or created. They provide habitat for fish spawning that leads to healthy fisheries, protect water quality by filtering pollutants, and provide flood protection by absorbing storm surges and stormwater runoff and slowing down the speed of incoming water.

Unfortunately, vast expanses of wetlands were filled and farmed or developed, a practice that many, including Wetlands Watch, fight to reverse. Thanks to the Clean Water Act and other subsequent federal efforts, wetlands dredging and filling for development requires wetlands permits, resulting in mitigation banking and “no net loss,” meaning if wetlands are destroyed in one area, they must be created, enhanced, or expanded in another area. In Virginia, any development in or disturbance to a tidal wetland requires a permit from the local Wetlands Board, acting under delegated authority from the Virginia Marine Resources Commission (VMRC), or from the VMRC itself. Wetland disturbances in a non-tidal wetland require a Virginia Water Protection Permit from the Virginia Department of Environmental Quality.

The protection of wetlands in their natural state is the best way to ensure that wetlands continue to provide their many benefits. Development in or disturbances to wetlands should be avoided as much as possible. If development or disturbances are deemed unavoidable, wetlands mitigation is required. Wetlands mitigation includes the protection, creation, restoration, and enhancement of wetlands.



Wetland Preservation and Mitigation Funding

Funding is available for Wetlands Reserve Easements through the Natural Resources Conservation Service’s [Agricultural Conservation Easement Program](#),¹¹ which replaced the [Wetlands Reserve Program](#). This program funds the cost-effective restoration and protection of farmed or converted wetlands. If these wetlands are located in a floodplain, the easement restrictions should be sufficient to qualify for both open space credit as well as natural floodplain functions credit.

Funding is also available for wetlands conservation through the National Fish and Wildlife Service’s [North American Wetlands Conservation Fund](#). Through this funding localities may acquire property and “protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and habitats associated with wetland ecosystems and other fish and wildlife.”¹²



i. Preserving Existing Wetlands



When natural wetlands are protected from any form of development, they will likely qualify for open space CRS credit. Extra credit is also likely available for preserving wetlands in their natural state. If wetlands preservation transpires in response to the Clean Water Act regulations, those requirements should meet several of the CRS requirements.



If a locality creates a Watershed Master Plan (see [Watershed Master Planning](#)) that identifies existing wetlands that should be preserved for the purposes of natural attenuation, retention, or detention, additional credit can be earned. In tidal localities, where RPAs must include wetlands, RPA mapping and review requirements may contribute to a creditable Watershed Master Plan.

CRS CREDIT OPPORTUNITIES: Preserving Existing Wetlands in a Natural State as Open Space

CRS ACTIVITIES

Probable Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, *CRS Manual*, 420-3

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of a regulatory floodplain as defined by a locality's floodplain ordinance (wetlands will most likely be located in a floodplain)
- If land is owned by the state or local government (not federal) or non-profit organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual: development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Probable Credit, Activity 422c, Natural Functions Open Space (NFOS)
Up to 350 extra credit points, *CRS Manual*, 420-13

Creditable Activity

- Extra credit for open space parcels preserved in or restored to their natural state

Requirements

- Land must qualify for open space credit (Activity 422a)
- Land must be managed to retain its natural state (likely accomplished by Clean Water Act requirements)
- Land must be in an undeveloped/natural state or restored to a natural state (likely accomplished by Clean Water Act requirements)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated as critical habitat, if land is part of a planned open space corridor, and if educational materials are provided
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate the areas where NFOS applies.
- The ISO/CRS Specialist may visit a sample of the sites to verify that the credit criteria are met.

Potential Credit, Activity 422b, Deed Restriction (DR)
Up to 50 extra credit points, *CRS Manual*, 420-11

Creditable Activities

- Extra credit points for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

| GOVERNANCE GUIDANCE | |
|---|--|
| Clean Water Act Section 404 (33 U.S.C. 1344) | Wetland protection and requirement for permits for dredge of fill material in navigable waters of the US |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Provides protection of a critical natural resource • Helps to meet No Net Loss of wetlands goal • May help achieve Comprehensive Plan goals • Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks) • Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Protects health, safety and welfare of citizens (hazard mitigation) • Provides flood and shoreline erosion protection • Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.) • Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Preserve land behind tidal wetlands to allow them to migrate with sea level rise (Activity 422a) • Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements • Request notification from locality Clerk’s Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded • When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation • To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation’s Managed Conservation Lands Map (Note: federal lands do not qualify for CRS credit) • Include wetlands in a Watershed Master Plan for an additional 30 points (Activity 452b) (CREDIT GO-GETTERS) | |



ii. Wetland Mitigation Banks



Wetland mitigation banks may qualify for CRS credit. Under Section 404 of the Clean Water Act the filling/development of wetlands is expressly prohibited without preserving, restoring, enhancing, or creating wetlands elsewhere.¹³ This requirement furthers the Environmental

Protection Agency’s (EPA) nation-wide goal of “no net loss” of wetlands. For more information on this EPA program visit the [EPA website](#).

According to state law, a legal instrument, such as a conservation easement, is required to protect a wetland mitigation bank in perpetuity. As such, all wetland mitigation banks should meet the development-restriction criteria for CRS open space credit, and should receive credit if they are located within the regulatory floodplain. They are also likely to get additional credit for a deed restriction and retaining natural floodplain functions.

If a locality seeks to use wetlands and wetland mitigation banking as a method of shoreline protection, CRS credit may be available if the wetlands provide sufficient flood protection. For more information, see [Living Shorelines](#).

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| CRS CREDIT OPPORTUNITIES: Protecting Open Space through Wetland Mitigation Banks |
| CRS ACTIVITIES |
| Probable Credit, Activity 422a, Open Space Preservation (OSP) Up to 1,450 points, CRS Manual, 420-3 |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • Protecting undeveloped land in the floodplain <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Land must be part of a regulatory floodplain as defined by a locality’s floodplain ordinance (wetlands will most likely be located in a floodplain) • If land is owned by the state or local government (not federal) or non-profit organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner (likely accomplished by Clean Water Act requirements) • If land is owned by an individual: development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land (likely accomplished by Clean Water Act requirements) <p><u>Additional Information</u></p> <ul style="list-style-type: none"> • Federally-owned lands are not eligible for credit (a federally-owned easement should be acceptable) • Active farmland may not be creditable • Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain • Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres • Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks) • Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d) |

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Probable Credit, Activity 422c, Natural Functions Open Space (NFOS)
Up to 350 extra credit points, *CRS Manual*, 420-13

Creditable Activity

- Extra credit for open space parcels preserved in or restored to their natural state

Requirements

- Land must qualify for open space credit (Activity 422a)
- Land must be managed to retain its natural state (likely accomplished by Clean Water Act requirements)
- Land must be in an undeveloped/natural state or restored to a natural state (likely accomplished by Clean Water Act requirements)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated as critical habitat, if land is part of a planned open space corridor, and if educational materials are provided
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate the areas where NFOS applies.
- The ISO/CRS Specialist may visit a sample of the sites to verify that the credit criteria are met.

Potential Credit, Activity 422b, Deed Restriction (DR)
Up to 50 extra credit points, *CRS Manual*, 420-11

Creditable Activities

- Extra credit points for open space protected by deed restriction

Requirements

- Land must qualify for open space credit (Activity 422a)
- Deed must include language that prohibits new buildings
- The restriction must run with the land and cannot be changed by a future owner

Documentation

- Documentation of OSP credit is a prerequisite.
- A copy of the deed with the appropriate language marked.
- The impact adjustment map used for OSP credit must also indicate the areas where DR applies.

GOVERNANCE GUIDANCE

| | |
|--|--|
| Clean Water Act Section 404 (33 U.S.C. 1344) | Wetland protection and requirement for permits for dredge or fill material in navigable waters of the US |
| 33 C.F.R. 332.7 and 40 C.F.R. 230.97 | All wetland mitigation banks must be provided long-term protection through real estate instruments or other available mechanisms, as appropriate |
| 9 VAC 25-210-116 | “The final wetland compensation plan or plans shall include a mechanism for protection in perpetuity of the compensation sites to include all state waters within the compensation site boundary or boundaries” (Ex: deed restriction, conservation/open space easement, etc.) |

CO-BENEFITS

- Helps meet requirements of the Clean Water Act
- Provides protection of a critical natural resource
- Helps to meet No Net Loss of wetlands goal
- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides flood and shoreline erosion protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- Accomplishes open-space-related goals for localities without locality funding

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Avoid development in wetlands where possible
- Site mitigation banks where wetlands naturally occur
- Request notification from locality Clerk’s Office or applicable recordation office when

land use restriction (e.g., conservation easement) is recorded

- Coordinate with mitigation entities (e.g. [National Mitigation Banking Association](#)) to track and map wetland mitigation banks
- Support strategic location and implementation of wetlands mitigations projects according to state, federal, local or regional habitat restoration plans or comprehensive coastal resource management plans
- Create a natural floodplain functions or green infrastructure plan that maps and covers all natural-state open space in the locality (Activity 512c) (CREDIT GO-GETTERS)
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation's [Managed Conservation Lands Map](#) (Note: federally-owned lands do not qualify for CRS credit)



C. LIVING SHORELINES



Living shorelines are the preferred method of shoreline management and stabilization in Virginia and a Chesapeake Bay Program-approved nutrient and sediment reduction best management practice to meet Chesapeake Bay TMDL goals, however qualification for CRS credit is largely unknown. Most commonly used on individual private properties, living shorelines reduce erosion, improve water quality, preserve the shoreline ecosystem and habitat, and protect private property. As a key aspect of the Coastal Zone Management Program's Shoreline Management Strategy, the use of living shorelines is garnering significant support and increased implementation throughout the state. However, the benefits of this shoreline management practice may not translate well to CRS points.

Living Shorelines & Large Wetlands Creation Projects

The CRS program addresses living shorelines and large wetlands creation projects that protect several properties in two ways. A locality can seek CRS open space credit for the area in Activity 420 (see [Wetlands Preservation and Mitigation Banks](#)), or a locality can elect to conduct a new flood study. If the project sufficiently reduces flood risk to the land it protects, a new study would show a reduction in base flood elevations on a new Flood Insurance Rate Map, which would reduce flood insurance costs for affected properties, but not earn CRS credit.

The receipt of CRS credit for living shorelines is essentially untested; there is no clear way to earn credit under the current manual. Living shorelines do not fit well into any activity, but under certain conditions they may be eligible for credit in two activities: Activity 422g, Natural Shoreline Protection and Activity 532, Flood Protection. For Activity 422g, if a local ordinance or adopted policy requires the use of living shorelines in place of hard structures for shoreline management (in at least some areas), credit will likely be available. (Note: although Virginia's

statewide policy identifies living shorelines as the preferred method of shoreline management, it is not a requirement and therefore not creditable.) For Activity 532, while the primary purpose of a living shoreline is erosion protection, a project on an individual property may be eligible for credit if it also offers flood protection to at least the 25-year-flood level.

| CRS CREDIT OPPORTUNITIES: Living Shorelines as Natural Shoreline Flood Protection | |
|--|--|
| CRS ACTIVITIES | |
| Potential Credit, Activity 422g, Natural Shoreline Protection (NSP) Up to 120 points, <i>CRS Manual, 420-28</i> | |
| <u>Creditable Activity</u> | |
| <ul style="list-style-type: none"> • A locality must have adopted regulations that prohibit armoring, channel alterations, dredging, filling, grubbing, removal of vegetation, or any beach alteration on private and/or public lands | |
| <u>Requirements</u> | |
| <ul style="list-style-type: none"> • Development, fill, armoring, beach nourishment, dune alteration, etc. must be prohibited | |
| <u>Additional Information</u> | |
| <ul style="list-style-type: none"> • Shoreline protection regulations subject to a portion of a locality’s shoreline can earn some credit • Credit is based on the length of protected shoreline compared to the locality’s entire shoreline length • Human alterations of natural shorelines only permitted when they improve natural floodplain functions • These programs can also earn 25 points under Activity 452b, Watershed Master Plan (WMP7) | |
| <u>Documentation</u> | |
| <ul style="list-style-type: none"> • Copy of regulation or policy. • For rehabilitation projects, a description of the project must also be submitted. • Impact adjustment map which indicates shoreline to be credited in addition to all streams, ditches and lake shorelines in the community. • The ISO/CRS Specialist may look at Google Earth to verify that they qualify for the credit. | |
| Potential Credit Activity 532, Flood Protection, : TUB (Barriers) Up to 1,000 points, <i>CRS Manual, 530-6</i> | |
| <u>Creditable Activity</u> | Large Scale Flood Protection |
| <ul style="list-style-type: none"> • Small scale flood control projects that protect insurable buildings (*large scale projects are not creditable) | <p>If large projects reduce flood risk, a new FIRM would show reduced BFEs. This reduces flood insurance rates automatically for those affected properties, so CRS credit is not awarded.</p> |

Requirements

- Projects must protect against at least the 25-year-flood and designs must be signed by registered design professional
- Must protect insurable buildings in the regulatory floodplain or repetitive loss buildings that have not been otherwise protected through building codes or other mitigation projects
- Must be maintained
- Must be located entirely on the property of the structure it is meant to protect and protect the entire shoreline – no openings
- Must maintain flood protection level even with increased development

Additional Information

- Credit is applicable to pre-FIRM structures or those built before the most recent map update where the base flood elevation increased (e.g. a structure built to an old base flood elevation could be credited if it were elevated to the new base flood elevation)
- Additional credit is provided for protecting critical facilities, repetitive loss structures, and Severe Repetitive Loss structures
- If funding for the project came from FEMA’s Flood Mitigation Assistance program, credit is decreased
- Projects completed in response to NFIP regulations are not applicable (e.g. a substantially damaged or improved structure brought up to code)
- Total credit is determined by the level of flood protection provided by each project and in some cases by the number of protected structures compared to the number of structures in the SFHA

Documentation

- A list and map showing all buildings for which credit is being requested.
- Copies of completed AW-530 worksheets and Elevation Certificates (documenting compliance for elevation projects), as appropriate.
- Level of flood protection before and after projects.
- Calculations for total number of buildings in regulatory floodplain (when using credit calculation option 2).
- Documentation showing floodplain regulations apply to areas outside of regulatory floodplain, if applicable.
- A copy of the CLOMR submitted to FEMA, if applicable.
- Documentation of the implementation date for each project.

GOVERNANCE GUIDANCE

Va. Code §
28.2-104.1

Living shorelines are preferred method of stabilizing tidal shorelines

CO-BENEFITS

- Supports Virginia’s preferred method of shoreline erosion control
- Supports VIMS Comprehensive Coastal Resource Management Plan implementation

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides flood and natural shoreline erosion protection for public and private property
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes natural infrastructure in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Where possible, adopt a policy prohibiting hard armoring methods of shoreline management (Activity 422g)
- Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements
- Require living shorelines designed for both shoreline and flood protection and keep records of the engineering certifications and structures they protect (Activity 532)
- Coordinate with appropriate locality department to track permitting of living shorelines
- When a living shoreline is installed, include in the documentation a map of the project in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- Educate the public and contracting community on the availability of living shorelines as an erosion and flood control option

D. BEACHES, DUNES, AND EROSION

Localities that protect beaches and dunes from development and programs that protect development from erosion may earn credit in the CRS program. However, an erosion setback is required for many of the activities below and most Virginia localities do not meet this prerequisite. For more information on credit for activities related to erosion, use the *CRS Coordinator's Manual* supplement, [CRS Credit for Management of Coastal Erosion Hazards](#).



i. Coastal Primary Sand Dunes and Beaches Act



The Coastal Primary Sand Dunes and Beaches Act is not a likely source for CRS credit. Although the Act addresses primary sand dune alteration, it only requires a *permit* for

development rather than *prohibiting* development, which is necessary for CRS credit. However, if no exceptions are permitted, credit may be earned as a program to protect natural shorelines.

| CRS CREDIT OPPORTUNITIES: Coastal Primary Sand Dunes and Beaches Act | |
|---|--|
| CRS ACTIVITIES | |
| Potential Credit, Activity 422g, Natural Shoreline Protection (NSP) Up to 120 points, <i>CRS Manual</i> , 420-28 | |
| <u>Creditable Activity</u> | |
| <ul style="list-style-type: none"> • Create a rule to issue no permits under the Dunes and Beaches Act (Va. Code § 28.2-1408) and prohibit any alteration of dunes and natural shorelines | |
| <u>Requirements</u> | |
| <ul style="list-style-type: none"> • Development, fill, armoring, beach nourishment, dune alteration, etc. must be prohibited | |
| <u>Additional Information</u> | |
| <ul style="list-style-type: none"> • Human alterations of natural shorelines are only permitted when the action improves natural floodplain functions • Shoreline protection regulations subject to a portion of a locality’s shoreline can earn some credit • Credit is based on the length of protected shoreline compared to the locality’s entire shoreline length • These programs can also earn 25 points under Activity 452b, Watershed Master Plan (WMP7) | |
| <u>Documentation</u> | |
| <ul style="list-style-type: none"> • Copy of regulation or policy. • For rehabilitation projects, a description of the project must also be submitted. • Impact adjustment map which indicates shoreline to be credited in addition to all streams, ditches and lake shorelines in the community. • The ISO/CRS Specialist may look at Google Earth to verify that they qualify for the credit. | |
| Probable Credit, Activity 432a, Development Limitations (DL) Up to 1,330 points, <i>CRS Manual</i> , 430-6 | |
| <u>Creditable Activity</u> | |
| <ul style="list-style-type: none"> • Prohibiting fill (with or without compensatory storage), buildings, and/or materials storage in the SFHA | |
| <u>Requirements</u> | |
| <ul style="list-style-type: none"> • Prohibition of fill (DL1, up to 280 points) <ul style="list-style-type: none"> ○ No Conditional Letters or Letters of Map revision based on Fill may be issued ○ Subdivision regulations must apply to all new development | |

- Regulations must apply to building, infrastructure, and other floodplain uses
- Credit can be prorated for compensatory storage requirements for new development in the floodplain at hydraulically equivalent sites up to a ratio of 1.5:1 (stormwater regulations requiring a developer compensate for runoff increases do not qualify)
- Prohibition of buildings (DL2, up to 1,000 points)
 - Prohibit new buildings in the SFHA (credit will be prorated if only certain types of buildings are prohibited or if regulations only apply to part of SFHA)
- Prohibition of storage of materials (DL3, up to 50 points)
 - Prohibit outdoor storage of materials in the regulatory floodplain OR
 - Prohibit storage of hazardous materials in the floodplain OR
 - Require hazardous materials to be stored indoors above BFE

Additional Information

- If fill, buildings, and materials storage are prohibited in the SFHA and there are still vacant areas, those vacant areas can be counted as protected open space and earn credit in Activity 422a
- Filling is permitted to protect natural floodplain functions, such as for a channel restoration project
- Credit is based on the area of the floodplain affected by the regulations compared to the area of the SFHA, excluding credited open space parcels (Activity 422a)
- Must have map indicating area where rules are effective in the regulatory floodplain (map must show areas credited as open space and undeveloped areas)

Documentation

- Adopted state or local regulation.
- Impact adjustment map indicating areas affected by the regulations, plus areas credited under OSP and areas that are undeveloped.
- Example permit records documenting appropriate implementation must be available.

GOVERNANCE GUIDANCE

Va. Code § 28.2-1400 et seq.

No permanent alteration of or construction upon any coastal primary sand dune shall take place which would (i) impair the natural functions of the dune, (ii) physically alter the contour of the dune, or (iii) destroy vegetation growing thereon...

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides flood and natural shoreline erosion protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways,

conservation corridors, etc.)
 Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Requirements of the Primary Sand Dunes and Beaches Act are not sufficient to earn credit; in order to earn credit a locality must prohibit development, fill, and materials storage on dunes (Activity 432a)



ii. Publicly Owned Beaches



Publicly owned beaches may qualify for CRS credit if provisions prohibit development without exception. Many beaches are publicly owned. If a locality implements a provision prohibiting development on public beaches, these beaches can qualify as open space, receive additional open space credit as a natural area, and may be considered part of a natural shoreline protection program. Note: because the Coastal Primary Sand Dunes and Beaches Act and the Chesapeake Bay Preservation Act allow development through permits, these programs are unlikely to qualify; they do not prohibit development on beaches. Localities will likely need to show that they do not allow exemptions to these Acts, or that they have a separate program prohibiting development on beaches.

CRS credit is available for protecting open space subject to erosion, but the primary prerequisite is that the locality must have an erosion setback line, based on regular erosion mapping, seaward of which development is prohibited. As a state, Virginia’s policy for barrier islands does not extend to non-island beaches. Therefore, in order for a locality to earn any erosion-related credit, they must develop and enforce their own erosion control line. For more information on credit for activities related to erosion, use the *CRS Coordinator’s Manual* supplement, [CRS Credit for Management of Coastal Erosion Hazards](#).

CRS CREDIT OPPORTUNITIES: Protecting Publicly Owned Beaches as Open Space

CRS ACTIVITIES

Probable Credit, Activity 422a, Open Space Preservation (OSP)
 Up to 1,450 points, *CRS Manual*, 420-3

Creditable Activity

- Protecting undeveloped land in the floodplain

Requirements

- Land must be part of the regulatory floodplain as defined by a locality’s floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit

organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner

- If land is owned by an individual: development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)
- Additional credit is available if the land is subject to a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Probable Credit, Activity 422c, Natural Functions Open Space (NFOS)
Up to 350 extra credit points, *CRS Manual*, 420-13

Creditable Activity

- Extra credit for open space parcels preserved in or restored to their natural state

Requirements

- Land must qualify for open space credit (Activity 422a)
- Land must be managed to retain its natural state
- Land must be in an undeveloped/natural state or restored to a natural state (areas designated as worthy of preservation by a federal or state public program or nationally-recognized private program typically qualify)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated as critical habitat, if land is part of a planned open space corridor, and if educational materials are provided
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate the areas where NFOS applies.
- The ISO/CRS Specialist may visit a sample of the sites to verify that the credit criteria are met.

Potential Credit, Activity 422g, Natural Shoreline Protection (NSP)
Up to 120 points, *CRS Manual, 420-28*

Creditable Activity

- A locality must have adopted regulations that prohibit armoring, channel alterations, dredging, filling, grubbing, removal of vegetation, or any beach alteration on private and/or public lands

Requirements

- Development, fill, armoring, beach nourishment, dune alteration, etc. must be prohibited

Additional Information

- Human alterations of natural shorelines are only permitted when the action improves natural floodplain functions
- Shoreline protection regulations subject to a portion of a locality's shoreline can earn some credit
- Credit is based on the length of protected shoreline compared to the locality's entire shoreline length
- These programs can also earn 25 points under Activity 452b, Watershed Master Plan (WMP7)

Documentation

- Copy of regulation or policy.
- For rehabilitation projects, a description of the project must also be submitted.
- Impact adjustment map which indicates shoreline to be credited in addition to all streams, ditches and lake shorelines in the community.
- The ISO/CRS Specialist may look at Google Earth to verify that they qualify for the credit.

Potential Credit, Activity 422d, Special Hazards Open Space (SHOS) and 422CE, Preserved Coastal Erosion Open Space (CEOS)
Up to 35 points, *CRS Manual, 420-19, CRS Supplemental material*

Creditable Activity

- Open space credit for preserving floodplains subject to erosion

Requirements

- Locality must receive at least 20 points for regulations under [Activity 432CE](#) (includes erosion mapping and a required erosion setback)
- At least 5 acres of the regulatory floodplain must qualify for OSP credit
- The land must be identified on a map as dune and beach area preserved as open space; erosion hazard must be identified on the map
- Areas seaward of the frontal dune must be preserved as open space

Documentation

- SHOS
 - Documentation of OSP credit is a prerequisite.
 - A map and adopted regulation must be provided.
- CEOS
 - Documentation of OSP credit is a prerequisite
 - Documentation showing community received at least 25 points under Section 410 MCE, 20 points under 430 CER, & 10 points under 440 EDM.
 - A map identifying coastal erosion hazard areas & sizes of each
 - Brief description of how coastal erosion hazard area was determined

GOVERNANCE GUIDANCE

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| Va. Code § 28.2-1403 | Locality authorization and guidelines for primary sand dune ordinance and policies |
|----------------------|--|

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps maintain popular tourist destinations which generates revenue for localities
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides flood and natural shoreline erosion protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Maximize public ownership of beaches and prohibit development on those beaches
- Include a provision in a locality’s primary sand dune ordinance that prohibits any development on beaches (Activity 422g)
- Map publicly owned open spaces in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation

- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation’s [Managed Conservation Lands Map](#) (Note: federal lands do not qualify for CRS credit)



iii. Beach Nourishment



Beach nourishment is a common method for combating erosion, but not a likely CRS credit earner. It is more environmentally friendly than seawalls, and creates a wider beach that draws more tourists. In the CRS program, beach nourishment can get some credit if it is used to combat erosion in place of hard structures like seawalls, but it can negate credit in other categories because it can damage natural ecosystems.

If a shorefront property qualifies for open space credit (Activity 422a), beach nourishment is an acceptable form of fill (otherwise prohibited for parcels credited in Activity 422a) used for flood protection that will not disqualify the property (construction of sand dunes and habitat restoration projects are also acceptable). However, the property will likely fail to qualify for Natural Functions Open Space (Activity 422c) credit with these activities. Additionally, if credit is sought under Natural Shoreline Protection (Activity 422g) with a program that permits only natural shorelines, beach nourishment will disqualify properties from receiving that credit and may disqualify the program.

Funding may be available for beach nourishment through the Public Beach Maintenance and Development Fund¹⁴ within the Department of Conservation and Recreation; the requirements of which may also assist in meeting the CRS criteria below.

| CRS CREDIT OPPORTUNITIES: Beach Nourishment as an Erosion Protection Program | |
|---|--|
| CRS ACTIVITIES | |
| Potential Credit, Activity 542f, Coastal Erosion Protection Maintenance (EPM)/542CE Coastal Erosion Hazard System Maintenance <i>Up to 100 points, CRS Manual, 540-21, CRS Supplemental Material</i> | |
| <u>Creditable Activity</u> <ul style="list-style-type: none"> • Use of beach nourishment as part of an erosion protection program | |
| <u>Requirements</u> <ul style="list-style-type: none"> • Locality must receive at least 20 points for regulations under Activity 432CE (includes erosion mapping and a required erosion setback) • Must be part of an erosion protection program that does not use hard structures more than 5x15 feet measured flat; program must be ongoing, have a multi-year implementation plan, and have been in effect for at least two years • Project must have been professionally designed for erosion protection • All permits must have been obtained | |

- Sand must be added; pushing or grading is not sufficient

Documentation

- A description of the erosion protection maintenance program, documentation on level or protection, and evidence that proper permits were obtained.
- Documentation that shows the calculation of shoreline length affected by the erosion protection program.
- A copy of the multi-year maintenance plan.

GOVERNANCE GUIDANCE

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| Va. Code § 10.1-704 | Beaches are given priority when considering disposal of dredge materials for the purposes of beach nourishment. |
| 4 VAC 20-400-10 | Criteria for VMRC permitted replenishment/nourishment of beaches |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Supports VIMS Comprehensive Coastal Resource Management Plan implementation
- Helps maintain popular tourist destinations which generates revenue for localities
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides flood and natural shoreline erosion protection
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Adopt an erosion setback line to be eligible for credit; an erosion setback line and associated mapping are a prerequisite for credit (CREDIT GO-GETTERS)
- Include beach nourishment as part of an erosion protection program that does not use hard structures (CREDIT GO-GETTERS)



iv. Coastal Erosion Protection Maintenance

Credit may be provided for maintaining coastal erosion protection programs. This activity includes its own set of prerequisites and is reviewed in a document separate from the *CRS Manual*, called [CRS Credit for Management of Coastal Erosion Hazards](#). The prerequisites for this activity include, among other things, a coastal setback based on erosion mapping. Very few, if any, communities in Virginia meet these requirements.

CRS CREDIT OPPORTUNITIES: Maintaining Coastal Erosion Protection
CRS ACTIVITIES

**Potential Credit, Activity 542f, Coastal Erosion Protection Maintenance (EPM)
Up to 100 points, CRS Manual, 540-21**

Creditable Activities

- Maintaining a coastal erosion protection program

Requirements

- Very few localities in Virginia are likely eligible for this credit because it carries the prerequisite of a dedicated erosion setback line and associated mapping. See [CRS Credit for Management of Coastal Erosion Hazards](#) for more information

Additional Information

- Examples: Preserving dunes, stabilization of bluffs, and beach nourishment

Documentation

- A description of the erosion protection maintenance program, documentation on level or protection, and evidence that proper permits were obtained.
- Documentation that shows the calculation of shoreline length affected by the erosion protection program.
- A copy of the multi-year maintenance plan.

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Supports VIMS Comprehensive Coastal Resource Management Plan implementation
- Helps maintain popular tourist destinations which generates revenue for localities
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides flood and natural shoreline erosion protection
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Adopt an erosion setback line to be eligible for credit; an erosion setback line and associated mapping are a prerequisite for credit (CREDIT GO-GETTERS)

V. STORMWATER MANAGEMENT

Localities implementing and enforcing strong stormwater management programs should earn CRS credit through multiple CRS activities. Developing open land and creating impervious surfaces (roads, driveways, roofs, etc.) prohibits the infiltration of rainwater from storms into the ground. Instead, rainwater runs off of these impervious surfaces and either collects in stormwater conveyance and containment systems (pipes, drainage ditches and stormwater ponds) that minimize excessive flooding and may provide some form of water treatment before discharge to local waterways. In some cases, the stormwater bypasses the stormwater system and either infiltrates into the ground or flows overland into waterways. These stormwater systems, regulated through municipal separate storm sewer systems (MS4s) permits, typically reduce the risk of flooding in highly developed areas; however, over time, have significantly impacted water quality with increased erosion at drainage pipe discharge areas and by carrying untreated, polluted stormwater straight to our rivers, bays, and oceans. Despite their detriment to water quality, the proper functioning of modern society depends on these modern stormwater management methods.

Many localities implement stormwater programs that require or promote the use of green infrastructure or low impact stormwater management practices (BMPs) and site design techniques (environmental site or low impact site design). These practices reduce impervious surfaces, improve water quality treatment and reduce stormwater runoff through infiltration, bioretention, filtration and containment of water on site; some practices may qualify for credit.

The CRS program provides credit for several stormwater management activities. It provides credit for regulations that determine management conditions, protect water quality, address planning for watershed-wide stormwater issues, protect open space for stormwater infiltration, and reduce flooding resulting from blocked stormwater drainage channels. The primary objective for stormwater management in the CRS program is “to prevent future development from increasing flood hazards to existing development and to maintain and improve water quality.”¹⁵ Therefore, actions that reduce flooding fulfill the primary objective of the CRS, with water quality improvements meeting a secondary priority.

Virginia imposes several stormwater requirements; the enforcement of which should earn localities CRS credit. The Commonwealth mandates participation in the Virginia Stormwater Management Program (VSMP), which administers various permits for different size stormwater management systems. Permits for small, medium, and large Municipal Separate Storm Sewer System (MS4) mandate compliance with regulations that require management practices compatible with CRS credit generating activities. Additionally, localities must comply with Chesapeake Bay regulations including the Total Maximum Daily Load (TMDL), which imposes strict standards on the management of stormwater, watershed planning, erosion and sediment control, and water quality, all of which are components of the CRS Stormwater Management activities. Localities currently enforcing and complying with these permit and TMDL programs should receive CRS credit for this stormwater management work.



Virginia currently receives Uniform Minimum Credit for its mandatory state requirements related to managing stormwater. Virginia receives 30 points for its enforcement of the Virginia

Erosion and Sediment Control Law, which regulates land-disturbing activities of 10,000 or more square feet. In addition, if a Virginia locality can prove compliance and enforcement of the state law, the locality may receive 20 points if stormwater management facilities follow the National Pollution Discharge Elimination System (NPDES) Phase II program requirements for the improvement of stormwater management runoff water quality. Finally, Virginia localities may receive credit for regulating the size of developments, planning to specific design storms in managing flow rates, and requiring maintenance plans for all stormwater facilities. (Virginia UMC Summary, available from CRSresources.org, the official CRS Resources website.)

A. STORMWATER MANAGEMENT REGULATIONS

Several stormwater management regulations are eligible for CRS credit. The primary intention is to reward localities that regulate new development to ensure that post-development levels of runoff are less than or equal to runoff pre-development runoff. This activity is made up of four sub-elements, detailed in their own charts in the following sections. To earn any credit in this activity, localities must be granted credit in the first two sub-elements: Size of Development Regulated and Design Storms Used in Regulations. Refer to the [CRS Coordinator's Manual](#) for more detail on CRS requirements for these criteria and for the activities reviewed below.

Stormwater Management Regulations Sub-Elements

- **Size of Development Regulated (SZ)**
- **Design Storms Used in Regulations (DS)**
- **Low-Impact Development (LID)**
- **Public Maintenance of Regulated Facilities (PUB)**

UMC

i. Size of Development Regulated



The size of development regulated for stormwater management purposes can earn CRS credit. The smaller the size of development regulated by a locality's stormwater management regulations, the more credit is earned. Earning CRS credit in this activity is required for any credit in Activity 452a, Stormwater Management Regulations.

CRS CREDIT OPPORTUNITIES: Regulating the Size of Development for Stormwater Management

CRS ACTIVITIES

Probable Credit, Activity 452a, Stormwater Management Regulations (SMR), Size of Development regulated (SZ)
Up to 110 points, *CRS Manual, 450-5*

Creditable Activities

- Regulations that require certain restrictions on land-disturbing activities over a certain size threshold

Requirements

- Localities must earn credit in this activity and for Design Storms Used in Regulations (below) to be granted any credit for Stormwater Management Regulations (Activity 452a)
- Regulations must state that all development is bound under the regulations
- Maximum development sizes credited are parcels of 5 acres or less or increases in impervious areas of 20,000 square feet or less
- Credit is based on the percentage of the regulated watershed(s) located within the locality

Additional Information

- The smaller the size of development regulated, the higher the credit
- If regulations vary depending on size and type of development, localities will receive credit accordingly
- Additional credit may be available for requiring developers to pay in lieu fees rather than constructing facilities if the fees are used to fund facility construction by another party

Uniform Minimum Credit

- 60 points (before impact adjustment) for legislative requirements below (higher credit could be available if there were no exemptions)

Documentation

- Completed AW-450 worksheet.
- Copy of ordinance with highlighted relevant language
- Permit records that document compliance with the regulations.
- Documentation of areas where regulation applies.
- Complete stormwater checklist

GOVERNANCE GUIDANCE

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| Code of Va. § 62.1-44.15:28(5) | Regulations govern all land-disturbing activities of 1 acre or more. In localities subject to the Chesapeake Bay Preservation Act, regulations govern land-disturbing activities between 2,500 square feet and 1 acre. |
| §62.1-44.15:34.C(3) | Development of single family residences less than 1 acre are exempt |

CO-BENEFITS

- Complies with minimum state stormwater regulations
- May help achieve Comprehensive Plan goals
- Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Reduces risk of overloading locality stormwater capacity
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection to adjacent or nearby properties

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Localities should strictly enforce the land-disturbing activities provision in the CBPA to receive higher credit for the areas under CBPA jurisdiction
- Where reasonable, localities should create stricter land disturbing regulations than the state to earn higher credit, reduce flooding, and improve water quality



ii. Design Storms Used in Regulations



Using larger, lower frequency storms (e.g., 50-year or 100-year storms) in stormwater regulations can earn CRS credit. A locality must receive credit in this sub-element to earn any credit for Stormwater Management Regulations. Regulations based on larger, less frequent storms with higher associated rainfall and flooding will earn more credit.



CRS CREDIT OPPORTUNITIES: Regulating the Size of Storms for Stormwater Management

CRS ACTIVITIES

Probable Credit, Activity 452a, Stormwater Management Regulations (SMR), Design Storms used in Regulations (DS)

Up to 225 Points, *CRS Manual*, 450-6

Creditable Activities

- Regulations that plan for stormwater discharge amounts resulting from various sizes of storms (e.g. 100-year)

Requirements

- Localities must earn credit in this activity and for Size of Development Regulated (above) to be granted any credit for Stormwater Management Regulations (Activity 452a)
- Regulations must plan for stormwater discharges predicted at certain levels of flood risks (at least a 10-year storm) that do not exceed pre-development peak discharge rates
- Credit is based on the percentage of the regulated watershed(s) located within the locality

Additional Information

- Maximum credit is available for regulating to the 100-year-storm pre-development peak discharge rates
- Additional credit is available if regulations require runoff volume to be controlled or require the retention of all runoff

Uniform Minimum Credit

- 14 points (before impact adjustment) for the legislative requirements below (these

regulations meet the minimum creditable criteria)

Documentation

- Completed AW-450 worksheet.
- Copy of ordinance with highlighted relevant language
- Permit records that document compliance with the regulations.
- Documentation of areas where regulation applies.
- Complete stormwater checklist

GOVERNANCE GUIDANCE

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| Code of Va. § 62.1-44.15:28 | Stormwater management regulations must “reduce the allowable peak flow rate resulting from the 1.5 year, two-year, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate of the site” at its pre-development state |
| 9 VAC 25-870-66B,C | The design storms used for stormwater flow release rates are the 1-year, 2-year, and 10-year 24-hour storm events. |
| 9 VAC 25-870-98B | The design storm used for runoff regulation is the 10-year 24-hour storm event. “The 10-year postdevelopment peak rate of runoff from the developed site shall not exceed the 10-year predeveloped peak rate of runoff” |

CO-BENEFITS

- Complies with minimum state stormwater regulations
- May help achieve Comprehensive Plan goals
- Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Reduces risk of overloading locality stormwater capacity
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection to adjacent or nearby properties

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Regulate to less frequent storms (e.g. the 25-, 50-, or 100-year-storm) for higher credit
- Incorporate volume control with detention (or require retention) in ordinances to receive additional credit



ii. Low-Impact Development

Regulations requiring the use of low-impact development (LID) in stormwater management can earn CRS credit. Low-impact development practices reduce stormwater runoff by increasing

permeable surfaces and allowing stormwater absorption back into the ground rather than running off into the stormwater system. These practices reduce the strain on the stormwater system, improve water quality, assist in recharging aquifers, and reduce flooding and associated damages.

| CRS CREDIT OPPORTUNITIES: Requiring Low-Impact Development Practices for Stormwater Management | |
|---|--|
| CRS ACTIVITIES | |
| Potential Credit, Activity 452a, Stormwater Management Regulations (SMR), Low-Impact Development Regulations (LID) Up to 25 Points, <i>CRS Manual, 450-8</i> | |
| <p><u>Creditable Activities</u></p> <ul style="list-style-type: none"> Regulations that require the use of LID practices to mitigate runoff <p><u>Requirements</u></p> <ul style="list-style-type: none"> Localities must earn credit for both Size of Development Regulated and Design Storms Used in Regulation (above) to be granted any credit for this activity Regulations must <i>require</i> the use of LID techniques in new development Credit is based on the percentage of the regulated watershed(s) located within the locality <p><u>Additional Information</u></p> <ul style="list-style-type: none"> Credited regulations include ordinances that require mitigation of runoff using LID techniques, ordinances that require the use of ‘soft’ techniques, regulations that require LID practices for new or redevelopment, etc. Examples of LID practices include vegetated rooftops, rain barrels, and permeable pavements <p><u>Documentation</u></p> <ul style="list-style-type: none"> Completed AW-450 worksheet. Copy of ordinance with highlighted relevant language Permit records that document compliance with the regulations. Documentation of areas where regulation applies. Complete stormwater checklist | |
| GOVERNANCE GUIDANCE | |
| <i>Virginia uses the term “nonstructural” in its regulations</i> | |
| Code of Va. § 62.1-44.15:28.11 | Regulations must “encourage low-impact development designs, regional and watershed approaches, and nonstructural means for controlling stormwater” |
| 9 VAC 25-870-380A | State permit application for large and medium MS4 discharges must include a “program to implement and maintain structural and nonstructural” BMPs |

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| 9 VAC 25-870-65 | List of approved BMPs that reduce runoff in accordance with the Virginia Runoff Reduction Method |
| 9 VAC 25-870-400De3 | List of examples - nonstructural BMPs |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Complies with minimum state stormwater regulations • May help achieve Comprehensive Plan goals • Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks) • Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Reduces risk of overloading locality stormwater capacity • Protects health, safety and welfare of citizens (hazard mitigation) • Provides property protection to adjacent or nearby properties • Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, reuse rainwater, recharging aquifers, creating attractive landscape designs, habitat creation, etc.) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Require LID practices through use of the VSMP Run-Off Reduction Method¹⁶ for new and re-development projects • Use nonstructural BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements • Require use of open space protection as an LID practices (e.g. buffers) in a local adopted watershed restoration, Chesapeake Bay TMDL Action, or Stormwater Management Plan to get additional credit (Activity 422a) (CREDIT GO-GETTERS) | <p style="text-align: center;">Virginia Runoff Reduction Method</p> <p>Developed as a tool that helps localities reach compliance with Virginia’s Stormwater Management Program (VSMP) regulations, the Virginia Runoff Reduction Method (VRRM) employs a three step process that promotes effective stormwater design practices:</p> <ol style="list-style-type: none"> 1. Apply site design practices minimizing imperious cover, grading, & loss of forest cover 2. Apply runoff reduction practices 3. Calculate BMP pollutant removal <p>Additional information and the required corresponding compliance spreadsheets is found in the VRRM guidance.</p> |



iv. Public Maintenance of Regulated Facilities



Virginia Stormwater Management Regulations addressing maintenance and inspection of stormwater facilities and MS4 permitted facilities are eligible for CRS credit. Proper maintenance of facilities managing stormwater runoff aids effective stormwater management.

CRS CREDIT OPPORTUNITIES: Requiring Public Maintenance and Inspection of Stormwater Facilities

CRS ACTIVITIES

Probable Credit, Activity 452a, Stormwater Management Regulations (SMR), Public Maintenance & Inspection of Required Compliant Facilities (PUB)
Up to 20 Points, *CRS Manual*, 450-10

Creditable Activities

- Regulations that require the maintenance and inspection of stormwater facilities

Requirements

- Localities must earn credit for both Size of Development Regulated and Design Storms Used in Regulation (above) to be granted any credit for this activity
- Regulations must use one of the PUB Approaches below
- The approach must be required by ordinance or other regulatory authority (proof of past compliance is not sufficient)
- Credit is based on the percentage of the regulated watershed(s) located within the locality

Additional Information (PUB Approaches)

- Yearly inspection of all stormwater management facilities and performance of resulting maintenance; availability of annual inspection and maintenance documentation from responsible owner entity; recourse option of that owner entity to mandate any missed inspection or failed maintenance OR
- In the case that the locality requires new facility owners to allow the locality to inspect and problems are identified, owners must complete related maintenance. If maintenance is not completed, the locality must have authority to perform maintenance and bill the owner OR
- All stormwater management facilities built after regulation was adopted must be deeded to the locality (or stormwater management agency)

Uniform Minimum Credit

- 20 points (maximum credit) for legislative requirements below (9 VAC 25-870-95)

Documentation

- Completed AW-450 worksheet.
- Copy of ordinance with highlighted relevant language
- Permit records that document compliance with the regulations.
- Documentation of areas where regulation applies.

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| <ul style="list-style-type: none"> • Complete stormwater checklist | |
| GOVERNANCE GUIDANCE | |
| 9 VAC 25-870-430 | Small, medium and large MS4s: requires the proper operation and maintenance of all facilities and systems of treatment and control...requires record keeping of all monitoring and maintenance...inspections |
| 9 VAC 25-870-440 | Small, medium, and large MS4s: requires documentation of “the number and nature of enforcement actions, inspections, and public education programs” |
| 9 VAC 25-870-400 | Small MS4s: requires construction inspection and maintenance of BMPs and creation of a operation and maintenance program for all municipal operation systems. |
| 9 VAC 25-870-112 | VSMP authorities must require the long-term and enforceable maintenance of permanent stormwater management facilities |
| 9 VAC 25-870-200 | VSMP requires minimum annual inspection of stormwater management facilities. Inspection is also required after storms that impact spillway capacity. Inspection reports must be “maintained as part of the land disturbance project file” |
| 9 VAC 25-870-95 | Required inspection and maintenance plan identifying owner and responsible party for all stormwater management facilities |
| 9 VAC 25-870-116 | VSMP authorities may incorporate public notice and comment periods related to enforcement actions for stormwater management facilities, but they are not required |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Complies with minimum state stormwater regulations • Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Provides proper functioning of stormwater system and reduces risk of overloading locality stormwater capacity • Provides property protection to adjacent or nearby properties • Protects health, safety and welfare of citizens (hazard mitigation) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Continue to enforce and comply with state regulations for maximum credit | |



B. WATERSHED MASTER PLANNING

Credit is available for planning the management of new development in a watershed. Strong watershed master planning equips a locality with a decision making tool that can be referred to when evaluating the watershed-wide impact of development. Plans should analyze the drainage impact on the watershed from both existing and anticipated development. At a minimum, watershed master plans must “address the regulatory standards for new development.”¹⁷ Plans that evaluate and plan for future conditions and storms, identify wetlands and other natural areas, work to protect natural channels, and include a dedicated source of funding for implementing the plan should receive additional CRS credit.

The *CRS Manual* likens watershed master plans to capital improvement and other community plans. In Virginia, many localities must

participate in the Chesapeake Bay Total Maximum Daily Load (TMDL) program, which requires master planning through the form of Watershed Master Plans, Chesapeake Bay TMDL Action Plans, or Watershed Implementation Plans. The 2013 Draft Stormwater Management Handbook also recommends incorporating stormwater management into a comprehensive watershed planning process. With minimal revisions, the content of these existing plans may receive CRS credit under this activity.

Localities interested in receiving credit for existing plans as a Watershed Master Plan must provide evidence that they sufficiently cover stormwater management and meet the requirements under Activity 452b. These plans may count for credit in other CRS activities as well, such as Activity 512c (Natural Floodplain Functions Plan) and Activity 512a (Floodplain Management Planning).

Watershed Master Plan Examples

- **Natural Floodplains Functions Plan**
- **Habitat Conservation Plan**
- **Green Infrastructure Plan**
- **Hazard Mitigation Plan**
- **Stormwater Master Plan**
- **Comprehensive Plan**
- **Capital Improvement Plan**
- **TMDL Action Plans**
- **TMDL Watershed Implementation Plans**
- **Regional or local Watershed Restoration Plans**

CRS CREDIT OPPORTUNITIES: Practicing Watershed Master Planning in Stormwater Management

CRS ACTIVITIES

Probable Credit, Activity 452b, Watershed Master Plan (WMP)
Up to 315 points, *CRS Manual*, 450-14

Creditable Activity

- A Watershed Master Plan that guides stormwater management regulations

Requirements

- The locality must adopt a plan for at least 1 watershed draining into the locality. The plan must identify natural and constructed drainage systems and channels

- The locality must adopt regulatory standards based on the watershed master plan AND receive credit under Stormwater Management Regulations (Activity 452a) for those standards
- The plan must manage future peak flows so they remain at or below present levels
- The plan must require runoff management from at least all storms up to and including the 25-year-storm
- Plans older than 5 years must be evaluated to ensure data and runoff planning is compatible with current conditions. Plans must be updated when necessary

Additional Information

- Credit is based on the percentage of the regulated watershed(s) located within the locality (but if the whole watershed is covered by a region-wide plan, higher credit should be available)
- Plans with a dedicated funding source for implementing watershed master plans get extra credit. Examples of funding sources include: stormwater utilities, drainage district fees, real estate excise tax, etc
- Plans prohibiting development in upland wetlands, floodplains, or other ‘natural’ open space areas important for stormwater conveyance or storage receive higher credit
- Plans managing runoff from long-duration storms; the larger the storm used, the more credit is available
- The lower the amount of downstream flood peaks and runoff volume and the greater discharge retention or detention, the more credit is available
- Plans covering land outside the regulatory floodplain and/or nonpoint source pollution are eligible to receive credit under Natural Floodplain Functions Plan (Activity 512c)
- Watershed Master Plans are required for a Class 4 rating or better

Documentation

- Completed AW-450 worksheet.
- Cover, copies of pages of plan that shows items to be credited, & documentation of plan adoption.
- Documentation that the plan is current.

| GOVERNANCE GUIDANCE | |
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| Va. Code § 62.1-44.15:28 | Regulations shall “establish statewide standards for stormwater management...allow for the consolidation in the permit of a comprehensive approach to addressing stormwater management and erosion and sediment control” |
| 9 VAC 25-870-10 | A comprehensive stormwater management plan “specifies how the water quality components...of stormwater are to be managed on the basis of an entire watershed or a portion thereof. The plan may also provide the remediation of erosion, flooding, and water quality and quantity problems caused by prior development.” |
| 9 VAC 870-92 | “A locality’s VSMP authority may develop comprehensive stormwater management plans to be approved by the department that meet the water quality objectives...” |

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| 9 VAC 25-870-99 | Regional (Watershed-Wide) Stormwater Management Plans: acknowledgment of watershed-wide planning |
| VA Stormwater Handbook (Draft 2013) Appendix 5-B | Promotes the development of watershed-scale stormwater management plans, providing several local case studies as examples from other localities. |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May help achieve Comprehensive Plan goals • Supports watershed-wide / cross-jurisdictional planning and promotes a unified approach, creating consistency and effectiveness in stormwater management efforts • Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Reduces risk of overloading locality stormwater capacity • Encourages flood protection • Protects health, safety and welfare of citizens (hazard mitigation) • Helps lower costs - fewer facilities, lower operation and maintenance costs, concentration of funding, cost sharing arrangements (Stormwater Handbook Draft Appendix 5-B-5) • Increases chance that downstream impacts are addressed (Stormwater Handbook Draft Appendix 5-B-6) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Employ a comprehensive watershed plan using a multi-departmental / multi-locality approach that can identify and prioritize projects with co-benefits that result in shared implementation costs and resources • Include elements of a Natural Floodplain Functions Plan in the Watershed Master Plan for additional credit (Activity 512c) (CREDIT GO-GETTERS) • If applicable, review Chesapeake Bay compliance planning for TMDLs (Action Plans or WIPs) to determine eligibility for Watershed Master Planning credit • Review credit criteria for Activity 332a to earn credit for public outreach initiatives during the planning process (CREDIT GO-GETTERS) • Comprehensive watershed restoration plans and mapping are encouraged through the 2013 Draft Stormwater Management Handbook (Activity 452b). Localities should adopt this comprehensive mapping approach to improve accuracy of credit calculation and higher points • Virginia policy recommends adopting a watershed master planning approach - refer to the 2013 VA Stormwater Management Handbook Draft Appendix 5B for more information on watershed master planning in Virginia | |



C. EROSION AND SEDIMENT CONTROL



Credit can be awarded for Erosion and Sediment Control measures that regulate activities within a watershed to minimize soil erosion for the purpose of water quality. Virginia already receives 30 points of Uniform Minimum Credit for this activity, which is almost the maximum number of points available. All localities in Virginia will receive this credit when joining the Community Rating System if permits, plans, and field verification prove that the locality enforces the regulations within its jurisdiction. To receive maximum credit, the size of regulated development must decrease to a maximum of 1,000 square feet. Both the statewide erosion and sediment control regulations and the Chesapeake Bay Preservation Act regulations earn the same amount of CRS credit.

| CRS CREDIT OPPORTUNITIES: Regulating Erosion and Sediment Control | |
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| CRS ACTIVITIES | |
| Probable Credit, Activity 452c, Erosion and Sediment Control (ESC) Up to 40 points, <i>CRS Manual, 450-18</i> | |
| <u>Creditable Activities</u> <ul style="list-style-type: none"> Regulations that manage the impact of construction and other activities on erosion and sediment loads in a locality | |
| <u>Requirements</u> <ul style="list-style-type: none"> All construction sites are subject to the regulations and regulations must apply to the entire locality Credit varies based on the size of development regulated | |
| <u>Uniform Minimum Credit</u> <ul style="list-style-type: none"> 30 points are available to localities that provide evidence that the state’s erosion and sediment control regulations are enforced. To reach the maximum of 40 points allowable in this activity, localities would have to regulate all development greater than 1,000 square feet. | |
| <u>Documentation</u> <ul style="list-style-type: none"> Completed AW-450 worksheet. Copy of the adopted ordinance with designated official responsible for enforcement highlighted. Make available permit records that demonstrate compliance (may be requested) | |
| GOVERNANCE GUIDANCE | |
| Code of Va. § 62.1-44.15:51 | Virginia Erosion and Sedimentation Control Law regulates land-disturbing activities of 10,000 square feet or greater of 2,500 square feet or greater in areas subject to the Chesapeake Bay Preservation Area Designation and Management Regulations. The law requires that all localities must adopt ESC programs consistent |

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| | with the state program. |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Complies with minimum state regulations • Enhances community character (ecosystem services) • Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Reduces risk of overloading locality stormwater capacity • Provides property protection to adjacent or nearby properties • Protects health, safety and welfare of citizens (hazard mitigation) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Continue to enforce and comply with state regulations for continued credit • Regulate erosion and sediment control for land-disturbing activities of 1,000 square feet or more to reach the maximum credit of 40 points | |



D. WATER QUALITY REGULATIONS



Localities may receive CRS credit for regulations that improve water quality. Most often, this includes regulations that require best management practices to improve the water quality of stormwater runoff. Water quality regulations do not, however, include the crediting of required BMPs for construction or permitting purposes.

The CRS's Uniform Minimum Credit program rewards a maximum of 20 points for water quality regulations, provided localities meet the required criteria. To earn the credit, Virginia localities must show proof of enforcement of ordinances that require best management practices for water quality and development plans demonstrating implementation. UMC provides 20 points (the maximum available for this activity) for the enforcement of the National Pollutant Discharge Elimination System (NPDES), which all states must administer through their stormwater regulations. In Virginia, the Virginia Pollutant Discharge Elimination System (VPDES) administers the NPDES program through the VSMP and MS4 permitting. Localities should receive UMC credit for administering and enforcing this state program.

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| CRS CREDIT OPPORTUNITIES: Best Management Practices (BMPs) for Water Quality | |
| CRS ACTIVITIES | |
| Probable Credit, Activity 452d, Water Quality Regulations (WQ) Up to 20 points, <i>CRS Manual</i> , 450-20 | |
| Creditable Activities | |
| <ul style="list-style-type: none"> • Regulations that require the use of best management practices to improve water quality in watersheds | |

Requirements

- Regulations must be implemented throughout the entire locality
- A locality’s stormwater management regulations must include at least one BMP or reference a list of BMPs published “[in an official government reference](#)”,¹⁸
- Localities must prove that stormwater management facilities are required to use best management practices for new development. The Virginia VPDES program general and individual permits for MS4 systems requires the use of best management practices.¹⁹ Additionally, small and large construction activity must also implement best management practices for stormwater discharge control.²⁰

Additional Information

- Localities cannot receive credit for including water quality or reduction of pollution in the purpose section of its regulations

Uniform Minimum Credit

- Virginia localities should receive the full 20 points for Water Quality regulations (Activity 452d) for enforcing the VPDES/MS4 program

Documentation

- Completed AW-450 worksheet.
- Adopted ordinance that requires BMPs to improve water quality. (Required by VA Regulations)
- Permit records that demonstrate enforcement.

GOVERNANCE GUIDANCE

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| Code of Va. §62.1-44.15:25 | General authority granted to the State Water Control Board to regulate and control stormwater runoff. |
| Code of Va. §62.1-44.15:28 | VSMP regulations shall “provide for reciprocity with programs in other states for the certification of proprietary best management practices” |
| 9 VAC 25-880-70 | Regulations for the General VPDES permits for stormwater discharges from construction activities requires that stormwater pollution prevention plans include “spill prevention control and countermeasure plan...or best management practice programs” |
| 9 VAC 25-890-30 | Regulations for the General VPDES permit for discharges of stormwater from MS4 facilities require that operators submit a MS4 Program Plan that includes “a list of best management practices (BMPs) that the operator proposes to implement for each of the stormwater minimum control measures and their associated measureable goals.” |
| 9 VAC 25-870-63 | Minimum design criteria and statewide standards for stormwater management and water quality – standards for new or re-development |
| 9 VAC 25-870-380 | Applications for “stormwater discharges associated with large and |

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| | small construction activity” must include “proposed measures, including best management practices, to control pollutants in stormwater discharges during construction” |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May help achieve Comprehensive Plan goals • Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks) • Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Reduces risk of overloading locality stormwater capacity • Protects health, safety and welfare of citizens (hazard mitigation) • Provides property protection to adjacent or nearby properties <p>Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, reuse rainwater, recharging aquifers, creating attractive landscape designs, habitat creation, etc.)</p> | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Continue to enforce and comply with state regulations for maximum credit • Use nonstructural BMPs and BMPs that promote open space preservation as a tool to meet MS4 and Bay TMDL requirements • Although the CRS does not discuss nonpoint pollution in detail, a strong program regulating nonpoint sources of pollution will be credited under the Water Quality activity (though no additional credit is available) | |

E. DRAINAGE SYSTEM MAINTENANCE

Maintenance programs for stormwater drainage systems can earn CRS credit. This activity aims to eliminate debris from locality channels and storage basins. Localities must map the natural channels and structural elements of the drainage system, create and follow written procedures, and perform annual drainage system inspections. There are several sub-elements to this activity, reviewed in the following sections.

i. Drainage System Maintenance Prerequisites

To earn credit, all activities described below must meet the following criteria in addition to those listed for each activity. Refer to the [CRS Coordinator’s Manual](#) for more detail on prerequisites in this section, beginning on page 540-1.

Prerequisites for Drainage System Maintenance

- Annual inspections (in addition, inspections upon complaint, and after major storm) of the entire locality conveyance system and/or storage basins
- Operations and maintenance of drainage system may be provided by locality, non-federal agency, regional district, or private property owner (written procedures required)
- Programs relying on unsecured outside funding are not credited
- Programs must be compliant with “applicable federal environmental and historic preservation laws and executive orders”²¹
- Special restrictions on facilities or portions of drainage system must be included in locality’s procedures

Note: ownership of the stormwater system can vary. If ditches are owned and maintained by the Virginia Department of Transportation or a private party, localities must obtain the required information from that entity to earn credit for the respective portions of the drainage system.

Drainage System Maintenance Sub-Elements

- **Channel Debris Removal (CDR)**
- **Problem Site Maintenance (PSM)**
- **Capital Improvement Program (CIP)**
- **Stream Dumping Regulations (SDR)**
- **Storage Basin Maintenance (SBM)**
- **Coastal Erosion Protection Maintenance (EPM)**

| CRS CREDIT OPPORTUNITIES: Drainage System Maintenance | |
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| Prerequisites | |
| CRS ACTIVITIES | |
| Section 540, Drainage System Maintenance (DSM) <i>CRS Manual, 540-1</i> | |
| <u>Creditable Activities</u> | |
| <ul style="list-style-type: none"> • Drainage system maintenance | |
| <u>Requirements</u> | |
| <ul style="list-style-type: none"> • Must meet Drainage System Maintenance prerequisites, above • See subsequent sections for more detail below | |
| <u>Documentation</u> | |
| <ul style="list-style-type: none"> • Documentation varies for each element | |
| GOVERNANCE GUIDANCE | |
| Code of Va. §62.1-44.15:28: | Stormwater management regulations must include inspection, reporting, and compliance |
| 9 VAC 25-870-200: | VSMP requires minimum annual inspection of stormwater management facilities; inspection is also required after storms that impact spillway capacity; inspection reports must be maintained in project file |

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| Code of Va. §§ 21-292; 21-330 | In the creation of a circuit court established drainage district or project, a drainage map of a district must be completed |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Reduces risk of overloading locality stormwater capacity • Protects health, safety and welfare of citizens (hazard mitigation) • Reduces flooding and the associated damages and liability • Encourages use of existing drainage maps • Encourages consistent administrative procedures which is helpful during staff turnover • Helps with pest control (mosquitos associated with standing water) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Most localities likely already meet the criteria for this activity based on the requirements of the VSMP. In order to earn the credit, ensure that the prerequisites are met (mapping, written procedures, annual inspections, etc.) • Although the creation of a drainage map is not expressly required by state law, many localities elect to generate maps that may meet the prerequisite requirements • If a component of the system is not owned by the locality, obtain the necessary documentation from the owner (e.g., VDOT) to earn credit • Communicate to public the benefits of stormwater system maintenance, including mosquito control, to garner public support of revenues for maintenance | |



ii. Channel Debris Removal

Programs that require regular inspection of drainage channels and removal of debris impeding the flow of water are eligible for CRS credit. Debris removal must also be conducted in response to complaints and after storm events. This ensures that channels remain open and allow water to flow freely, keeping water out of developed areas where it can cause damage.

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| CRS CREDIT OPPORTUNITIES: Removal of Debris from Stormwater Channels |
| CRS ACTIVITIES |
| Potential Credit, Activity 542a, Channel Debris Removal (CDR) Up to 200 points, CRS Manual, 540-5 |
| <p>Creditable Activities</p> <ul style="list-style-type: none"> • Locality regulations or policies that require the regular and emergency maintenance of watershed channels |

Requirements

- Must meet Drainage System Maintenance prerequisites, above
- Maintenance must occur in response to complaints and after major storms
- Locality must provide a map and a complete inventory of conveyance system with labeled structures/segments of drainage system (length of segments can be determined by the locality)
- Inspection and maintenance procedures must be in written form, recorded and maintained until the following visit

Documentation

- Copy of procedures for regular inspection and debris removal.
- Labeled map and complete inventory of conveyance system.
- Example Inspection records demonstrating compliance.
- Completed 540/620 Environmental Compliance worksheet.

GOVERNANCE GUIDANCE

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|--------------------------------|--|
| Code of Va. §62.1-44.15:28: | Stormwater management regulations must include inspection, reporting, and compliance |
| 9VAC25-870-200: | VSMP requires minimum annual inspection of stormwater management facilities; inspection is also required after storms that impact spillway capacity; inspection reports must be maintained in project file |
| Code of Va. §§ 21-292; 21-330: | In the creation of a circuit court established drainage district or project, a drainage map of a district must be completed |

CO-BENEFITS

- Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Reduces risk of overloading locality stormwater capacity
- Protects health, safety and welfare of citizens (hazard mitigation)
- Reduces flooding and the associated damages and liability
- Encourages use of existing drainage maps
- Encourages consistent administrative procedures which is helpful during staff turnover
- Helps with pest control (mosquitos associated with standing water)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Most localities likely already meet the criteria for this activity based on the requirements of the VSMP. In order to earn the credit, ensure that the prerequisites are met (mapping, written procedures, annual inspections, etc.)
- Although the creation of a drainage map is not expressly required by state law, many localities elect to generate maps that may meet the prerequisite requirements

- If a component of the system is not owned by the locality, obtain the necessary documentation from the owner (e.g., VDOT) to earn credit
- Communicate to public the benefits of stormwater system maintenance, including mosquito control, to garner public support of revenues for maintenance



iii. Problem Site Maintenance



Credit is provided for programs that recognize common problem areas within the drainage system and identify those areas for more frequent inspections. Problem areas that are frequently clogged can exacerbate drainage and flooding problems; keeping them clear will reduce potential damages and inconvenience.

| CRS CREDIT OPPORTUNITIES: Maintenance of Stormwater Problem Sites |
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| CRS ACTIVITIES |
| Potential Credit Activity 542b, Problem Site Maintenance (PSM) Up to 50 points, <i>CRS Manual, 540-11</i> |
| <p>Creditable Activities</p> <ul style="list-style-type: none"> • Procedures to identify and fix common problem sites within the stormwater drainage and conveyance system <p>Requirements</p> <ul style="list-style-type: none"> • Must meet Drainage System Maintenance prerequisites, above • Written procedures and documentation for how to identify and address problem sites <p>Documentation</p> <ul style="list-style-type: none"> • Copy of procedures that explain the special inspection and maintenance plans for problem areas. • Copies of records showing frequency of inspections and maintenance performed. <p>NOTE: Localities have a responsibility to avoid nuisance claims by identifying sites that could potentially pose a problem and taking steps to remedy the problem. See Livingston v. VDOT for additional information on how a local government was held accountable for failing to identify the risk associated with re-directing a waterway after homeowners suffered losses because of the re-direction.²²</p> |
| GOVERNANCE GUIDANCE |
| There is no express requirement to identify problem sites, but it is likely a component of existing locality processes. |
| CO-BENEFITS |
| <ul style="list-style-type: none"> • Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) |

- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Reduces risk of overloading locality stormwater capacity
- Protects health, safety and welfare of citizens (hazard mitigation)
- Reduces flooding and the associated damages and liability
- Encourages use of existing drainage maps
- Encourages consistent administrative procedures which is helpful during staff turnover
- Helps with pest control (mosquitos associated with standing water)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Encourage HOAs to fulfill their requirement to maintain all BMPs and require written procedures as well as documentation of annual inspection and maintenance
- Work with local civic or neighborhood clean up groups and know when stream or other debris clean ups are scheduled for documentation
- Most localities likely already meet the criteria for this activity based on the requirements of the VSMP. In order to earn the credit, ensure that the prerequisites are met (mapping, written procedures, annual inspections, etc.)
- Although the creation of a drainage map is not expressly required by state law, many localities elect to generate maps that may meet the prerequisite requirements
- If a component of the system is not owned by the locality, obtain the necessary documentation from the owner (e.g., VDOT) to earn credit
- Communicate to public the benefits of stormwater system maintenance, including mosquito control, to garner public support of revenues for maintenance



iv. Capital Improvements Program

Credit may be awarded for a Capital Improvement Program that designates funds for structural changes to permanently improve problem sites within the locality’s drainage system. Many localities have Capital Improvement Programs that could qualify for credit. Credit is not provided for funding regular maintenance.

CRS CREDIT OPPORTUNITIES: Identifying Drainage Projects in Capital Improvement Programs

CRS ACTIVITIES

Potential Credit, Activity 542c, Capital Improvement Program (CIP)
Up to 70 points, *CRS Manual, 540-13*

Creditable Activities

- An implemented Capital Improvement Program that provides funds to address problem sites in the drainage system

Requirements

- Must meet Drainage System Maintenance prerequisites, above

- Funded projects must be identified in the prerequisite maintenance procedures and must be inspected and maintained regularly
- The locality must have a master list of problem sites for selection under the capital improvement program
- The locality must spend money on drainage projects, in general – shows commitment to issue

Additional Information

- An engineering analysis must be completed that shows the drainage problem and solution, using 1%-annual-chance flood as baseline

Documentation

- Documentation of an ongoing program to improve the community's drainage network including: a master list of problem sites with suggested correction measures, documentation that funds are spent on improvement projects every year, engineering analysis for projects.

GOVERNANCE GUIDANCE

Code of Va. § 15.2-2239

PDCs may and local governments must prepare and revise a capital improvement program based on the comprehensive plan of the locality every 5 years.

CO-BENEFITS

- Enhances existing Capital Improvement Programs
- May help achieve Comprehensive Plan goals
- Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Reduces risk of overloading locality stormwater capacity
- Protects health, safety and welfare of citizens (hazard mitigation)
- Reduces flooding and the associated damages and liability
- Encourages use of existing drainage maps
- Encourages consistent administrative procedures which is helpful during staff turnover

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Review existing Capital Improvement Programs for credit eligibility
- Consider incorporating creditable activities into a future Capital Improvement Program update
- If possible, ensure that Capital Improvement Programs provide funds for correcting problematic sites, not just regular stormwater maintenance
- Implement drainage projects identified in the Capital Improvement Program for additional credit (Activity 532) (CREDIT GO-GETTERS)



v. Stream Dumping Regulations

Regulations that prohibit dumping debris into stormwater conveyance channels, streams, culverts, storm drains, etc. may earn CRS credit. The regulations must be locality-wide (not just in the floodplain), must be more specific than general litter or nuisance language, and cannot be solely for the purpose of water quality. Such regulations reduce the amount of debris put into drainage channels, resulting in better water flow that reduces flood risk.

| CRS CREDIT OPPORTUNITIES: Prohibition of Dumping in Stormwater System | |
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| CRS ACTIVITIES | |
| Probable Credit, Activity 542d, Stream Dumping Regulations (SDR) Up to 30 points, CRS Manual, 540-16 | |
| Creditable Activities | |
| <ul style="list-style-type: none"> Regulations that prohibit the dumping of materials into a locality’s stormwater system | |
| Requirements | |
| <ul style="list-style-type: none"> Must meet Drainage System Maintenance prerequisites, above Regulations must prohibit dumping debris in to the drainage system | |
| Additional Credit | |
| <ul style="list-style-type: none"> Publicized information on regulatory requirements prohibiting stream dumping. Examples: Public notice, signs, outreach projects (Activity 332), etc. | |
| Documentation | |
| <ul style="list-style-type: none"> Adopted ordinance with SDR language clearly marked. Copy of public advertisement. For extra PPI credit only: annual report on effectiveness of these efforts and how they can be improved. | |
| GOVERNANCE GUIDANCE | |
| Code of Va. § 62.1-194.1 | It is unlawful for any person to dump any object or substance on the banks or in the channels of any state waters, including all surface and ground waters within the state |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> May help achieve Comprehensive Plan goals Complies with minimum state stormwater regulations Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) Helps achieve water quality requirements and goals (e.g., TMDLs) Reduces risk of overloading locality stormwater capacity Provides property protection to adjacent or nearby properties Protects health, safety and welfare of citizens (hazard mitigation) | |

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Enact an ordinance that prohibits dumping any debris into or near any stormwater conveyance channels, streams, culverts, storm drains, etc. for the purpose of reducing flooding, protecting water quality, and ensuring proper functioning of the drainage system
- Distribute materials to the community related to keeping leaves, grass clippings, shopping carts, litter, etc. out of the storm drains to get credit (Activity 332a) (CREDIT GO-GETTERS)



vi. *Storage Basin Maintenance*

CRS credit may be awarded for policies for annual inspections and maintenance of storage basins (public or private) within the locality stormwater system. Regular inspections and maintenance ensure that the storage basins continue to function properly.

CRS CREDIT OPPORTUNITIES: Maintenance of Stormwater Storage Basins

CRS ACTIVITIES

Potential Credit, Activity 542e, Storage Basin Maintenance (SBM)
Up to 120 points, CRS Manual, 540-18

Creditable Activities

- Regulations or policies that require the annual maintenance of storage basins for stormwater management

Requirements

- Must meet Drainage System Maintenance prerequisites, above
- Locality must receive SZ and PUB credit in Activity 452a (see [Stormwater Management Regulations](#))
- Inspection, maintenance, and recordation of storage basins must occur once a year, upon receipt of a complaint, and after each major storm
- Map and inventory of public and private storage basins

Documentation

- Documentation of inspection and maintenance procedures.
- Map and inventory of all public and private storage basins.
- Permit records that demonstrate compliance.
- Completed 540/620 Environmental Compliance worksheet.
- Copies of state and federal permits.

GOVERNANCE GUIDANCE

9 VAC 25-870-112

VSMP authorities must require the long-term and enforceable maintenance of permanent stormwater management facilities

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| 9 VAC 25-870-200 | VSMP requires minimum annual inspection of stormwater management facilities. Inspection is also required after storms that impact spillway capacity. Inspection reports must be “maintained as part of the land disturbance project file” |
| 9 VAC 25-870-95 | Required inspection and maintenance plan identifying owner and responsible party for all stormwater management facilities. |
| 9 VAC 25-870-116 | VSMP authorities may incorporate public notice and comment periods related to enforcement actions for stormwater management facilities, but they are not required. |
| | NOTE: Like all private businesses, all Home Owners Associations are required to maintain BMPs located within the boundaries of the neighborhood, but many HOAs are unaware of this requirement and fail to maintain BMPs. |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.) • Helps achieve water quality requirements and goals (e.g., TMDLs) • Reduces risk of overloading locality stormwater capacity • Protects health, safety and welfare of citizens (hazard mitigation) • Reduces flooding and the associated damages and liability • Encourages use of existing drainage maps • Encourages consistent administrative procedures which is helpful during staff turnover • Helps with pest control (mosquitos associated with standing water) | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Encourage HOAs to fulfill their requirement to maintain all BMPs and require written procedures as well as documentation of annual inspection and maintenance • Work with local civic or neighborhood clean up groups and know when stream or other debris clean ups are scheduled for documentation • Most localities likely already meet the criteria for this activity based on the requirements of the VSMP. In order to earn the credit, ensure that the prerequisites are met (mapping, written procedures, annual inspections, etc.) • Although the creation of a drainage map is not expressly required by state law, many localities elect to generate maps that may meet the prerequisite requirements • If a component of the system is not owned by the locality, obtain the necessary documentation from the owner (e.g., VDOT) to earn credit • Communicate to public the benefits of stormwater system maintenance, including mosquito control, to garner public support of revenues for maintenance | |



F. STRUCTURAL FLOOD CONTROL AND DRAINAGE PROJECTS



The CRS program credits flood control and drainage projects for their ability to protect insurable buildings from flooding. Common projects include channel modifications, enlarging bridges and culverts, storm drain improvements, stream diversions, and creating retention and detention basins.²³ Note: if a Capital Improvement Program provides dedicated funding for these projects, the Program can potentially receive credit under Activity 542c, [Capital Improvements Program](#). Additional information can be found in the [CRS Coordinator's Manual](#), beginning on page 530-2.

Several types of projects are excluded from credit; these are reviewed on pages 530-4 to 530-5.

The majority of projects credited under this activity are structural. However, nature-based projects, such as living shorelines, may also receive credit in this section if they meet the criteria. [Natural Stormwater Solutions](#) discusses natural flood control projects in more detail.

Structural Flood Control and Drainage Project Examples

- Channel modifications
- Bridges and culvert enlarging
- Stream diversions
- Retention basins
- Detention basins

| CRS CREDIT OPPORTUNITIES: Reducing Flood Damage through Structural Projects | |
|---|---|
| CRS ACTIVITIES | |
| Potential Credit, Activity 532, Flood Protection, PB(R): TUB (Barriers) Up to 1,000 points, <i>CRS Manual, 530-6</i> | |
| <p>Creditable Activity</p> <ul style="list-style-type: none"> • Small scale flood control projects that protect insurable buildings (*large scale projects are not creditable) <p>Requirements</p> <ul style="list-style-type: none"> • Projects must protect to at least the 25-year-flood and designs must be signed by a registered design professional • Must protect insurable buildings in the regulatory floodplain or repetitive loss buildings that have not been otherwise protected through building codes or other mitigation projects • Must be maintained • Must be located entirely on the property of the structure it is meant to protect and protect the entire shoreline – no openings • Must maintain the same level of flood protection even with increased development <p>Additional Information</p> | <p>Large Scale Flood Protection</p> <p>If a large project reduces flood risk, a new FIRM would show reduced BFEs. This reduces flood insurance rates automatically for affected properties, so CRS credit is not awarded.</p> |

- Credit is applicable to pre-FIRM structures or those built before the most recent map update where the base flood elevation increased (e.g. a structure built to an old base flood elevation could be credited if it were elevated to the new base flood elevation)
- Additional credit is provided for protecting critical facilities, repetitive loss structures, and Severe Repetitive Loss structures
- If funding for the project came from FEMA’s Flood Mitigation Assistance program, credit is reduced to 25%
- Projects completed in response to NFIP regulations are not applicable (e.g. a substantially damaged or improved structure brought up to code)
- Total credit is determined by the level of flood protection provided by each project and in some cases by the number of protected structures compared to the number of structures in the SFHA

Documentation

- A list and map showing all buildings for which credit is being requested.
- Copies of completed AW-530 worksheets and Elevation Certificates (documenting compliance for elevation projects), as appropriate.
- Level of flood protection before and after projects.
- Calculations for total number of buildings in regulatory floodplain (when using credit calculation option 2).
- Documentation showing floodplain regulations apply to areas outside of regulatory floodplain, if applicable.
- A copy of the CLOMR submitted to FEMA, if applicable.
- Documentation of the implementation date for each project.

CO-BENEFITS

- Helps achieve local stormwater management requirements and goals (e.g., runoff reduction)
- Reduces risk of overloading locality stormwater capacity
- Provides property protection to adjacent or nearby properties
- Protects health, safety and welfare of citizens (hazard mitigation)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Incorporate funding for structural flood control and drainage projects into a Capital Improvement Program to get credit for both the program and the projects (Activities 540c and 530) (CREDIT GO-GETTERS)
- If applicable, use nonstructural BMPs to improve water quality for structural projects
- Track all private and public projects for documentation



G. NATURAL STORMWATER SOLUTIONS

Localities can receive CRS credit for implementing natural solutions to stormwater management. Typically, stormwater systems include structural man-made components, such as drainage channels, culverts, and pipe systems. These man-made systems can lead to degradation of water quality in our rivers, bays, and oceans. Natural approaches to stormwater management offer a solution to these damaging structural practices. As reviewed below, some natural solutions are more easily and readily credited than others.



i. Open Space



Open space is a highly effective method of stormwater and floodplain management and a high CRS credit earner. Open space improves water quality and supports implementation of Chesapeake Bay TMDL action plans, while providing natural stormwater attenuation. Open space reduces the need for structural stormwater management projects and reduces flooding.



CRS CREDIT OPPORTUNITIES: Managing Stormwater through Open Space

CRS ACTIVITIES

Potential Credit, Activity 422a, Open Space Preservation (OSP)
Up to 1,450 points, CRS Manual, 420-3

Creditable Activities

- BMPs that restrict development may qualify for open space credit for the protected acreage

Requirements

- Land must be part of the regulatory floodplain as defined by a locality's floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual: development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain
- Existing buildings necessary for the prescribed use of the land are acceptable on parcels greater than 10 acres
- Impervious surfaces must be subtracted from the credited acreage (except for trails/sidewalks)

- Additional credit is available if the land is preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

Potential Credit, Activity 422c, Natural Functions Open Space (NFOS)
 Up to 350 extra credit points, *CRS Manual, 420-13*

Creditable Activities

- Prohibiting development in areas that are preserved in or restored to their natural state in an effort to manage stormwater

Requirements

- Land must qualify for Open Space Preservation credit
- Land must be managed to retain its natural state
- Land must be in an undeveloped/natural state or restored to a natural state (areas designated as worthy of preservation by a federal or state public program or nationally-recognized private program typically qualify)

Additional Information

- Additional credit is available for land designated in a Natural Floodplain Functions Plan (Activity 512c), if land is designated critical habitat, if land is part of a planned open space corridor, and if educational materials are provided
- Credit is determined by the ratio of the area of open space to the area of the regulatory floodplain

Documentation

- Documentation of OSP credit is a prerequisite.
- A plan, report, or letter prepared by a qualified agency or professional describing the natural floodplain functions.
- Formal adoption actions must be documented.
- The impact adjustment map used for OSP credit must also indicate the areas where NFOS applies.
- The ISO/CRS Specialist may visit a sample of the sites to verify that the credit criteria are met.

Probable Credit, Activity 422e, Open Space Incentives (OSI)
 Up to 250 points, *CRS Manual, 420-20*

Creditable Activities

- Requirements or incentives to reserve floodplain portions of new developments as open space

Requirements

- Maximum credit is provided if regulations require the regulatory floodplain is left open either as open space or free from obstruction (such as a back yard)
- Reduced credit available for requiring building locations on high ground, transfer of development rights/density bonuses out of the floodplain, cluster development, tax incentives, and land use plans recommending floodplains remain open or sparsely developed

Additional Information

- Credit determined based on the amount of the regulatory floodplain subject to open space incentives (excluding developed areas or parcels already credited as open space)

Documentation

- Copy of the adopted ordinance language that pertains to this credit.
- The impact adjustment map used for OSP credit must also indicate the areas where OSI applies
- The ISO Specialist may look on Google Earth to confirm incentive compliance, where applicable.

Probable Credit, Activity 422f, Low-Density Zoning (LZ) Up to 600 points, *CRS Manual, 420-26*

Creditable Activity

- Use low-density zoning to protect open space and manage stormwater runoff

Requirements

- Lot sizes must be between 5 and 10 acres
- There must be a zoning ordinance that identifies development criteria and densities for different areas

Additional Information

- Credit is based on the area of the regulatory floodplain covered by the low density zoning regulations

Documentation

- Copy of the adopted zoning ordinance language that meets this criteria.
- The impact adjustment map used for OSP credit must also indicate the areas where LZ applies within the SFHA.
- If application is intended for floodprone areas outside of the regulatory floodplain, then documentation is needed for how the scope of the floodplain regulation has been expanded to cover these areas.
- The ISO/CRS Specialist may look at Google Earth to verify that new developments have been constructed in accordance with the required density, or request to see

documentation confirming compliance.

Potential Credit, Activity 422g, Natural Shoreline Protection (NSP)
Up to 120 points, *CRS Manual*, 420-28

Creditable Activities

- If localities restrict development along their shorelines and protect natural water channels in an effort to manage stormwater they could receive credit.

Requirements

- Development, fill, armoring, beach nourishment, dune alteration, etc. must be prohibited

Additional Information

- Shoreline protection regulations subject to a portion of a locality's shoreline can earn some credit
- Credit is based on the length of protected shoreline compared to the locality's entire shoreline length
- Human alterations of natural shorelines only permitted when they improve natural floodplain functions
- These programs can also earn 25 points under Activity 452b, Watershed Master Plan (WMP7)

Documentation

- Copy of regulation or policy.
- For rehabilitation projects, a description of the project must also be submitted.
- Impact adjustment map which indicates shoreline to be credited in addition to all streams, ditches and lake shorelines in the community.
- The ISO/CRS Specialist may look at Google Earth to verify that they qualify for the credit.

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Helps achieve water quality requirements and goals (e.g., TMDLs)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.)
- Promotes open space in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Consider including in the locality land use/comprehensive plan recommendations to reserve flood-prone areas as open space or low-density development (if adopted, credit is available in Activities 422a, 432a, and 422f)
- Request notification from locality Clerk's Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When land is set aside for open space protection, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation's [Managed Conservation Lands Map](#) (Note: federal lands do not qualify for CRS credit)
- Watershed Master Plans that identify upland wetlands or other natural open space areas that should be left undeveloped for stormwater conveyance or storage can be eligible to receive [Watershed Master Planning](#) credit (Activity 452b) (CREDIT GO-GETTERS)
- Create a natural floodplain functions or green infrastructure plan that maps and covers all natural-state open space in the locality (Activity 512c) (CREDIT GO-GETTERS)



ii. *Best Management Practices*



CRS credit may be available for nature-based flood control and drainage projects, though these natural approaches are not well tested in the CRS. Natural stormwater opportunities include stream restoration (day-lighting, urban stream restoration, regenerative stream conveyance, etc.), living shorelines, and other projects completed on a single property that aid flood reduction.

Localities can receive credit for protected land with natural floodplain functions (Activity 422c) by restoring areas located in the regulatory floodplain to their natural, pre-development state and prohibiting development in the restored area. This is credited as open space preservation. For more information on credit for protected areas with natural floodplain functions, see [Open Land Managed in its Natural State](#).

The CRS program offers little guidance on crediting natural stormwater solutions; the program is not designed to provide specific credit to natural approaches to stormwater. However, FEMA and ISO recognize that these methods are often more effective than man-made structural solutions, and will therefore consider them for credit if they meet the required criteria.

Note: Localities utilize many forms of BMPs for stormwater management. Stormwater BMPs are mentioned throughout this report in various sections, which are eligible for credit through different activities. The CRS credits stormwater BMPs specifically in Activity 452a, Stormwater Management Regulations, through the [Water Quality Regulations](#) activity. Virginia already receives full Uniform Minimum Credit for Water Quality Regulations for enforcing VSMP / VPDES / MS4 programs. Localities can receive additional credit for implementing BMPs for

stormwater management through other activities analyzed throughout this report, such as [Living Shorelines](#), [Wetlands Preservation and Mitigation Banks](#), and [Buffers](#).

Note: The CRS only rewards credit for small-scale natural flood protection projects. Large-scale projects often produce significant reduction of flood levels, which should be submitted to FEMA for review because they could reduce base flood elevations and thereby trigger a re-mapping of the area. The CRS does not reward credit for projects that produce broad alterations in FIRMs.

| |
|---|
| CRS CREDIT OPPORTUNITIES: Managing Stormwater and Water Quality through Best Management Practices |
| CRS ACTIVITIES |
| Potential Credit, Activity 532, Flood Protection (barriers, channel modification projects, and buildings protected by a storage facility) Up to 1,000 points, <i>CRS Manual</i> , 530-6 |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • Barriers: Small scale flood control projects that protect insurable buildings (large scale projects are reflected in updated Flood Insurance Rate Maps) • Channel modification projects: Stream restoration projects may be eligible; restoration of a water channel through stream restoration could include reconnecting an urban stream with an existing floodplain to enable more controlled water flow and thereby reduce flooding. Additionally, day-lighting streams may also qualify as a channel modification if the redirection or revival of a stream reduces flood damage. Additional credit may be earned in Activity 422c for open space restored to a natural state, and Activity 422g for a natural shoreline protection program • Storage facilities: Storage facilities may be man-made ponds with natural materials and natural buffers or wetlands (BMPs). These may be eligible for CRS credit, as well as TMDL credit. <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Projects must protect to at least the 25-year-flood and designs must be signed by a registered design professional • Must protect insurable buildings in the regulatory floodplain or repetitive loss buildings that have not been otherwise protected through building codes or other mitigation projects • Must be maintained • Must be located entirely on the property of the structure it is meant to protect and protect the entire shoreline – no openings • Must maintain the same level of flood protection even with increased development <p><u>Additional Information</u></p> <ul style="list-style-type: none"> • Credit is applicable to pre-FIRM structures or those built before the most recent map update if the base flood elevation increased (i.e., a structure built to an old base flood elevation could be credited if it were elevated to the new base flood elevation) • Additional credit is provided for protecting critical facilities, repetitive loss structures, |

and Severe Repetitive Loss structures

- If funding for the project came from FEMA’s Flood Mitigation Assistance program, credit is reduced to 25%
- Projects completed in response to NFIP regulations are not applicable (e.g. a substantially damaged or improved structure brought up to code)
- Total credit is determined by the level of flood protection provided by each project and in some cases by the number of protected structures compared to the number of structures in the SFHA

Documentation

- A list and map showing all buildings for which credit is being requested.
- Copies of completed AW-530 worksheets and Elevation Certificates (documenting compliance for elevation projects), as appropriate.
- Level of flood protection before and after projects.
- Calculations for total number of buildings in regulatory floodplain (when using credit calculation option 2).
- Documentation showing floodplain regulations apply to areas outside of regulatory floodplain as necessary.
- A copy of the CLOMR submitted to FEMA, where appropriate.
- Documentation of the implementation date for each project.

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Works to achieve TMDL goals
- Helps achieve water quality requirements and goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Reduces risk of overloading locality stormwater capacity
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection to adjacent or nearby properties
- Supports green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, reuse rainwater, recharging aquifers, creating attractive landscape designs, habitat creation, etc.)
- Promotes natural infrastructure in hazardous areas, allowing for sea level rise adaptation (migration of coastlines and wetlands)
- May accomplish stormwater management goals for localities without locality funding
- Supports individual homeowner efforts in taking on sustainable landscape design

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Use natural stormwater solutions instead of structural projects where possible to improve water quality, protect habitats, and save money
- Ensure that natural stormwater projects protect against at least the 25-year-storm and

meet the other requirements listed above to earn CRS credit

- Identify stream restoration projects that restore community character and access to green space – site projects to create or enhance parks or greenways and include public information signage (Activities 422a and 332a) (CREDIT GO-GETTERS)
- Track all private and public projects for documentation
- Incorporate funding for structural flood control and drainage projects into a Capital Improvement Program to get credit for both the program and the projects (Activities 540c and 530) (CREDIT GO-GETTERS)



H. OUTREACH PROJECTS

Virginia’s new stormwater management regulations require outreach projects that may be eligible for CRS credit. The new regulations require that small MS4 permits include public engagement, participation, and outreach as a minimum control measure. The chart that follows will review potential credit for outreach projects related to stormwater management. Please refer to [Community Engagement](#) for specific information on Outreach Projects (Activity 332).

CRS CREDIT OPPORTUNITIES: Stormwater Outreach Projects

CRS ACTIVITIES

Probable Credit, Activity 332a, Outreach Projects (OP)

Up to 200 points, *CRS Manual*, 330-6

Creditable Activity

- The locality includes stormwater maintenance information in the yearly mailing discussing flood insurance to properties in at risk areas

Requirements

- Projects must discuss one of 6 flood-related topics (see page 330-4 in the Manual or [Table 3](#)) (this would fall under topic 1— know your flood hazard)
- At least one project must address flood insurance
- Projects can include informational materials, general outreach and presentations, or targeted to specific audiences
- Projects must be conducted on at least an annual basis (use of the app would be ongoing)

Additional Information

- Follow the guidance in the *CRS Manual* (Section 330) for information on topics and delivery methods

Documentation

- Copies of the outreach materials that have been produced and disseminated.
- Time-Saver: Use this [Excel file](#) to track your locality’s outreach across different departments and by various staff. (Coastal VA CRS Workgroup Doc)

- Time-Saver: ISO created an [Excel file](#) that automatically scores each outreach project, giving you an idea of how many credit points your locality could earn.

Probable Credit, Activity 332b, Flood Response Preparations (FRP)
Up to 50 points, *CRS Manual*, 330-9

Creditable Activity

- The locality includes stormwater backup information in its FRP package, which includes outreach materials delivered in the event of a flood/storm

Requirements

- Projects must receive credit in Activity 332a, Outreach Projects (above)
- Projects must be used in response to a flood (if applicable) or reviewed and updated annually

Additional Information

- If flood response projects are not implemented for a flood event, credit will be lost
- If flood response projects are implemented in place of other outreach projects because of a lack of resources, a locality will not lose credit for those outreach projects

Documentation

- Copies of the materials prepared and procedures that explain how they are to be distributed.
- Documentation that the FRP materials were reviewed to determine whether they are still current and appropriate will be required for yearly recertification.

Probable Credit, Activity 332c, Program for Public Information (PPI)
Up to 80 points, *CRS Manual*, 330-12

Creditable Activity

- There are many task force committees that exist for the purpose of raising public awareness of issues related to stormwater management. Examples of relevant committees, if they discuss engaging with the public on stormwater issues are: Watershed Task Force Committees (very common and relied upon in Hampton Roads region of Virginia), Hazard Mitigation Committees, River Task Forces, and other outreach programs or committees formed by non-profit or local government organizations. VA Stormwater Guidance Draft Manual recommends that departments work together to raise public awareness. (Appendix 3-A of the Guidance Draft Manual discusses the potential elements of a comprehensive local stormwater management program and how to synchronize independent but related local requirements into a more cohesive and efficient program delivery system.)

Additional Information

- See details above in [Program for Public Information](#)
- To earn PPI bonus credit for any activity, that activity must be included in the PPI report
- Credit is awarded for implementing recommendations of the PPI report, not the

formation of the PPI committee or report

Documentation

- Copy of the PPI document
- Documentation of PPI committee meetings (e.g. minutes, sign in sheets, etc.).
- Documentation that the PPI has been adopted by the community
- Documentation in the form of a table or spreadsheet that the PPI has been reviewed and updated annually will be required for CRS recertification each year.

Potential Credit, Activity 332d, Delivery (STK)
Up to 50 extra credit points, *CRS Manual, 330-17*

Creditable Activity

- Additional organizations, agencies, businesses, media, schools, etc. involved in engaging in public outreach projects (OP) provide a 30% multiplier to increase OP credit. A collaborative and unified approach to advocating smart stormwater will increase CRS credit

Requirements

- Must have a PPI that identifies relevant stakeholder(s) (see [Program for Public Information](#))
- Must be clear that the message is coming from someone other than the local government

Additional Information

- See [General Public Outreach](#) for more information on eligible outreach projects

Documentation

- All documentation required is supplied with OP and PPI documentation. It should be made clear which projects are delivered by stakeholders and therefore warrant STK credit.

GOVERNANCE GUIDANCE

| | |
|------------------|---|
| 9 VAC 25-870-400 | Small MS4 permits must include public education and outreach on stormwater impacts and public involvement/participation as minimum control measures |
| 9 VAC 25-890-40 | Public Education Outreach Plans must be created for each small MS4 permit |

CO-BENEFITS

- May help achieve Comprehensive Plan goals
- Complies with minimum state stormwater regulations
- Helps achieve local stormwater management requirements and goals (e.g., BMPs, runoff reduction, etc.)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Helps create an informed citizenry

- Engages multiple stakeholders

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- In regions where PDCs provide stormwater management education, floodplain information could be incorporated for CRS credit (Activity 332a)
- Utilize existing a Watershed or Stormwater Task Force Committee as a PPI committee (Activity 332c)
- Work with local civic groups and non-profits to document outreach efforts (Activity 332a)

VII. BUILDING CODES AND MITIGATION

Many CRS activities address changes to insurable buildings and building codes. A building code that is statewide, current, and enforced in your locality earns credit, with additional credit available for standards more stringent than the current or recent versions of the International Codes® (I-Codes). The Virginia Uniform Statewide Building Code (USBC) is based on the I-Codes.

Mitigating existing buildings in SFHAs, including elevation, relocation, retrofitting, and redevelopment can also earn CRS credit. These activities, increasingly common throughout Virginia, are often funded by property owners and provide an excellent opportunity for credit as long as they can be tracked by the locality.



A. UNIFORM STATEWIDE BUILDING CODES



Virginia's USBC, which must be enforced throughout the Commonwealth, currently earns 48 out of 50 possible Uniform Minimum Credit points. The two additional points could be earned if Virginia adopted the International Private Sewage Development Code.



Localities may receive credit once they prove that they enforce the USBC through permit records. If records show incomplete enforcement of the codes, credit may be prorated. To receive full credit, the building code must be enforced by the locality; otherwise prorated credit is available.



B. LOCAL FLOODPLAIN BUILDING CODES

Virginia localities can require stricter standards in the floodplain than those imposed by the state building code; these stricter standards can earn CRS credit. The Code of Virginia states that the

statewide building code shall not supersede “local floodplain regulations adopted as a condition of participation in the National Flood Insurance Program.”²⁴ The most common higher standards and practices adopted in local regulations are reviewed below.

i. Building Code Effectiveness Grading Schedule/International Accreditation Service

The CRS program provides credit based on the Building Code Effectiveness Grading Schedule (BCEGS). The classification is unique to each locality, based on both the building codes in effect in a locality and the locality’s administration of that code. In order to reach a class 6 in the CRS program, a locality must receive a BCEGS classification of 5/5 (5 for residential/personal codes and 5 for non-residential/commercial codes). Such a rating earns 10 points; 20 points for a 4/4, 30 for a 3/3, 40 for a 2/2, and 50 for a 1/1. For more information on the BCEGS, see Activity 432h (Building Codes) on page 430-25 of the *CRS Coordinator’s Manual* or visit the [BCEGS website](#).

If a locality achieves a 5/5 BCEGS rating, it may be eligible for an additional 5 CRS points if the building department is also accredited by the International Accreditation Service, a subsidiary of the International Code Council. More information is available from the [International Accreditation Service website](#).



ii. Freeboard



The most common higher standard affecting buildings in Virginia is the addition of freeboard, which earns localities CRS credit. Freeboard requires the elevation of new or substantially improved structures to a height above the minimum elevation required by the NFIP (i.e., above the base flood elevation). Additionally, freeboard significantly reduces the flood insurance premium of a structure. At the time of publication, several localities in coastal Virginia impose freeboard provisions. A sampling of these localities and their freeboard levels is included in the table below:

Table 1: Freeboard in Coastal Virginia (updated March 2017)

| LOCALITY | SFHA | OUTSIDE SFHA | OTHER HIGHER STANDARDS |
|----------------------|----------|-----------------------------|--|
| Accomack County | 2 Feet | N/A | |
| Cape Charles | 1 Foot | N/A | |
| Chesapeake | 1.5 Feet | N/A | |
| Chincoteague | 2 Feet | N/A | |
| Franklin | BFE | N/A | |
| Gloucester | 2 Feet | N/A | V-Zone standards in the Coastal A-Zone |
| Hampton | 3 Feet | 18” above grade in Shaded X | |
| Isle of Wight County | 1.5 Feet | N/A | |
| James City County | 2 Feet | N/A | V-Zone standards in the Coastal A-Zone |

| | | | |
|-----------------------|----------|-----------------------------|--|
| Lancaster | 1.5 Feet | N/A | A Zone measured from lowest horizontal structural member |
| Mathews County | BFE | N/A | |
| Newport News | 2 Feet | N/A | V-Zone standards in the Coastal A-Zone |
| Norfolk | 3 Feet | 18" above grade in Shaded X | V-Zone standards in the Coastal A-Zone |
| Northumberland County | 2 Feet | N/A | |
| Poquoson | 3 Feet | N/A | |
| Portsmouth | 3 Feet | N/A | V-Zone standards in the Coastal A-Zone |
| Richmond | 1 Foot | N/A | |
| Roanoke | 2 Feet | N/A | |
| Southampton County | 1 Foot | | |
| Suffolk | BFE | N/A | |
| Virginia Beach | 2 Feet | N/A | Southern region of City designated as "Floodplain Subject to Special Restrictions": 5% fill restriction for all land disturbance |
| Williamsburg | BFE | N/A | |
| York County | 3 Feet | N/A | V-Zone standards in the Coastal A-Zone |

CRS CREDIT OPPORTUNITIES: Adopting a Freeboard Provision for the Floodplain

CRS ACTIVITIES

Probable Credit, Activity 432b, Freeboard (FRB)
Up to 500 points, *CRS Manual*, 430-10

Creditable Activity

- Adoption and enforcement of a freeboard provision in the floodplain

Requirements

- Regulations must require electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities be elevated or made flood-resistant to at least BFE for any credit

Additional Information

- Standard amounts of credit are provided for 1 to 3 feet of freeboard; other amounts are evaluated on an individual basis
- Higher credit is available for localities that restrict the use of fill in addition to freeboard provisions (prohibition or compensatory storage; additional credit available in Activity 432a, Development Limitations)
- Credit is based on the area of the regulatory floodplain covered by the regulations
- Freeboard does not have to be in 1-foot increments; 18 inches is common
- Credit can be prorated if freeboard requirements vary in different sections of the floodplain
- The locality must provide a map indicating area where rules are effective related to the regulatory floodplain (must exclude areas credited as open space and areas where buildings are prohibited by land use rules, if applicable)

Documentation

- Adopted state or local regulation.
- Impact adjustment map indicating areas affected by the regulations.
- Example permit records documenting appropriate implementation must be available.
- The ISO/CRS Specialist may use Google Earth to confirm new structures are built in compliance.

GOVERNANCE GUIDANCE

Va. Code § 36-98

The Statewide Uniform Building Code (USBC) “shall not supersede...local floodplain regulations adopted as a condition of participation in the National Flood Insurance Program.”

Va. USBC § 1612.4

USBC, building: Section 1612.4, by reference to ASCE 24, requires minimum 1 foot freeboard for all buildings other than Category I and dwellings within the scope of the residential code. See elevation tables in Chapter 2 (Zone A), Chapter 4 (Zone V and Coastal A Zone) and Chapter 6 (floodproofing).

USBC, residential: requires freeboard in Zone V as a function of orientation of the lowest horizontal structural member.

Va. USBC § 1612.4

Mechanical, plumbing and electrical systems must be elevated or be protected (floodproofed) to Base or Design Flood Elevation

USBC building: Section 1612.4, by reference to ASCE 24, Chapter 7 (with same freeboard required for buildings)

USBC, residential: Section R322.1.6 with same freeboard

CO-BENEFITS

- Fulfills [Commonwealth of Virginia Hazard Mitigation Plan](#) Mitigation Action FL-23, encouraging increased protection for new and substantially improved structures in the floodplain
- May help structures comply with proposed [Federal Flood Risk Management Standard](#) (FFRMS)
- May help achieve Comprehensive Plan goals
- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection and improves structural safety
- Implements a visible sea level rise adaptation strategy

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Adopt a freeboard provision of at least 1 foot throughout the regulatory floodplain
- Adopt higher freeboard provisions in higher risk flood zones
- Adopt the relevant language from Appendix G of the [International Building Code](#) to meet CRS requirements (see governance guidance)
- Adopt a freeboard provision of at least 1 foot outside the SFHA
- Incorporate flexibility into freeboard ordinance (require different heights for different areas or building types, offer exemptions, etc.) to improve community acceptance



iii. Coastal A Zone Regulations



At the time of publication, all coastal Virginia localities received or will receive new Flood Insurance Rate Maps, offering a potential CRS credit opportunity. These new maps show a “Limit of Moderate Wave Action,” or LiMWA, line. This line, located in the A-Zone, indicates where anticipated wave heights will reach between 1.5 and 3 feet (this is higher than the traditional A-Zone, where wave heights of less than 1.5 feet are expected). The area seaward of the LiMWA line and landward of the V-Zone boundary, is the Coastal A Zone. To participate in the CRS, a locality must retain the LiMWA line on the FIRM, but is not required to enforce development standards other than the traditional A-Zone requirements. A locality may receive additional credit if it elects to regulate the Coastal A Zone as the V-Zone, and/or requires enclosure limits. This credit applies to coastal communities only.

| CRS CREDIT OPPORTUNITIES: Stricter Building Standards in Coastal A Zones | |
|---|--|
| CRS ACTIVITIES | |
| Probable Credit, Activity 432k, Coastal A Zone regulations (CAZ) Up to 650 points, <i>CRS Manual</i> , 430-32 | |
| <u>Creditable Activity</u> <ul style="list-style-type: none"> Adopting some or all V-Zone requirements in the Coastal A Zone | |
| <u>Requirements</u> <ul style="list-style-type: none"> A locality must delineate its “Coastal A Zone” (the LiMWA line drawn on all new coastal FIRMs meets this requirement) Credit is given for requiring V-Zone standards in the Coastal A Zone; if not all standards are required, reduced credit is available | |
| <u>Additional Information</u> <ul style="list-style-type: none"> Credit is available for enclosure restrictions below BFE (can earn duplicate credit with Activity 432g, Enclosure Limits) Areas credited as open space and areas where buildings are prohibited are not eligible for credit in this Activity | |
| <u>Documentation</u> <ul style="list-style-type: none"> Adopted state or local regulation. Impact adjustment map indicating areas affected by the regulation. Make available example permit and inspection records documenting appropriate implementation (if requested by ISO specialist) The ISO/CRS Specialist may use Google Earth to verify that new buildings have been constructed in accordance with the regulation. | |
| GOVERNANCE GUIDANCE | |
| Va. Code § 36-98 | The Statewide Building Code “shall not supersede...local |

| | |
|--|--|
| | floodplain regulations adopted as a condition of participation in the National Flood Insurance Program.” |
| Va. USBC § 1612.4 | USBC building: Section 1612.4, by reference to ASCE 24, requires 1 foot freeboard (on first floor elevation) in CAZ USBC, residential: Section R322.2.1, requires 1 foot freeboard if CAZ is designated |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May help achieve Comprehensive Plan goals • Protects health, safety and welfare of citizens (hazard mitigation) • Provides property protection and improves structural safety • Implements a sea level rise adaptation strategy | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Adopt all V-Zone construction standards in Coastal A Zones • Require enclosure restrictions below BFE in Coastal A Zones to earn duplicate credit with Activity 432g, Enclosure Limits | |



iv. Local Drainage Protection



This section provides credit for regulations that ensure all new buildings are protected from local drainage flooding. Virginia’s USBC earns 10 Uniform Minimum Credit points.



CRS CREDIT OPPORTUNITIES: Protecting Buildings from Local Drainage Flooding

CRS ACTIVITIES

Potential Credit, Activity 432i, Local Drainage Protection (LDP)
Up to 120 points, *CRS Manual*, 430-29

Creditable Activities

- Regulations that require drainage to flow away from buildings

Requirements

- Regulations requiring new buildings be protected from local drainage flooding by, at a minimum, providing positive drainage away from the site
- Regulations must cover entire locality, not just new subdivisions

Additional Information

- Higher credit is provided for requiring an approved drainage collection site that does not present a new hazard to neighboring properties
- Higher credit is provided for requiring increased runoff from the development be kept on-site
- Higher credit is provided for requiring an applicant to prepare a site plan accounting

for street flooding and local drainage from/onto adjacent properties and protects the building from local drainage flows as a condition of a building permit

- Higher credit is provided for requiring the lowest floor be located above the crown of the highest adjacent grade or street

Uniform Minimum Credit

- Virginia UMC includes 10 potential credit points for local drainage protection standards required by the statewide building code
- To receive this credit, locality must show that its regulations are consistent with the building code and permits prove enforcement of this provision

Documentation

- Adopted state or local regulation.
- Make available example permit records documenting appropriate implementation (if requested by ISO specialist)
- The ISO/CRS Specialist may use Google Earth to verify that new buildings have been constructed in accordance with the regulation.

GOVERNANCE GUIDANCE

| | |
|-------------------|--|
| Va. USBC § 1804.3 | <p>USBC, building, Section 1804.3 Requires ground adjacent to buildings to be sloped away from foundations</p> <p>USBC, residential, R401.3 “Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard to the dwelling unit. Lots shall be graded to drain surface water away from foundation walls.”</p> |
| Va. Code § 36-98 | The Statewide Building Code “shall not supersede...local floodplain regulations adopted as a condition of participation in the National Flood Insurance Program.” |

CO-BENEFITS

- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection and improves structural safety

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Enforce the relevant sections of the building code
- Adopt the relevant language in Appendix G of the [International Building Code](#)
- Adopt an ordinance that incorporates additional credit opportunities referenced above

v. Other Building Code Modifications

Localities may receive credit for several other modifications to building codes in floodplains. Additional higher standards can be found in Section 430 of the *CRS Coordinator’s Manual*

beginning on page 430-1. More information about the higher standards listed below can also be found in Section 430.

Foundation Protection (FDN): Credit is offered for foundation protection in the floodplain if a locality requires all foundations to be designed by registered design professionals, including foundations in A-Zones and if the locality regulates the use of fill in relation to new buildings (e.g. no fill, compensatory storage, and/or protection from erosion and scour).

Cumulative Substantial Improvement (CSI): Tracking structural improvements can also earn credit. If a cumulative substantial improvement is enforced, structural improvements are tracked over time to reach the threshold of a “substantial improvement” (50% or more of market value). This will bring structures up to code more quickly and allow property owners to take advantage of additional funding offered through the National Flood Insurance Program, called Increased Cost of Compliance, which helps bring structures up to code. Credit is also available for locality ordinances that define thresholds of less than 50% as a “substantial improvement.”

Enclosure Limitations (ENL): Credit is available for localities that limit or prohibit enclosures below the Base Flood Elevation. This can include limiting enclosures of greater than 299 square feet and requiring property owners to sign non-conversion agreements.

Manufactured Home Parks (MHP): Regulations for manufactured home parks that require elevation to the Base Flood Elevation plus freeboard can also earn credit.

vi. Administration Procedures: Training and Certifications

Localities can receive CRS credit for maintaining trained Certified Floodplain Managers[®] (CFMs) on staff. The certification is offered through the [Association of State Floodplain Managers](#) (ASFPM) and covers knowledge of floodplain science, mapping, and NFIP regulations. Exams may be proctored by existing CFMs anywhere in the country where there is demand. Certifications are maintained through annual membership with ASFPM, Continuing Education Credits, and a bi-annual certification renewal fee.

Attending trainings hosted by FEMA or other professionals provides credit as well. Trainings hosted by FEMA’s Emergency Management Institute (EMI) can be held in-house in Emmitsburg, MD, or field-deployed throughout the country. At the EMI, classes and lodging are free for local government officials and travel may be reimbursed up to the state limit. For on-campus classes, there is a mandatory \$125 meal ticket. For more information, visit the [Emergency Management Institute](#) website. Classes not hosted by FEMA may earn credit as well, pending ISO specialist review.

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|--|
| CRS CREDIT OPPORTUNITIES: Staff Training and Certifications |
| CRS ACTIVITIES |
| Probable Credit, Activity 432o, Regulations Administration (RA) |
| Up to 25 points, CRS Manual, 430-40 |
| Creditable Activity |

- Staff training and Certified Floodplain Managers®

Requirements

- 5 points for every Certified Floodplain Manager® on staff that administers floodplain program permits, as long as certification is maintained
- 5 points for every graduate of an Emergency Management Institute class, regardless of role on staff
- 25 points if all proposed development, final inspections, and project approvals in the floodplain are reviewed by a CFM
- Maximum credit is 25 points

CO-BENEFITS

- Improves understanding and administration of rules and regulations
- Ensures that the locality is properly administering rules and regulations

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Offer opportunities to train staff
- Require floodplain management staff to earn CFM certifications
- Encourage staff to participate in regional training opportunities

vii. Administration Procedures: Inspections and Record Storage

Administration of floodplain management programs may generate CRS Credit. The manner in which localities administer and store floodplain permits and relevant documents proves important for maintaining records, properly enforcing regulations, and ensuring protection against natural and man-made disasters. Frequency of building inspections, accreditation of the building department, and storage of copies of floodplain records in an off-site secure location should earn CRS credit.

CRS CREDIT OPPORTUNITIES: Inspection Practices and Record Storage

CRS ACTIVITIES

Probable Credit, Activity 432o, Regulations Administration (RA)

Up to 42 points, CRS Manual, 430-40

Creditable Activities

- Following designated inspection practices
- Off-site, protected record storage

Requirements

- 5 points for building department accreditation by the International Accreditation Service (must have BCEGS classification of at least 5/5, see *Building Code Effectiveness Grading Schedule/International Accreditation Service for more*)

information)

- 16 points for conducting 3 detailed inspections for each new building in the floodplain, in accordance with criteria explained on pages 430-42/43 of the *CRS Coordinator's Manual*
- 16 points for inspecting floodplain properties for compliance with previous permits when they change occupancy or ownership or request improvement permits
- 5 points for storing copies of floodplain records off-site at a secure location (at least one mile away at a location out of the floodplain); must be updated once a year

Documentation

- RA 1: Training certificates from appropriately completed training events. (However, no documentation is needed for CFM verification)
- RA 3/RA 4: Inspection records must be available for review.

CO-BENEFITS

- Protects health, safety and welfare of citizens (hazard mitigation)
- Provides property protection and improves structural safety
- Improves the administration of locality rules and regulations

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Follow the procedures detailed in the *Manual* to ensure effective administration of the building code
- Store copies of floodplain records in a secure location outside of the floodplain and away from other predictable hazards



C. BUILDING MITIGATION



Localities should earn CRS credit for buildings in SFHAs that are mitigated, whether the mitigation is funded privately or publicly. Mitigation methods include outright purchase of the property by the local government or other entity leaving the property as open space, or permitting the redevelopment of a property in a less vulnerable manner. Alternative mitigation methods include relocation, elevation, or other retrofits such as floodproofing. Other methods include protecting basements from sewer backups and single-structure barriers (such as levees, berms, floodwalls, and living shorelines). These efforts make insurable buildings less susceptible to flooding and potentially earn credit.



Several categories of mitigation projects are not creditable. New buildings allowed on previously unoccupied land are not eligible because they are required to comply with current codes, minimizing the risk of flood damage. Meeting NFIP requirements, such as bringing substantially damaged or improved structures up to code, are not eligible. Large-scale structural projects, such

as a levee or berm protecting several structures, are not eligible for CRS credit because such projects should be submitted to FEMA to revise FIRMs to reflect reduced flood risk.

Further details are available in Sections 520 and 530 of the *CRS Coordinator's Manual* (beginning on pages 520-1 and 530-1, respectively) regarding credit available for each type of mitigation project (acquisition, relocation, elevation, floodproofing, etc.). If the type of mitigation used is not listed, it may be submitted for review to determine credit.

Mitigation Funding

Funding may be available through FEMA's [Hazard Mitigation Assistance](#) programs. Programs include the Hazard Mitigation Grant Program, Pre-Disaster Mitigation program, and Flood Mitigation Assistance program. Funds are available for planning and hands-on projects, including acquisitions and elevations. Funding typically requires a 10%-25% match requirement (provided by the state, local government, and property owner). While these programs offer a good source of funding, they are highly competitive, may take years to obtain, and limit the property owner in what they can do with the funding. Further, CRS credit is reduced by 75% for mitigation projects completed using Flood Mitigation Assistance funding.

A review of mitigation funding sources, in addition to FEMA grants, can be found in Chapters 5 and 6 of the U.S. Army Corps of Engineers' "[Local Flood Proofing Programs](#)" report from 2005. Though some programs may be out of date since publication, this report provides funding source ideas including taxes, local funds and fees, grants, property owner assistance, creative financing, low interest loans, rebates, cost sharing, and full funding for flood mitigation activities.

An alternative source of funding may become available after some disasters. For example, after "Superstorm" Sandy, Congress allocated \$60 billion for disaster recovery. Several grant opportunities arose from this funding for local governments, non-profits, and others. If localities identify feasible and cost-effective mitigation projects ahead of time, they will be better positioned to compete for funds in the future.

Funds from the U.S. Department of Housing and Urban Development's [Community Development Block Grant Disaster Recovery Program](#) may be used for structural mitigation projects (see post-Sandy rules [here](#)). HUD also administers the [National Disaster Resilience Competition](#) which awards \$1 billion to communities affected by natural disasters to help rebuild and improve resilience.

Other sources of funding may be used to support mitigation projects. In 2014, Wetlands Watch conducted review of new mitigation funding ideas and opportunities. As a result of Hurricane Sandy, the Federal Housing Authority approved the use of [203k loans](#) for flood mitigation projects. Other sources previously untapped for flood mitigation purposes include Virginia's existing revolving loan funds provided to meet environmental, public safety, and economic development needs. Additional examples include innovative mortgage programs designed to reward sustainable practices. Finally, an innovative mitigation fund established in Connecticut serves as a model for adoption in Virginia. (This model was brought to the Virginia legislature in

2015, but was tabled for that legislative session.) For more information, see the excerpt of Wetlands Watch’s report, “The Challenge of Mitigating Virginia’s Flooding and Sea Level Rise Impacts,” in [Appendix D](#).

| CRS CREDIT OPPORTUNITIES: Mitigating Buildings for Flood Protection | |
|---|--|
| CRS ACTIVITIES | |
| Probable Credit, Activity 532, Flood Protection: Retrofitted Buildings Up to 1,600 points, <i>CRS Manual</i> , 530-2 | |
| <p><u>Creditable Activities</u></p> <ul style="list-style-type: none"> • Elevation, installation of flood vents, flood proofing, preventing sewer back ups, demolition, individual property barriers (e.g. levees, berms, floodwalls, living shorelines) <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Buildings must be insurable and located within the regulatory floodplain (except structures identified by the NFIP as “Repetitive Loss structures”) • Projects must protect from at least the 25-year flood • All required permits must have been obtained • A registered design professional must sign and seal projects in V-Zones and A-Zones seaward of the LiMWA line, in areas with velocities greater than 5ft/second during the 100-year event, and areas subject to special hazards (<i>Manual</i> starting on page 530-3) <p><u>Additional Information</u></p> <ul style="list-style-type: none"> • Credit is applicable to structures built before a locality adopted its first floodplain management ordinance or those built before the most recent map update where the base flood elevation increased (e.g. a structure built to an old base flood elevation could be credited if it were elevated to the new base flood elevation) • Additional credit is provided for protecting critical facilities, repetitive loss structures, and structures identified by the NFIP as “Severe Repetitive Loss” structures • Protection from sewer backup may be particularly helpful if properties are located near or on a tidal floodplain, where flooding from sewer backups are common; up to 200 points are available • If funding for a mitigation project came from FEMA’s Flood Mitigation Assistance program, CRS credit for mitigation is reduced to 25% • Projects completed in response to NFIP regulations are not applicable (e.g. a substantially damaged or improved structure brought up to code) • Total credit is determined by the level of flood protection provided by each project and in some cases by the number of protected structures compared to the number of structures in the SFHA <p><u>Documentation</u></p> <ul style="list-style-type: none"> • A list and map showing all buildings for which credit is being requested. • Copies of completed AW-530 worksheets and Elevation Certificates (documenting compliance for elevation projects), as appropriate. | <p><i>Wetlands Watch advocates for the use of soft structure flood protection (living shorelines, green buffers) in lieu of hard structuring, where possible.</i></p> |

- Level of flood protection before and after projects.
- Calculations for total number of buildings in regulatory floodplain (when using credit calculation option 2).
- Documentation showing floodplain regulations apply to areas outside of regulatory floodplain as necessary.
- A copy of the CLOMR submitted to FEMA, where appropriate.
- Documentation of the implementation date for each project.

Potential Credit, Activity 522, Acquisition and Relocation
Up to 2,250 points, CRS Manual, 520-1

Creditable Activity

- Removing insurable buildings from the floodplain

Requirements

- Buildings must be insurable and located in the regulatory floodplain (except repetitive loss structures)
- Relocations must be to sites outside of the regulatory floodplain and repetitive loss areas
- Must be able to document that vacated property will remain vacant (land available for redevelopment is credited in Activity 532)
- Projects completed before the locality joined the NFIP are not creditable

Additional Information

- Duplicate credit can be earned in Sections 522 and 422 for open space created by removing insurable buildings
- The acquisition/relocation must have occurred after the date that the locality joined the NFIP
- Higher credit is provided for protecting critical facilities and repetitive loss or Severe Repetitive Loss structures
- If funding for the project came from FEMA's Flood Mitigation Assistance program, credit is reduced to 25%
- Projects completed in response to NFIP regulations are not applicable (e.g. a substantially damaged or improved structure brought up to code)
- Total credit is determined by the number of structures removed from the floodplain, and in some cases this is compared to the total number of structures in the SFHA

Documentation

- Map depicting removed buildings and their location in relation to the SFHA. (Before and after screen shots from Google Earth showing parcel with structure and parcel without)
- Calculations showing total number of buildings in SFHA (when using credit calculation option 2).
- Documentation that the properties will be held as open space or documentation of applicable floodplain regulation that will prohibit redevelopment. (could be on FEMA forms)

- Documentation of funding sources for acquisition, relocation, and demolition.
- Completed AW-520 Environmental Compliance worksheet (only for projects completed after the effective date of the CRS Coordinator's Manual).
- Completed AW-501 worksheets for repetitive loss or severe repetitive loss properties, as appropriate.
- A description of the critical facility to demonstrate it meets the CRS definition, as appropriate.
- Documentation of the implementation date for each project.

Probable Credit, Activity 422a, Open Space Preservation (OSP)
 Up to 1,450 points, *CRS Manual*, 420-3

Creditable Activity

- Protecting undeveloped land in the floodplain to protect buildings from flood damage

Requirements

- Land must be part of the regulatory floodplain as defined by a locality's floodplain ordinance
- If land is owned by the state or local government (not federal) or non-profit organizations: development, filling, and materials storage must be prohibited by adopted policy, real estate instrument, or agreed to in writing by property owner
- If land is owned by an individual: development, filling, and materials storage must be prohibited by a permanent real estate instrument that runs with the land

Additional Information

- Federally-owned lands are not eligible for credit
- Active farmland may not be creditable
- Credit is determined by the ratio of the area of open space to the area of the Special Flood Hazard Area and the regulatory floodplain
- Buildings necessary for the use of land may be built on parcels larger than 10 acres but are otherwise prohibited
- Additional credit is available if the land is placed under a deed restriction (Activity 422b), preserved in or restored to its natural state (Activity 422c), or if it is subject to additional flood hazards (Activity 422d)

Documentation

- Copy of the regulatory language or documentation showing the development restriction for each parcel to be credited.
- A map plotting each parcel that has been preserved as open space.
- Calculations reflecting the portion of regulatory floodplain area retained as open space.
- The ISO Specialist will likely look on Google Earth to confirm parcel is not developed.

CO-BENEFITS

- Several forms of mitigation are consistent with Mitigation Actions FL-5 through FL-

13 of the [Commonwealth of Virginia Hazard Mitigation Plan](#), recommending mitigation actions for several categories of properties

- May help achieve Comprehensive Plan goals
- Enhances community character (quality of life, recreation, public access, ecosystem services (species/habitat protection), cultural landmarks)
- Provides property protection to structure, and potentially protects adjacent or nearby properties
- Protects health, safety and welfare of citizens (hazard mitigation)
- May accomplish flood mitigation goals for localities without locality funding
- Helps protect municipal tax base
- Implements a sea level rise adaptation strategy
- Creates jobs in mitigation construction

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Track all mitigation efforts, including those funded privately by a property owner for documentation
- Encourage property owners to mitigate to a minimum of the 100-year-flood, rather than the CRS program minimum 25-year-flood, to avoid confusion with the National Flood Insurance Program regulations, ensure a reduced flood insurance premium rate, increase resiliency, and earn higher credit
- Demolish dilapidated structures (leaving the property in private ownership) and allow the property to be redeveloped with an up-to-code structure to earn CRS credit as a redevelopment property (Activity 532)
- Implement sewer backup prevention outside of the SFHA to earn up to 200 points (Activity 532)
- Educate citizens and the construction community about opportunities for mitigation (Activity 332a)
- Coordinate with open space protection organizations (e.g., land trusts) to facilitate protection and/or acquisition of vacant land (Activity 422a)
- Request notification from locality Clerk's Office or applicable recordation office when land use restriction (e.g., conservation easement) is recorded
- When open space is preserved as part of a mitigation project, include in the documentation a map of the parcel in the mapping format used by the locality (e.g. GIS or AutoCAD) to simplify credit calculation
- To map existing open space within your locality, it may be helpful to begin with the Department of Conservation and Recreation's [Managed Conservation Lands Map](#) (Note: federal lands do not qualify for CRS credit)

VII. EMERGENCY MANAGEMENT

A. HAZARD MITIGATION PLANNING

Hazard mitigation plans and associated maps completed at the local and regional level may be eligible for CRS credit; state plans are typically too general to earn CRS credit. Hazard mitigation plans may also be developed to fulfill the repetitive loss requirements that are a prerequisite to CRS participation for any locality with repetitive loss properties. For more information on the repetitive loss requirements, see [Repetitive Loss Plans](#) below and pages 210-2 and 500-3 through 500-13 in the [CRS Coordinator's Manual](#).

The [Disaster Mitigation Act of 2000](#) requires all state and local governments to prepare a Hazard Mitigation Plan for eligibility to receive disaster mitigation funding from the Federal Emergency Management Agency.²⁵ This includes funding for pre-and post-disaster mitigation activities, which helps prepare communities by reducing risk, helps communities recover and clean up from disasters, and increases community resilience. The available grant programs are the Hazard Mitigation Grant Program, Hazard Mitigation Assistance, Flood Mitigation Assistance, and the Pre-Disaster Mitigation Program. These grant programs provide funding to protect life and property from natural disasters.

Some additional funding only becomes available after a federal disaster declaration. For example, after “Superstorm” Sandy, Congress allocated \$60 billion for disaster recovery. Several grant opportunities arose from this funding for local governments, non-profits, and others. Projects prepared in advance can be easily implemented and will be highly competitive for such funds in the future.

Hazard mitigation plans encourage several CRS activities. Mere inclusion in the plan may not warrant credit, but once implemented, eligibility is possible. These activities include a Map Information Service ([Activity 322](#)) helping residents understand flood maps and flooding issues, a hazard disclosure requiring real estate agents to disclose flood risks ([Activity 340](#)), the creation of new and more advanced maps by the locality ([Activity 412](#)), preservation of open space in the floodplain ([Activity 422](#)), creation of higher regulatory standards ([Activity 432](#)), encouragement of acquisitions and relocation ([Activity 522](#)), structural flood protection measures ([Activity 532](#)), and flood warning and response preparations ([Activity 612](#)).

See [Locality Mapping and Geographic Information Systems](#) for information on earning credit for mapping and inclusion of data layers for floodplains, repetitive loss areas, and other hazards.



i. Hazard Mitigation and Floodplain Management Plans

CRS credit is available for specifically crafted floodplain management plans; hazard mitigation plans often fulfill this criteria. The process is more important than the plan itself because the process requires broad stakeholder involvement and real-life emergency scenario planning.

Conveniently, the CRS requirements and process somewhat mirror those of the Disaster Mitigation Act of 2000. Therefore, with some preparation, a locality should be able to create a hazard mitigation plan that fulfills the requirements of both the Disaster Mitigation Act and the CRS. For more guidance on hazard mitigation plans, review FEMA’s [Local Mitigation Plan Review Guide](#).

| CRS CREDIT OPPORTUNITIES: Hazard Mitigation and Floodplain Management Planning | |
|---|----------------------------------|
| CRS ACTIVITIES | |
| Probable Credit, Activity 512a, Floodplain Management Planning (FMP) | |
| Up to 382 points, CRS Manual, 510-4 | |
| Creditable Activities | |
| <ul style="list-style-type: none"> Developing a hazard mitigation or floodplain management plan that follows a designated process | |
| Requirements | |
| <ul style="list-style-type: none"> 10 steps laid out in the <i>CRS Coordinator’s Manual</i> must be followed; see Table 3 for more information The Plan must be adopted by the locality Plans must be evaluated annually; evaluation must be submitted with annual CRS recertification Background information and recommendations must be updated every 5 years by October 1 | |
| Additional Information | |
| <ul style="list-style-type: none"> A hazard mitigation plan may be used to fulfill the requirement of a repetitive loss plan for localities with 50 or more repetitive loss properties if appropriate information is incorporated (see Repetitive Loss Plans for more information) | |
| Documentation | |
| <ul style="list-style-type: none"> Copy of an acceptable FMP or Hazard Mitigation Plan (For regional plans, ISO Reviewer should have crosswalk) Description of actions taken by legislative body to accept plan (copy of signed resolution) Description of planning process including public participation and clear identification of individuals responsible for implementation of action plan Time-Saver: For locality-specific hazard mitigation plans (not regional plans), use this checklist (Excel & PDF) as you begin the planning process to ensure maximum credit. | |
| GOVERNANCE GUIDANCE | |
| Va. Code §15.2-2223 - §15.2-2231 | Comprehensive planning authority |
| Va. Code §44-146.18 | Disaster preparedness |

| | |
|--|--|
| 44 C.F.R. § 201.6 | Local mitigation plans are required in order to receive federal funding; plan requirements, process, and content |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May help achieve Comprehensive Plan goals • Complies with Disaster Mitigation Act requirements to create a Hazard Mitigation Plan to be eligible for federal disaster funding • Enhances community resilience (protects health, safety and welfare of citizens) • May support green infrastructure initiatives (e.g. creation of Greenways and Blueways, conservation corridors, etc.) • May be used as a guide for sea level rise adaptation • Informs emergency management process • Helps communities prioritize and target adaptation and mitigation areas | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • When updating hazard mitigation plans, follow the steps laid out in the <i>CRS Manual</i> to ensure that credit can be earned – it is important to not skip steps • Incorporate critical facilities into the appropriate steps for additional credit, and coordinate these discussions with credit available in Critical Facilities Planning and Protection (Activities 432f and 612d) (CREDIT GO-GETTERS) • Review Section 610, Flood Warning and Response, to incorporate CRS requirements into the hazard mitigation or floodplain management plan to help earn credit for both (beginning on page 610-3 of the Manual) (CREDIT GO-GETTERS) • A Floodplain Management Plan or Hazard Mitigation Plan can be a first step in encouraging a locality to take on additional credit-earning activities such as higher standards (Section 430) and prioritizing floodplains for open space preservation (Section 420) • Review Watershed Master Planning to incorporate CRS requirements into the hazard mitigation or floodplain management plan to help earn credit for both (Activity 452b) (CREDIT GO-GETTERS) | |

The following table displays a comparison of the federal hazard mitigation process and the CRS Floodplain Management Planning process and specifically highlights where the processes overlap (a similar table can be found on page 510-5 of the *CRS Coordinator’s Manual*). A review of specific mitigation actions, addressed in 44 C.F.R. § 201.6(c)(3)(ii), is often skipped in hazard mitigation planning. If a step in the process is skipped but FEMA approves the plan, CRS credit is still available, but it is capped at 50 points instead of 382. In general, the processes are similar but have different objectives, so pay special attention to the requirements of both to receive maximum credit.

Table 2: Federal Multi-Hazard Mitigation Requirements versus CRS Requirements

| CRS Floodplain Management Plan Requirements | Federal Multi-Hazard Mitigation Requirements | Federal Multi-Hazard Mitigation References | Maximum CRS Points |
|---|--|--|--------------------|
|---|--|--|--------------------|

| | | | |
|--------------------------------------|--|--|-----|
| Step 1. Organize | Task 1: Determine the Planning Area and Resources and Task 2: built the Planning Team | 44 C.F.R. §201.6(c)(1) | 15 |
| Step 2. Involve the public | Task 3: Create an Outreach Strategy | 44 C.F.R. §201.6(b)(1) | 120 |
| Step 3. Coordinate | Task 4: Review Community Capabilities | 44 C.F.R. §201.6(b)(2) and (3) | 35 |
| Step 4. Assess the Hazard | Task 5: Conduct a Risk Assessment | 44 C.F.R. §201.6(c)(2)(i), (ii) and (iii) | 35 |
| Step 5. Assess the Problem | | | 52 |
| Step 6. Set Goals | Task 6: Develop a Mitigation Strategy | 44 C.F.R. §201.6(c)(3)(i), (ii), and (iii) | 2 |
| Step 7. Review Possible Activities | | | 35 |
| Step 8. Draft an Action Plan | | | 60 |
| Step 9. Adopt the Plan | Task 8: Review and Adopt the Plan | 44 C.F.R. §201.6(c)(5) | 2 |
| Step 10. Implement, Evaluate, Revise | Task 7: Keep the Plan Current and Task 9: Create a Safe and Resilient Committee | 44 C.F.R. §201.6(c)(4) | 26 |
| TOTAL | | | 382 |

Information Sources: *CRS Coordinator's Manual*, 510-3; and *Comparison of Multi-Hazard Mitigation and CRS Planning Requirements* (ISO)



ii. Repetitive Loss Plans

Repetitive loss information and planning is eligible for CRS credit. As a prerequisite for joining the CRS program, localities with any repetitive loss properties (as defined by FEMA and provided to localities by FEMA or the locality's Insurance Services Office representative) must complete a number of tasks. Localities must prepare a map of repetitive loss properties, provide a review of its repetitive loss problem, include a list of addresses with insurable buildings in the area, and create an annual outreach project to the affected areas. The required map and outreach project may earn additional credit in Activities 322f (historical/repetitive flood information maps) and Activity 332a (outreach projects), respectively. See pages 210-2 and 500-3 through 500-13 in the [CRS Coordinator's Manual](#) for more information on repetitive loss area requirements.

If a locality contains ten or more repetitive loss properties, it must prepare a repetitive loss plan. Repetitive loss information incorporated into the hazard mitigation plan may fulfill this requirement if it includes repetitive loss information detailed in the *Manual* (see pages 510-4

through 510-29 in the *CRS Coordinator's Manual* for more details). Alternatively, a locality may create a separate document focused solely on repetitive loss areas, considered a Repetitive Loss Area Analysis.

| CRS CREDIT OPPORTUNITIES: Repetitive Loss Area Planning |
|--|
| CRS ACTIVITIES |
| Potential Credit, Activity 512a, Floodplain Management Planning (FMP) Up to 382 points, <i>CRS Manual, 510-4</i> |
| <p><u>Creditable Activities</u></p> <ul style="list-style-type: none"> • Incorporating repetitive loss information into a hazard mitigation or floodplain management plan; developing a hazard mitigation or floodplain management plan that follows a designated process <p><u>Requirements</u></p> <ul style="list-style-type: none"> • 10 steps laid out in the <i>CRS Coordinator's Manual</i> must be followed; see Table 3 for more information • The Plan must be adopted by the locality • Plans must be evaluated annually; evaluation must be submitted with annual CRS recertification • Background information and recommendations must be updated every 5 years by October 1 <p><u>Additional Information</u></p> <ul style="list-style-type: none"> • A hazard mitigation plan may be used to fulfill the requirement of a repetitive loss plan for localities with 50 or more repetitive loss properties if appropriate information is incorporated (see <i>Manual</i> for details) <p><u>Documentation</u></p> <ul style="list-style-type: none"> • Copy of an acceptable FMP or Hazard Mitigation Plan (For regional plans, ISO Reviewer should have crosswalk) • Description of actions taken by legislative body to accept plan (copy of signed resolution) • Description of planning process including public participation and clear identification of individuals responsible for implementation of action plan • Time-Saver: For locality-specific hazard mitigation plans (not regional plans), use this checklist (Excel & PDF) as you begin the planning process to ensure maximum credit. |
| Potential Credit, Activity 512b, Repetitive Loss Area Analysis (RLAA) Up to 140 points, <i>CRS Manual, 510-29</i> |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • A plan to reduce losses in frequently flooded areas; may be used to meet repetitive loss prerequisites to the CRS <p><u>Requirements</u></p> |

- 5 steps laid out in the *CRS Coordinator’s Manual* must be followed
- Analysis must be made available to the media
- The Analysis must be adopted by the locality
- Plans must be evaluated annually; evaluation must be submitted with annual CRS recertification
- Background information and recommendations must be updated before each cycle verification visit

RLLA

Documentation

- Copy of RLAA.
- Documentation of resident notification.
- Description of how RLAA was publicized.
- Adoption documentation if included in a formally adopted plan.
- Annual evaluation report.

Potential Credit, Activity 332a, Outreach Projects (OP)
Up to 200 points (for several projects), *CRS Manual*, 330-6

Creditable Activity

- Outreach projects to property owners and residents in repetitive flood areas; required as part of Activity 512b (above)

Requirements

- Projects are targeted to a specific audience and reoccur at least annually; the more topics discussed, the more credit
- At least one project must address flood insurance
- See [General Public Outreach](#) for more information

Documentation

- Copies of the outreach materials that have been produced and disseminated.
- Time-Saver: Use this [Excel file](#) to track your locality’s outreach across different departments and by various staff. (Coastal VA CRS Workgroup Doc)
- Time-Saver: ISO created an [Excel file](#) that automatically scores each outreach project, giving you an idea of how many credit points your locality could earn.

GOVERNANCE GUIDANCE

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|----------------------------------|--|
| Va. Code §15.2-2223 - §15.2-2231 | Comprehensive planning authority |
| Va. Code §44-146.18 | Disaster preparedness |
| 44 C.F.R. § 201.6 | Local mitigation plans are required in order to receive federal funding; plan requirements, process, and content |

CO-BENEFITS

- Consistent with Mitigation Action FL-11 in the [Commonwealth of Virginia Hazard Mitigation Plan](#), incorporating repetitive loss information into hazard mitigation

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| <ul style="list-style-type: none"> planning • May meet prerequisites for participation in the CRS • Helps communities prioritize and target sea level rise adaptation and mitigation areas • May help achieve Comprehensive Plan goals • Enhances community resilience (protects health, safety and welfare of citizens) • Informs emergency management process |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS |
| <ul style="list-style-type: none"> • Follow the steps laid out in the <i>CRS Manual</i> when creating a repetitive loss plan • Ensure that maps of the affected areas are created (see page 500-9 in the <i>Manual</i>) • Include Repetitive Flood/Historical Flood Problem Areas in a map and data sharing program (Activity 322f) • Ensure that maps do not violate privacy rights • To notify residents of the repetitive loss analysis as required, create a creditable outreach project (Activity 332a) • When considering mitigation options during planning process, note actions that earn credit in the CRS: Technical assistance on property protection (Activity 360); Acquisition and relocation (Activity 522); Retrofitting and building protection (Activity 532); Open space zoning and preservation (Activity 422) |

iii. Hazard Mitigation Committees

Committees developed for the creation of the hazard mitigation plan process can help earn CRS credit in multiple activities. They will help generate credit in Activity 512a, Floodplain Management Planning (above), and can also serve as a committee for a Program for Public Information. The Program for Public Information (PPI) guides community outreach regarding flooding, and provides extra credit opportunities for many CRS activities. PPI committees can be local or regional, allowing either level of hazard mitigation planning to overlap with the CRS requirements. These existing committees may include Local Emergency Planning Committees, Natural Event Mitigation Advisory Committees, or others. In other contexts, a Resilience Committee, Watershed Task Force Committees, or Stormwater Committee may also serve as an effective PPI committee. More information can be found below under [Program for Public Information](#).

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| CRS CREDIT OPPORTUNITIES: Using Existing Committees for PPI Credit |
| CRS ACTIVITIES |
| Potential Credit, Activity 332c, Program for Public Information, (PPI) Up to 80 extra credit points (40% multiplier), <i>CRS Manual</i> , 330-12 |
| Creditable Activity <ul style="list-style-type: none"> • Creation of a committee and report guiding public information needs within a locality |
| Requirements |

- Credit is awarded for implementing aspects/recommendations of the PPI, not the PPI committee or document itself
- Committee composition: at least 5 people; at least 1 locality floodplain management rep, at least 1 locality public information office rep (if applicable), at least half of members from outside local government; extra credit for insurance and bank reps
- Multi-jurisdictional committee composition: at least 2 reps from each locality, at least half of reps from outside of local government, at least half of reps must attend all meetings (digital meetings are acceptable)
- Follow 7 steps in *CRS Manual* (beginning page 330-12)
- Adopt the PPI

Additional Information

- To earn PPI bonus credit for any activity, that activity must be included in the PPI

Documentation

- Copy of the PPI document
- Documentation of PPI committee meetings (e.g. minutes, sign in sheets, etc.).
- Documentation that the PPI has been adopted by the community
- Documentation in the form of a table or spreadsheet that the PPI has been reviewed and updated annually will be required for CRS recertification each year.

GOVERNANCE GUIDANCE

44 C.F.R. § 201.6

Local mitigation plans are required to receive federal funding; plan requirements, process, and content including public involvement requirements

CO-BENEFITS

- Encourages use of existing committees

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- When forming committees for hazard mitigation planning, follow the criteria for PPI committee composition to use the committee for both purposes
- Depending on the topics covered by a PPI, credit can also be earned for information provided to the public relating to the following activities: Activity 342 (Hazard Disclosure), Activity 352 (Flood Protection Information), Activity 362 (Flood Protection Assistance), Activity 422 (Open Space Preservation), and Activity 542 (Drainage System Maintenance)

B. FLOOD WARNING AND RESPONSE

Emergency management activities related to issuing flood warnings and responding to floods can earn CRS credit. Credit is offered for taking steps to protect people and property in the floodplain from the damaging effects of a flood. Advanced warning can save lives and allow

time to relocate property such as cars, equipment, and furniture above flood levels or outside of the reach of floodwaters. This saves lives, money, and time for individuals and the community, and improves the resiliency of a locality, allowing the community to recover and return to normal operations more quickly after a flood event.

i. Flood Warning and Response Prerequisites

To earn CRS credit, all activities described below must meet the following criteria, in addition to those listed for each activity. Refer to the [*CRS Coordinator's Manual*](#) for more detail on CRS requirements for these criteria and for the activities reviewed below.

Flood Warning and Response Prerequisites

- Some credit must be earned in Activity 612a, 612b, 612c, and 612d (all reviewed below) to earn any credit in this section
- There must be a description of the flood hazard within the community that includes all of the following (note that this may be accomplished through a hazard mitigation or floodplain management plan):
 - The nature of the flood hazard, such as flood depths, velocities, warning times, historical flood problems, and special flood-related hazards
 - What is exposed to flooding, such as number and types of buildings, land use types, critical facilities, and historic flood problems
 - Expected impacts of a flood event on the community including health and safety, community functions (e.g., police and utility services), and the potential for secondary hazards
- The community must have flood inundation or flood stage forecast maps that show areas inundated by at least three different flood or storm surge levels, unless an area experiences only one level of flooding (such as shallow flooding), in which case one level can be shown. These are used for planning community flood response to different levels of predicted flooding.
- There must be a flood warning and response program for the community that includes all of the following
 - A flood threat system identifying an impending flood (credited in Activity 612a)
 - Methods of warning the public about the coming flood (credited in Activity 612b)
 - A flood response operations plan covering specific actions to be taken at different flood levels (credited in Activity 612c)
 - Coordination with the operators of critical facilities (credited in Activity 612d)
 - Plan must be adopted by the locality's governing body
- At least one outreach activity must be implemented by the community letting residents and businesses know about the warning system that will be used during a flood and what safety measures should be taken during the flood
- At least one exercise and evaluation of the flood warning and response plan must be conducted each year for a flood, levee failure, dam failure, or hurricane (use of the plan in response to a real event also meets this requirement, as long as it includes an evaluation)

CRS CREDIT OPPORTUNITIES: Flood Warning and Response Prerequisites

CRS ACTIVITIES

Probable Credit, Flood Warning and Response (Section 610)
CRS Manual, 610-1

Creditable Activity

- Flood warning and response activities

Requirements

- See prerequisites above
- See subsequent sections for more information

Documentation

- Documentation varies for each element

CO-BENEFITS

- Protects health, safety and welfare of citizens (hazard mitigation)
- May provide flood protection
- Informs emergency management process

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Use the supplement to the *CRS Manual*, called [CRS Credit for Flood Warning and Response Programs](#), for a review of example programs and documentation
- Incorporate the prerequisite of describing the flood hazard into a hazard mitigation or floodplain management plan (creditable in Activity 512a) and discussed in [Hazard Mitigation Planning](#)
- For the public outreach required in the prerequisites, create a project creditable in Activity 332a – see [General Public Outreach](#) for more information



ii. Flood Threat Recognition System

A flood threat recognition system that alerts the community to an impending flood can earn credit in the CRS. These types of systems are often based on river and tide gages, which are common throughout tidal Virginia. Enough advanced warning can save lives and protect property from flood damage. Credit is available for three types of systems: manual (a person must interpret data received from gages), automated (automatically issues a signal when gages identify that water has reached a certain level), or an automated warning system (provides predictive information such as timing and crest of impending flood; often operated by the National Weather Service or U.S. Geological Survey).

CRS CREDIT OPPORTUNITIES: Flood Threat Recognition System

CRS ACTIVITIES

Potential Credit, Activity 612a, Flood Threat Recognition System (FTR)

Up to 75 points, CRS Manual, 610-5

Creditable Activity

- A flood warning system (manual, automated alarm, or automated warning system)

Requirements

- Prerequisites listed above must be met
- System must be effective for at least one location within locality
- System must be able to receive/send warnings 24/7
- System must be correlated with flood inundation maps (required in prerequisites) for easy identification of affected areas

Additional Information

- Credit is available for multiple systems and types of systems
- At the state level, Virginia uses [IFLOWS](#) (Integrated Flood Observing and Warning System), which may be credited if the criteria are met
- At the state level, Virginia uses [National Weather Service](#) river forecasts which may be credited if the criteria are met

Documentation

- Completed AW-610 worksheet.
- Description of flood hazard in the community.
- Copy of the flood inundation map(s).
- Copy of the adopted flood warning and response plan.
- Description of the flood threat recognition system.
- If a community has a gage system: copy of the maintenance procedures and records for gages.

GOVERNANCE GUIDANCE

| | |
|-----------------------|--|
| Va. Code §44-146.18 | Disaster preparedness (planning, warnings, response, etc.) |
| Va. Code § 10.1-609.1 | Soil and water conservation district may install Integrated Flood Observing and Warning Systems (IFLOWS) |

CO-BENEFITS

- Encourages use of existing water level monitoring gages
- May utilize existing state system, saving locality resources
- Consistent with [Commonwealth of Virginia Hazard Mitigation Plan](#) Mitigation Action FL-1, improving public flood warning capabilities in high risk areas, including increasing gages and threat recognition capabilities
- Protects health, safety and welfare of citizens (hazard mitigation)
- May provide flood protection
- Informs emergency management process

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Monitor the state [IFLOWS](#), [NWS](#) forecasts, or [VIMS Tidewatch](#) within the locality
- Support Mitigation Action FL-2 in the [Commonwealth of Virginia Hazard Mitigation Plan](#), which suggests pursuing funding to add gages for the purposes of flood monitoring – this may earn CRS credit for the receiving localities



iii. Emergency Warning Dissemination

Alerting the public to an impending flood can earn credit in the CRS. This allows people to evacuate from harm's way and relocate as much of their personal property as possible to minimize damage. The messages delivered to the public must include when a flood is predicted to occur, expected severity of the flooding, and response actions, such as evacuation routes and shelters. These messages should be included in a flood warning and response plan (a prerequisite to credit in this activity). For more information, review the [CRS Coordinator's Manual](#).

CRS CREDIT OPPORTUNITIES: Emergency Warning Dissemination

CRS ACTIVITIES

Potential Credit, Activity 612b, Emergency Warning Dissemination (EWD)

Up to 75 points, *CRS Manual*, 610-8

Creditable Activity

- Public warnings regarding impending flooding

Requirements

- Prerequisites listed above must be met
- Warning must reach the public in a timely manner
- If special equipment is required (e.g., sirens), equipment and procedures must be tested annually

Additional Information

- Credit is determined based on the information included in messages and how they are delivered

Documentation

- Copy of flood warning and response plan.
- Copy of written outreach materials.
- Specific requirements for each type of system: EWD 1, 2, or 5: copy of pre-scripted outgoing message; EWD 3: map with siren locations and coverage areas; EWD 6: description of public call system or contract with private provider; EWD 7: copy of cable TV agreement and override process; EWD 8: description of capability and use of local AM radio.

GOVERNANCE GUIDANCE

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|---|--|
| Va. Code §44-146.18 | Disaster preparedness (planning, warnings, response, etc.) |
| Va. Code § 10.1-609.1 | Soil and water conservation district may install Integrated Flood Observing and Warning Systems (IFLOWS) |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • May utilize existing state system, saving locality resources • Protects health, safety and welfare of citizens (hazard mitigation) • May provide flood protection • Informs emergency management process • Consistent with Commonwealth of Virginia Hazard Mitigation Plan Mitigation Action FL-1, improving public flood warning capabilities in high risk areas | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Seek credit in Activity 332b, Flood Response Preparations, for these public information messages • Use the flood threat recognition system credited in Activity 612a to determine when to alert the public; the state IFLOWS or NWS forecasts may also be helpful | |

iv. Flood Response Operations Plan

Planning for emergency actions during and after a flood can receive CRS credit. It is important to plan ahead to minimize loss of life and damage to property, and to get the locality functioning after a flood event. More discussion of a flood response operations plan and examples can be found in the [Coordinator’s Manual](#).

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| CRS CREDIT OPPORTUNITIES: Flood Response Operations Plan |
| CRS ACTIVITIES |
| Potential Credit, Activity 612c, Flood Response Operations Plan (FRO) Up to 115 points, <i>CRS Manual</i> , 610-11 |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • Creating a detailed flood response operations plan <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Prerequisites listed above must be met <p><u>Additional Information</u></p> <ul style="list-style-type: none"> • For full credit the plan must include: actions to be taken, office/official responsible for action, time needed to carry out action, necessary critical information • Additional credit is available for a list of personnel, equipment, facilities, supplies, etc. for each task (a National Incident Management System may help with this) • Additional credit is available for planning for mitigation opportunities likely to arise after a flood event (can be coordinated with Activity 332b, Flood Response Preparations) • Additional credit is available for identifying measures to support property protection |

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| Documentation | |
| <ul style="list-style-type: none"> • Copy of flood warning and response plan. • Additional documentation for items not in the plan for FRO 3, 4, 5, 6, and 7. | |
| GOVERNANCE GUIDANCE | |
| Va. Code §44-146.18 | Disaster preparedness (planning, warnings, response, etc.) |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Planning for mitigation opportunities that may arise after an event is consistent with Mitigation Action FL-24 of the Commonwealth of Virginia Hazard Mitigation Plan, which suggests providing technical assistance to localities to develop mitigation actions after a disaster • Protects health, safety and welfare of citizens (hazard mitigation) • May provide flood protection • Informs emergency management process | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Coordinate plan with Flood Response Preparations (Activity 332b) for additional credit | |



v. Critical Facilities Planning and Protection



Planning to protect critical facilities from flooding can generate CRS credit. Because critical facilities are essential during a flood or other emergency event, and their location and vulnerability can play a major role in their effectiveness, the CRS pays particular attention to critical facilities and offers credit in several sections for planning and protection.

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| CRS CREDIT OPPORTUNITIES: Critical Facilities Planning and Protection |
| CRS ACTIVITIES |
| Potential Credit, Activity 612d, Critical Facilities Planning (CFP) Up to 75 points, <i>CRS Manual</i> , 610-15 |
| <p>Creditable Activity</p> <ul style="list-style-type: none"> • Incorporating critical facilities protection into locality warning and response programs and plans <p>Requirements</p> <ul style="list-style-type: none"> • Prerequisites listed above must be met • Maintain a list of critical facilities subject to flooding or needed during flood events • Be aware of and accommodate any facilities that need special warning arrangements |

- Annual updates and evaluation required

Additional Information

- Additional credit (up to 50 points) for plans developed, reviewed, or accepted by locality for individual facilities

Documentation

- List of public and private critical facilities with contact information and warning process.
- List of critical facilities that have community-approved flood warning and response plan.

**Potential Credit, Activity 432f, Protection of Critical Facilities (PCF)
Up to 80 points, CRS Manual, 430-21**

Creditable Activities

- Regulating the location of critical facilities
- Protecting critical facilities in the floodplain

Requirements

- Full credit is awarded for prohibiting location of critical facilities within the 500-year floodplain
- Partial credit awarded for higher protection standards for facilities within the floodplain
- Locality must have adopted regulatory language protecting critical facilities

Documentation

- Adopted state or local regulation.
- Impact adjustment map indicating areas affected by the standard.
- Example permit records documenting appropriate implementation must be available.
- The ISO/CRS Specialist may look on Google Earth to confirm location of facilities.

**Potential Credit, Activity 522d, Critical Facilities Acquisition & Relocation (bCF)
Double the normal credit (up to 2, 250 points), CRS Manual, 520-7**

Creditable Activity

- Removing critical facilities from the SFHA and 500-year floodplain

Requirements

- Relocations must be outside of the 500-year floodplain
- Must be able to document that vacated property will remain vacant (land available for redevelopment is credited in Activity 532)
- Projects completed before the locality joined the NFIP are not creditable

Additional Information

- Duplicate credit can be earned in Sections 520 and 420 for open space created by removing insurable buildings

- If funding for the project came from FEMA’s Flood Mitigation Assistance program, credit is reduced to 25%
- Projects completed in response to NFIP regulations are not applicable (e.g. a substantially damaged or improved structure brought up to code)
- Total credit is determined by the number of removed structures, and in some cases this is compared to the total number of structures in the SFHA

Documentation

- Map depicting removed buildings and their location in relation to the SFHA. (Before and after screen shots from Google Earth showing parcel with structure and parcel without)
- Calculations showing total number of buildings in SFHA (when using credit calculation option 2).
- Documentation that the properties will be held as open space or documentation of applicable floodplain regulation that will prohibit redevelopment. (could be on FEMA forms)
- Documentation of funding sources for acquisition, relocation, and demolition.
- Completed AW-520 Environmental Compliance worksheet (only for projects completed after the effective date of the CRS Coordinator's Manual).
- Completed AW-501 worksheets for repetitive loss or severe repetitive loss properties, as appropriate.
- A description of the critical facility to demonstrate it meets the CRS definition, as appropriate.
- Documentation of the implementation date for each project.

Potential Credit, Activity 532, Flood Protection

Double credit for protecting critical facilities (Up to 2,600 points total), *CRS Manual, 530-6*

Creditable Activity

- Retrofitting projects or small scale flood control projects that protect critical facilities

Requirements

- Projects must protect to at least the 500-year-flood
- All required permits must have been obtained
- A registered design professional must sign and seal projects in V-Zones and A-Zones seaward of the LiMWA line, in areas with velocities greater than 5ft/second during the 100-year event, and areas subject to special hazards (*Manual* starting on page 530-3)
- Structural projects must be located entirely on the property of the protected building and protect the entire shoreline – no openings
- Projects must maintain the same level of flood protection even with increased development

Additional Information

- Credit is applicable to pre-FIRM structures or those built before the most recent map update where the base flood elevation increased (e.g. a structure built to an old base

flood elevation could be credited if it were elevated to the new base flood elevation)

- If funding for the project came from FEMA’s Flood Mitigation Assistance program, credit is reduced to 25%
- Projects completed in response to NFIP regulations are not applicable (e.g. a substantially damaged or improved structure brought up to code)
- Total credit is determined by the level of flood protection provided by each project and in some cases by the number of protected structures compared to the number of structures in the SFHA

Documentation

- A list and map showing all critical facilities for which credit is being requested.
- Copies of completed AW-530 worksheets and Elevation Certificates (documenting compliance for elevation projects), as appropriate.
- Level of flood protection before and after projects.
- Calculations for total number of buildings in regulatory floodplain (when using credit calculation option 2).
- Documentation showing floodplain regulations apply to areas outside of regulatory floodplain, if applicable.
- A copy of the CLOMR submitted to FEMA, if applicable.
- Documentation of the implementation date for each project.

Potential Credit, Section 632e, Dam Failure Critical Facilities (DCF)

Up to 20 points, CRS Manual, 630-12

Creditable Activities

- Including critical facilities that could be affected by dam failure in dam failure response plan (closely tied to Activity 612d)

Requirements

- Credit must be earned for several dam-related activities to earn any credit for this activity (see [Dam Failure and Critical Facilities](#) for more information)
- There must be a dam failure response plan
- Dam failure response plan must list facilities considered critical during a dam failure
- When necessary, special warnings must be issued to critical facilities in need of special warnings
- For additional credit, dam failure warning and response plans must be developed, reviewed, or accepted by the locality for individual critical facilities

Documentation

- List of critical facilities that would be affected by dam failure including contact information and warning needs.
- List of critical facilities that have developed their own community-approved dam failure warning and response plans.

GOVERNANCE GUIDANCE

Va. Code §15.2-2223 - Comprehensive planning authority

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|---|--|
| §15.2-2231 | |
| 24 VAC 30-155-30 | Location of critical infrastructure (required element of comprehensive or transportation plan) |
| 44 C.F.R. § 201.6 | Local mitigation plans are required in order to receive federal funding; plan requirements, process, and content |
| Va. Code §44-146.18 | Disaster preparedness (planning, warnings, response, etc.) |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Consistent with hazard mitigation and floodplain management planning • Enhances community resilience • Protects important resources during disasters and emergencies • Protects health, safety and welfare of citizens (hazard mitigation) • May provide flood protection • Informs emergency management process | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Encourage critical facility operators to create plans for individual facilities, then adopt them as a locality • Adopt regulatory language that protects critical facilities from flooding by prohibiting their location in the floodplain or other means • Incorporate critical facilities into Hazard Mitigation Planning for additional credit • Coordinate planning with regional groups like Ready Hampton Roads and Virginia's Critical Infrastructure Protection and Resiliency Strategic Plan to ensure comprehensive and collaborative critical facilities planning | |

vi. StormReady Designations

If a locality is designated as a [StormReady](#) community by the National Weather Service, the CRS credits this designation. The StormReady program helps localities nationwide better prepare for natural disasters and severe weather. The program offers ways to improve preparedness for hazardous weather.

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| CRS CREDIT OPPORTUNITIES: StormReady Designations |
| CRS ACTIVITIES |
| Potential Credit, Activity 612e, StormReady Community (SRC) Up to 25 points, <i>CRS Manual</i> , 610-71 |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • Designation as a StormReady community from the National Weather Service <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Prerequisites listed above must be met • Locality must be a StormReady community, designated by the National Weather |

| | |
|--|--|
| Service | |
| Documentation | |
| <ul style="list-style-type: none"> Documentation not needed (info available on national website), but could provide designation letter if available. | |
| GOVERNANCE GUIDANCE | |
| Va. Code §44-146.18 | Disaster preparedness (planning, warnings, response, etc.) |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> Offers additional benefit from a StormReady designation Protects health, safety and welfare of citizens (hazard mitigation) May provide flood protection Informs emergency management process | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> If appropriate for your locality, pursue a StormReady designation | |



C. DAM SAFETY

Regulated dams in Virginia offer a CRS opportunity. The CRS program credits steps to reduce the risk of damage for localities with at least one insurable building in the dam break inundation zone of a high-hazard-potential dam. Virginia qualifies for 37 Uniform Minimum Credit points for the State Dam Safety program (Activity 632a) for eligible localities (those with high-hazard dams); localities can earn additional points as outlined below. Emergency Action Plans, in development for all state-regulated dams, should cover many of the requirements and activities below. For more information on dam safety, visit the Department of Conservation and Recreation’s (DCR) [Dam Safety and Floodplain Management](#) office.

Note: levee programs do earn credit in the CRS, but there are currently no communities earning that credit in Virginia.

i. Dam Safety Prerequisites

To earn credit, all activities described below must meet the following criteria in addition to those listed for each activity. Refer to the [CRS Coordinator’s Manual](#) for more detail on CRS requirements for these criteria and for the activities listed below.

Dam Safety Prerequisites

- At least one insurable building in the locality must be located within a high-hazard dam break inundation zone. This information should be available in the dam’s Emergency Action Plan, available within the locality or from DCR’s Dam Safety office.
- Some credit must be awarded in each category in the tables below in order to earn credit in any of them.
- A description of the dam failure threat must be submitted, including distance upstream from the locality and a dam failure inundation map, both of which are likely available from a regional Dam Safety Engineer, as the Dam Safety Program is in the process of creating shapefiles for all dam breach inundation zones in Virginia. Additional information, available as part of the Emergency Action Plan for each dam available in each locality or from the Dam Safety office, includes dam failure flood hazard data, development exposed to dam failure flooding, and expected impacts of dam failure flooding on health and safety, community functions, and potential for secondary hazards. This dam failure threat description may have been generated as part of the hazard mitigation plan or other required dam safety actions.
- The locality must undertake at least one outreach project to property owners, residents, and businesses in dam failure inundation areas. The project must alert people of their risk of flooding, how they will be warned of a dam failure flood, and recommended safety measures in the event of a flood.
- The locality’s governing body must have adopted a dam failure warning and response plan. See Section 611.b(4) of the CRS Manual for more information. In Virginia, an Emergency Action Plan (EAP) must be created for each high and significant hazard dam that must be incorporated into local emergency plans and should fulfill this criteria (see table below for legislative authority).
- The locality must conduct at least one annual exercise of the warning and response plan. In Virginia, tabletop exercise must be conducted every six years, and drills must be conducted annually (see table below for legislative authority). Required documentation should be available from a regional Dam Safety Engineer.

| CRS CREDIT OPPORTUNITIES: Dam Safety Prerequisites | |
|---|--|
| CRS ACTIVITIES | |
| Probable Credit, Dams (Section 620) <i>CRS Manual, 620-1</i> | |
| Creditable Activity | |
| <ul style="list-style-type: none"> • Dam safety activities | |
| Requirements | |
| <ul style="list-style-type: none"> • See prerequisites above • See subsequent sections for more information | |
| GOVERNANCE GUIDANCE | |
| Va. Code § 10.1-604 et seq | Virginia Dam Safety Act |
| § 10.1-605; 4VAC50-20-175 (E) | Emergency Action Plan (EAP) required for high and significant hazard potential structures including dam break inundation maps; |

| | |
|---|--|
| | sets out the requirements for drills and table top exercises |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> • Meets required dam safety procedures • Supports existing Emergency Action Plans • Protects health, safety and welfare of citizens (hazard mitigation) • May provide flood protection • Informs emergency management process | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |
| <ul style="list-style-type: none"> • Ensure that existing Emergency Action Plans meet all CRS requirements (should meet many) • Update Emergency Action Plans to incorporate CRS requirements where applicable | |

ii. Dam Failure Threat Recognition

CRS credit is available for a system that alerts the emergency manager to a safety threat within a high hazard dam. Virginia participates in the Natural Resource Conservation Service’s DamWatch program, which assists with these alerts throughout the country. Credit must be awarded in this activity to receive credit in any of the other dam activities reviewed here.

| | |
|---|--|
| CRS CREDIT OPPORTUNITIES: Alerting Emergency Managers to a Dam Failure Threat | |
| CRS ACTIVITIES | |
| Potential Credit, Activity 632b, Dam Failure Threat Recognition System (DFR) Up to 30 points, CRS Manual, 630-6 | |
| <u>Creditable Activity</u> | |
| <ul style="list-style-type: none"> • An alert system for potential dam failure | |
| <u>Requirements</u> | |
| <ul style="list-style-type: none"> • Prerequisites listed above must be met • Threat recognition procedures must include procedures and conditions for when the dam operator must notify local emergency personnel of potential or actual breach • Threat recognition procedures must be in the dam failure warning and response plan (likely covered by Emergency Action Plan) • System must be monitored 24/7 • Equipment/communication must be tested quarterly | |
| <u>Additional Information</u> | |
| <ul style="list-style-type: none"> • If not all buildings in danger from a dam breach are covered by the system, credit will be reduced • Additional credit is available for a backup system such as sensors, cameras, or gages | |

| | |
|--|--|
| <ul style="list-style-type: none"> • Credit may be available for the State’s system, DamWatch | |
| <p>Documentation</p> <ul style="list-style-type: none"> • Copy of the dam failure warning and response plan with clearly marked threat recognition process. • Records of quarterly equipment testing. • Copy of outreach materials to be used in the event of a failure. • Description of drill or response to actual emergency during the previous year. | |
| <p>GOVERNANCE GUIDANCE</p> | |
| <p>Va. Code § 10.1-604 et seq</p> | <p>Virginia Dam Safety Act</p> |
| <p>§ 10.1-605; 4VAC50-20-175 (E)</p> | <p>Emergency Action Plan (EAP) required for high and significant hazard potential structures including dam break inundation maps; sets out the requirements for drills and table top exercises</p> |
| <p>CO-BENEFITS</p> | |
| <ul style="list-style-type: none"> • Protects health, safety and welfare of citizens (hazard mitigation) • May provide flood protection • Informs emergency management process • Meets required dam safety procedures • Supports existing Emergency Action Plans | |
| <p>RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS</p> | |
| <ul style="list-style-type: none"> • Review whether the state system, DamWatch, meets this criteria in your locality • Ensure that existing Emergency Action Plans meet all CRS requirements (should meet many) • Update Emergency Action Plans to incorporate CRS requirements where applicable | |

iii. Dam Failure Warning

This activity provides CRS credit for a system to alert the public of a dam failure. When a dam fails, relaying the information to the public in a timely manner is critical. While property may be unsalvageable, lives can be saved. Credit must be awarded in this activity for receipt of credit in any of the other dam activities reviewed here.

| | |
|--|--|
| <p>CRS CREDIT OPPORTUNITIES: Warning the Public of a Dam Failure</p> | |
| <p>CRS ACTIVITIES</p> | |
| <p>Potential Credit, Activity 632c, Dam Failure Warning (DFW) Up to 35 points, <i>CRS Manual</i>, 630-8</p> | |
| <p>Creditable Activity</p> <ul style="list-style-type: none"> • Credit is provided for alerting the public to a potential/actual dam failure through | |

messages and other notifications (may be part of Emergency Action Plan)

Requirements

- Prerequisites listed above must be met
- Procedures must be included in the dam failure warning and response plan (Emergency Action Plan)
- Warnings must be delivered quickly at any time of day (radio and TV not credited – not always turned on)
- If specialized equipment is required, it must be tested annually (inspections are required annually by State)

Additional Information

- If not all buildings in danger from a dam breach are covered by the warning, credit will be reduced

Documentation

- Copy of the dam failure warning and response plan with clearly marked warning notification process.
- Records of annual equipment testing.
- Description of drill or response to actual emerge

GOVERNANCE GUIDANCE

| | |
|-------------------------------|---|
| Va. Code § 10.1-604 et seq | Virginia Dam Safety Act |
| § 10.1-605; 4VAC50-20-105 (E) | Sets out the requirements for inspections |
| § 10.1-605; 4VAC50-20-175 (E) | Emergency Action Plan (EAP) required for high and significant hazard potential structures including dam break inundation maps; sets out the requirements for drills and table top exercises |

CO-BENEFITS

- Meets required dam safety procedures
- Protects health, safety and welfare of citizens (hazard mitigation)
- May provide flood protection
- Informs emergency management process
- Meets required dam safety procedures
- Supports existing Emergency Action Plans

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Ensure that existing Emergency Action Plans meet all CRS requirements (should meet many)
- Update Emergency Action Plans to incorporate CRS requirements where applicable
- Have a warning plan that meets CRS criteria

iv. Dam Failure Response Operations

Plans to protect health, safety, and property from a potential dam breach should receive CRS credit. Credit is provided for planning and practicing actions to ensure this protection. Credit must be awarded in this activity for receipt of credit in any other dam activities reviewed here.

| CRS CREDIT OPPORTUNITIES: Dam Failure Response Operations | |
|---|---|
| CRS ACTIVITIES | |
| Potential Credit, Activity 632d, Dam Failure Response Operations (DFO) Up to 30 points, <i>CRS Manual, 630-10</i> | |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> Plans and practice for protecting health, safety, and property from a dam breach <p><u>Requirements</u></p> <ul style="list-style-type: none"> Prerequisites listed above must be met Dam failure operations must be included in the warning and response plan (Emergency Action Plan) Plan needs to describe actions that will be taken in the event of a dam failure, identify office or officials responsible for action, define time needed to carry out action, and contain other critical info <p><u>Additional Information</u></p> <ul style="list-style-type: none"> If not all buildings in danger from a dam breach are covered by the operations, credit will be reduced <p><u>Documentation</u></p> <ul style="list-style-type: none"> Copy of dam failure warning and response plan with clearly marked response actions. Description of drill or response to actual emergency during the previous year. | |
| GOVERNANCE GUIDANCE | |
| Va. Code § 10.1-604 et seq | Virginia Dam Safety Act |
| § 10.1-605; 4VAC50-20-175 (E) | Emergency Action Plan (EAP) required for high and significant hazard potential structures including dam break inundation maps; sets out the requirements for drills and table top exercises |
| CO-BENEFITS | |
| <ul style="list-style-type: none"> Meets required dam safety procedures Protects health, safety and welfare of citizens (hazard mitigation) May provide flood protection Informs emergency management process Meets required dam safety procedures Supports existing Emergency Action Plans | |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS | |

- Ensure that existing Emergency Action Plans meet all CRS requirements (should meet many)
- Update Emergency Action Plans to incorporate CRS requirements where applicable

v. Dam Failure and Critical Facilities

Activity 632e, Dam Failure Critical Facilities awards credit for coordinating with critical facility operators on dam failure safety practices. It is important to protect critical facilities from disasters, including dam breaches, to assist with a quick recovery within the community. Credit must be awarded in this activity for receipt of credit in any of the other dam activities reviewed here.

| CRS CREDIT OPPORTUNITIES: Dam Failure and Critical Facilities Coordination | |
|---|---|
| CRS ACTIVITIES | |
| Potential Credit, Activity 632e, Dam Failure Critical Facilities (DCF) Up to 20 points, <i>CRS Manual</i> , 630-12 | |
| <u>Creditable Activity</u> | |
| <ul style="list-style-type: none"> • Coordinating dam failure safety practices with critical facilities | |
| <u>Requirements</u> | |
| <ul style="list-style-type: none"> • Prerequisites listed above must be met • The dam failure response plan must list critical facilities that would be affected by a dam failure • When necessary, special warnings must be issued to those critical facilities in need of special warnings | |
| <u>Additional Information</u> | |
| <ul style="list-style-type: none"> • For additional credit, dam failure warning and response plans must have been developed, reviewed, or accepted by the locality for individual critical facilities | |
| <u>Documentation</u> | |
| <ul style="list-style-type: none"> • List of critical facilities that would be affected by dam failure including contact information and warning needs. • List of critical facilities that have developed their own community-approved dam failure warning and response plans. | |
| GOVERNANCE GUIDANCE | |
| Va. Code § 10.1-604 et seq | Virginia Dam Safety Act |
| § 10.1-605; 4VAC50-20-175 (E) | Emergency Action Plan (EAP) required for high and significant hazard potential structures including dam break inundation maps; sets out the requirements for drills and table top exercises |

| CO-BENEFITS |
|--|
| <ul style="list-style-type: none"> • Meets state dam safety requirements • Protects health, safety and welfare of citizens (hazard mitigation) • May provide flood protection • Informs emergency management process • Meets required dam safety procedures • Supports existing Emergency Action Plans |
| RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS |
| <ul style="list-style-type: none"> • Coordinate with critical facilities managers on dam safety procedures • Refer to Critical Facilities Planning and Protection for information on additional credit for critical facilities • Ensure that existing Emergency Action Plans meet all CRS requirements (should meet many) • Update Emergency Action Plans to incorporate CRS requirements where applicable |

VI. COMMUNITY ENGAGEMENT

There are several opportunities for community engagement that overlap with CRS credit. These opportunities include reaching out to citizens with flood-related information, including floodplain information in required stormwater outreach, marking high water marks throughout the locality, and others. These credit opportunities are discussed below.

Several activities support the statewide hazard mitigation plan.

To earn credit, projects must cover one of six designated flood topics. At least one project must discuss flood insurance in order for any projects to earn credit. If the locality develops a Program for Public Information (discussed below), additional topics can be covered and bonus credit is awarded. The topic options are displayed in Table 3 below.

Table 3: CRS Topics and Example Messages

| Designated Topics | Example Messages |
|--|---|
| 1. Know your flood hazard | Your property is subject to flooding You are in a repetitively flooded area Drive safely: 5 people died in the 2012 floods |
| 2. Insure your property for your flood hazard (at least one project must be on this topic) | You need (and can get) flood insurance Renters should buy flood insurance for contents Take advantage of a low-cost Preferred Risk Policy |
| 3. Protect people from the hazard | Turn around, don't drown Know the flood warning signals: one long blast of the siren means a flood along Silver Creek |

| | |
|--|---|
| | Designate a place where your family can rendezvous after an evacuation order is issued |
| 4. Protect your property from the hazard | Replace your flooded furnace with one elevated above the flood level Keep debris and trash out of streams, drains and ditches We can help you get a grant for your home. Call us at X |
| 5. Build responsibly | Get a permit from X before you build Know the substantial damage rules and ICC benefits. Learn more at www._____ All projects should be at least 10 feet from the property line so you don't alter drainage between homes |
| 6. Protect natural floodplain functions | Don't dump, drains to Bay Protect our turtle nesting areas: stay off the beach after sunset Report broken silt fences: they keep our streams clean |
| Additional Topic Examples (available to localities with a Program for Public Information) | Example Messages |
| 7. Hurricane preparedness* | Know your evacuation route |
| 8. General preparedness* | Inventory and photograph your homes contents and put important papers in a safe place |
| 9. Basement flooding* | Check your downspout – drain away from the house |
| 10. Flood education* | Teach school children about flooding |
| 11. Sea level rise | Know the risks of flooding associated with sea level Rise |
| *Examples 7 and 8 could also be listed under CRS topic 3 – Protect people from the hazard. By listing them as separate topics in its PPI, the locality can receive credit for covering three different topics in each project. Similarly, example topic 9 could be covered in CRS topic 4. All five additional topics must be explained in the Program for Public Information. | |

Source: *CRS Coordinator's Manual* 2013, page 330-4

i. Program for Public Information

A locality can create a Program for Public Information (PPI) that guides outreach efforts to earn extra credit for CRS-credited outreach projects. Implementing outreach activities covered in a PPI will earn the locality a 40% bonus on those outreach projects and up to an additional 80 points in Activity 332c, Program for Public Information.

A locality must create a committee of at least five people, with at least half of the members from outside the local government. The committee must include at least one locality floodplain management representative and at least one locality public information representative (if there is a public information office). Representatives from the banking and insurance industries earn

extra credit. Depending on membership, the PPI committee may overlap with committees already created for other purposes, such as stormwater management/Watershed Task Force committees (recommended in new draft stormwater guidance), Local Emergency Planning Committees (for hazard mitigation plans), Natural Event Mitigation Advisory Committees, Resilience Committees, and others.

Multi-jurisdictional PPI committees offer an opportunity to work among regional localities. Membership must include at least two representatives from each locality; at least half of the members must be from outside of local government and all meetings must be attended by at least half of the members (digital meetings are acceptable if the committee covers a large geographic area).

The committee creates the Program for Public Information, which is a written document delineating the locality’s plans for public outreach regarding floodplain management. Brief documents are permissible, but should cover all outreach projects the locality plans to pursue, including those already implemented. Projects not covered in the PPI will not earn the bonus credit associated with the development of the PPI.

Localities must follow a seven-step process beginning on page 330-12 of the *CRS Manual* to earn credit. The process includes creating the committee; assessing public information needs; formulating messages; identifying projects; examining public information initiatives; preparing the PPI document; and implementing, monitoring, and evaluating the program.

For more information on PPIs, see this [supplement](https://crsresources.org) to the *CRS Coordinator’s Manual* from crsresources.org, the official CRS Resources website.

| |
|--|
| CRS CREDIT OPPORTUNITIES: Creating a Program for Public Information |
| CRS ACTIVITIES |
| Probable Credit, Activity 332c Program for Public Information, (PPI) Up to 80 extra credit points (40% multiplier), <i>CRS Manual</i>, 330-12 |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • Implementation of recommendations from a committee and report guiding public information needs <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Credit is awarded for implementing the PPI, not just creating the committee or report • Committee composition: at least 5 people; at least 1 locality floodplain management rep, at least 1 locality public information office rep (if applicable), at least half of members from outside local government; extra credit for insurance and bank reps • Multi-jurisdictional committee composition: at least 2 reps from each locality, at least half of reps from outside of local government, at least half of reps must attend all meetings (digital meetings are acceptable) • Follow the 7-step process outline in the <i>CRS Manual</i> (beginning page 330-12) • Adopt the PPI |

Additional Information

- To earn PPI extra credit for any activity, that activity must be included in the PPI
- Depending on the topics covered by a PPI, credit can also be earned for information provided to the public relating to the following activities: Activity 340 (Hazard Disclosure), Activity 350 (Flood Protection Information), Activity 360 (Flood Protection Assistance), Activity 422 (Open Space Preservation), and Activity 542 (Drainage System Maintenance)

Documentation

- Copy of the PPI document
- Documentation of PPI committee meetings (e.g. minutes, sign in sheets, etc.).
- Documentation that the PPI has been adopted by the community
- Documentation in the form of a table or spreadsheet that the PPI has been reviewed and updated annually will be required for CRS recertification each year.

CO-BENEFITS

- Encourages use of existing committees

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Use existing committees or committees created for other purposes, such as Local Emergency Planning Committees, Watershed Task Forces, Resilience Committees, and others to double as a PPI committee
- Include all activities in the PPI that the community seeks credit for, even if the community is already implementing those activities
- Include outreach on the following topics in the PPI to earn additional credit: Activity 340 (Hazard Disclosure), Activity 350 (Flood Protection Information); Activity 360 (Flood Protection Assistance); Activity 422 (Open Space Preservation); Activity 542 (Drainage System Maintenance)



ii. Stakeholder Delivery of Public Information

If a stakeholder identified in the Program for Public Information delivers an outreach project the locality can earn a 30% bonus on those projects in addition to the PPI bonus. This credit does not apply to Flood Response Preparations projects (Activity 332b), which rewards projects disseminated during and after a flood event.

Stakeholders include agencies, organizations, or persons other than the local government. Examples include insurance companies that offer flood insurance brochures, a local news station that publishes an annual hurricane guide, schools, neighborhood or civic associations, utility companies, non-profits, and others, including FEMA.

CRS CREDIT OPPORTUNITIES: Stakeholder Delivery of Public Flood-Related Information

CRS ACTIVITIES

Probable Credit, Activity 332d, Stakeholder Delivery Bonus (STK)
Up to 50 points (30% multiplier), *CRS Manual*, 330-17

Creditable Activity

- Public information delivered or endorsed by PPI-recognized stakeholders outside of the local government

Requirements

- Must have a PPI that identifies relevant stakeholder(s) (see [Program for Public Information](#))
- Must be clear that the message is coming from someone other than the local government

Additional Information

- See [General Public Outreach](#) for more information on eligible outreach projects
- Extra credit does not apply to Flood Response Preparations activities

Documentation

- All documentation required is supplied with OP and PPI documentation. It should be made clear which projects are delivered by stakeholders and therefore warrant STK credit.

CO-BENEFITS

- Protects health, safety and welfare of citizens (hazard mitigation)
- Helps create an informed citizenry
- Engages multiple stakeholders
- Supports community cooperation

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Support local stakeholder's efforts to implement outreach projects
- Include stakeholder outreach projects in the locality's PPI



iii. General Public Outreach

General public outreach regarding flood and floodplain issues will earn credit in the CRS. Outreach includes public signs (high credit earner!) (such as high water mark or “No Dumping” signs), brochures, mailings, presentations, etc. At least one project must discuss flood insurance (additional credit is available for promoting flood insurance in Activity 370), and each project must be disseminated at least annually to receive credit.

Higher-effort projects, such as mailings and presentations to targeted audiences, receive more credit than lower-effort projects like making brochures available to a general audience. Some projects do not return high credit – they may be worth less than ten points. However, several simple projects that do not require a significant amount of resources can add up to a significant number of points. For example, you can send the same mailing to the same people up to 5 times each year: earning you 5 times the credit value of the mailing if it was only sent once. [Read this worksheet](#) for more information on how to maximize credit on outreach.

Extra credit is available for a Program for Public Information and delivery of the message by a stakeholder, both discussed above.

Additional guidance and sample outreach projects are available on the Coastal VA CRS Workgroup’s website: <http://www.coastalvacrs.com/importantcrsinfo/>

| CRS CREDIT OPPORTUNITIES: Public Outreach Regarding Flood-Related Information |
|--|
| CRS ACTIVITIES |
| Probable Credit, Activity 332a, Outreach Projects (OP) Up to 200 points (for several projects), <i>CRS Manual</i> , 330-6 |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> Public outreach projects regarding flood-related issues <p><u>Requirements</u></p> <ul style="list-style-type: none"> Projects must discuss one of 6 flood-related topics (see page 330-4 in the Manual or Table 3 above) At least one project must address flood insurance Projects can include informational materials, general outreach and presentations, or targeted to specific audiences Projects must be conducted on at least an annual basis (can be a brochure made available to the public or public sign) <p><u>Additional Information</u></p> <ul style="list-style-type: none"> Follow the guidance in the <i>CRS Manual</i> (Section 330) for information on topics and delivery methods <p><u>Documentation</u></p> <ul style="list-style-type: none"> Copies of the outreach materials that have been produced and disseminated. Time-Saver: Use this Excel file to track your locality’s outreach across different departments and by various staff. (Coastal VA CRS Workgroup Doc) Time-Saver: ISO created an Excel file that automatically scores each outreach project, giving you an idea of how many credit points your locality could earn. |
| Potential Credit, Activity 332c Program for Public Information, (PPI) Up to 80 extra credit points (40% multiplier), <i>CRS Manual</i> , 330-12 |

Creditable Activity

- Implementation of recommendations from a committee and report guiding public information needs

Additional Information

- See details above in [Program for Public Information](#)
- To earn PPI bonus credit for any activity, that activity must be included in PPI report
- Credit is awarded for implementing recommendations of the PPI report, not the formation of the PPI committee or report

Documentation

- Copy of the PPI document
- Documentation of PPI committee meetings (e.g. minutes, sign in sheets, etc.).
- Documentation that the PPI has been adopted by the community
- Documentation in the form of a table or spreadsheet that the PPI has been reviewed and updated annually will be required for CRS recertification each year.

Potential Credit, Activity 332d, Stakeholder Delivery Bonus (STK)
Up to 50 points (30% multiplier), *CRS Manual*, 330-17

Creditable Activity

- Public information delivered or endorsed by PPI-recognized stakeholders outside of the local government

Requirements

- Must have a PPI that identifies relevant stakeholder(s) (see [Program for Public Information](#))
- Must be clear that the message is coming from someone other than the local government
- Must meet the criteria for [Outreach Projects](#)

Additional Information

- See [Stakeholder Delivery](#) for more information

Documentation

- All documentation required is supplied with OP and PPI documentation. It should be made clear which projects are delivered by stakeholders and therefore warrant STK credit.

CO-BENEFITS

- Consistent with [Commonwealth of Virginia Hazard Mitigation Plan](#) Mitigation Action FL-17, encouraging NFIP education and promotion (required for outreach credit)
- Protects health, safety and welfare of citizens (hazard mitigation)
- Helps create an informed citizenry
- Engages multiple stakeholders
- Supports community cooperation

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Ensure at least one outreach project discusses flood insurance to meet prerequisites
- Create a Program for Public Information for additional credit; include all projects for which credit will be sought
- Support local stakeholder's efforts to implement outreach projects
- Pursue flood mitigation workshops for businesses to get outreach credit and fulfill Mitigation Action FL-22 from the [Commonwealth of Virginia Hazard Mitigation Plan](#)

iv. Flood Response Preparations

Credit can be earned for actions a locality takes to prepare for public outreach needs before, during, and after a flooding event. Preparing these messages and delivery procedures beforehand allows easy and quick distribution, helping to protect lives and property.

CRS CREDIT OPPORTUNITIES: Public Outreach Preparation for a Flood (Before, During, and After an Event)

CRS ACTIVITIES

Probable Credit, Activity 332a, Outreach Projects (OP)
Up to 200 points (for several projects), *CRS Manual*, 330-6

Creditable Activity

- Public outreach projects regarding flood-related issues

Requirements

- Projects must discuss one of 6 flood-related topics (see page 330-4 in the Manual or [Table 3](#) above)
- At least one project must address flood insurance
- Projects can include informational materials, general outreach and presentations, or targeted to specific audiences
- Projects must be conducted on at least an annual basis (can be a brochure made available to the public or public sign)

Additional Information

- Follow the guidance in the *CRS Manual* (Section 330) for information on topics and delivery methods

Documentation

- Copies of the outreach materials that have been produced and disseminated.
- Time-Saver: Use this [Excel file](#) to track your locality's outreach across different departments and by various staff. (Coastal VA CRS Workgroup Doc)
- Time-Saver: ISO created an [Excel file](#) that automatically scores each outreach project, giving you an idea of how many credit points your locality could earn.

Probable Credit, Activity 332b, Flood Response Preparations (FRP)
Up to 50 points, *CRS Manual*, 330-9

Creditable Activity

- Preparing messages and delivery procedures for before, during, and after a flood event

Requirements

- Projects must receive credit in Activity 332a, Outreach Projects (above)
- Projects must be used in response to a flood (if applicable) or reviewed and updated annually

Additional Information

- If flood response projects are not implemented for a flood event, credit will be lost
- If flood response projects are implemented in place of other outreach projects because of a lack of resources, a locality will not lose credit for those outreach projects
- Flood Response Preparations projects are not eligible for stakeholder delivery credit

Documentation

- Copies of the materials prepared and procedures that explain how they are to be distributed.
- Documentation that the FRP materials were reviewed to determine whether they are still current and appropriate will be required for yearly recertification.

Potential Credit, Activity 332c Program for Public Information, (PPI)
Up to 80 extra credit points (40% multiplier), *CRS Manual*, 330-12

Creditable Activity

- Implementation of recommendations from a committee and report guiding public information needs

Additional Information

- See details above in [*Program for Public Information*](#)
- To earn PPI bonus credit for any activity, that activity must be included in the PPI report
- Credit is awarded for implementing recommendations of the PPI report, not the formation of the PPI committee or report

Documentation

- Copy of the PPI document
- Documentation of PPI committee meetings (e.g. minutes, sign in sheets, etc.).
- Documentation that the PPI has been adopted by the community
- Documentation in the form of a table or spreadsheet that the PPI has been reviewed and updated annually will be required for CRS recertification each year.

CO-BENEFITS

- Protects health, safety and welfare of citizens (hazard mitigation)
- Helps create an informed citizenry

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Coordinate flood response messages with a [Flood Response Operations Plan](#) for additional credit (Activity 612c) (CREDIT GO-GETTERS)
- Create a Program for Public Information for additional credit; include all projects for which credit will be sought

v. High Water Mark Initiatives

High water mark initiatives may be eligible for CRS credit. Several communities in Virginia utilize signage, photographs, maps, and web information to illustrate the high water mark from various storm events. High water marks are also required on federally funded, publicly utilized structures pursuant to Executive Order 11988.²⁶ These help remind residents of the flooding potential in these locations, help generate flood risk awareness, and are encouraged through FEMA’s [“Know Your Line: Be Flood Aware”](#) initiative. Ideas for such signs include posting them in public places such as an aquarium, museum, or park (denoting the highest water mark in the city, and/or the 100-year and 500-year-flood levels). It is important to review the sections of the *CRS Manual* discussed below to ensure a full understanding of credit opportunities.

CRS CREDIT OPPORTUNITIES: High Water Mark Initiatives

CRS ACTIVITIES

Probable Credit, Activity 332a, Outreach Projects (OP)

Up to 200 points (for several projects), *CRS Manual*, 330-6

Creditable Activity

- Public high water mark initiatives

Requirements

- Projects must discuss one of 6 flood-related topics (see page 330-4 in the Manual or [Table 3](#) above; this would fall under topic 1— know your flood hazard)
- At least one project must address flood insurance
- Projects can include informational materials, general outreach and presentations, or targeted to specific audiences (this would likely be considered informational material)
- Projects must be conducted on at least an annual basis (can be a public sign)

Additional Information

- Follow the guidance in the *CRS Manual* (Section 330) for information on topics and delivery methods

Documentation

- Copies of the outreach materials that have been produced and disseminated.

- Time-Saver: Use this [Excel file](#) to track your locality's outreach across different departments and by various staff. (Coastal VA CRS Workgroup Doc)
- Time-Saver: ISO created an [Excel file](#) that automatically scores each outreach project, giving you an idea of how many credit points your locality could earn.

Potential Credit, Activity 332c Program for Public Information, (PPI)
Up to 80 extra credit points (40% multiplier), CRS Manual, 330-12

Creditable Activity

Implementation of recommendations from a committee and report guiding public information needs

Additional Information

- See details above in [Program for Public Information](#)
- To earn PPI bonus credit for any activity, that activity must be included in the PPI report
- Credit is awarded for implementing recommendations of the PPI, not the PPI itself

Documentation

- Copy of the PPI document
- Documentation of PPI committee meetings (e.g. minutes, sign in sheets, etc.).
- Documentation that the PPI has been adopted by the community
- Documentation in the form of a table or spreadsheet that the PPI has been reviewed and updated annually will be required for CRS recertification each year.

Potential Credit, Activity 332d, Stakeholder Delivery Bonus (STK)
Up to 50 points (30% multiplier), CRS Manual, 330-17

Creditable Activity

- Public information delivered or endorsed by PPI-recognized stakeholders outside of the local government

Requirements

- Must have a Program for Public Information (PPI) that identifies relevant stakeholder(s)
- Must be clear that the message is coming from someone other than the local government
- Must meet the criteria for [Outreach Projects](#)

Additional Information

- See [Stakeholder Delivery](#) for more information

Documentation

- All documentation required is supplied with OP and PPI documentation. It should be made clear which projects are delivered by stakeholders and therefore warrant STK credit.

Potential Credit, Activity 322f, Historical/Repetitive Flood Information in a Map Information Service (MI6)

Up to 20 points, CRS Manual, 320-14

Creditable Activity

- Mapping historical and repetitive flood areas; making that information available to the public

Requirements

- Locality must provide information from the FIRM to any inquirers (Activity 322a), as well as historical and repetitive flood information
- Must have a Map Information Service, searchable by address, updated annually, with personal contact (see [Public Map Information Service](#) for more information)
- Information about past floods in the location of interest must be volunteered

CO-BENEFITS

- May comply with requirements of Executive Order 11988 to display high water marks
- Protects health, safety and welfare of citizens (hazard mitigation)
- Helps create an informed citizenry
- Provides visible sea level rise adaptation support

Documentation

- 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.

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Display high water marks on any public buildings under the jurisdiction of EO 11988
- Include the 100-year and 500-year flood levels on signs to improve risk awareness in addition to historic flood levels
- Place high water marks in highly visible locations (e.g., aquariums, parks, libraries, grocery stores, etc.) to increase public awareness



vi. Wetlands Watch’s “Sea Level Rise” Flooding App

An app recently created by Wetlands Watch may be used to earn CRS credit. Called [Sea Level Rise](#), the app uses crowdsourcing to map high water marks and flooded intersections. Once approved, users utilize the internal GPS locator in their smartphones or tablets to identify the extent of tidal flooding, as well as the flooded and impassable roads and intersections.

This real-time information will help increase awareness of flooding problems, reduce risk as people avoid flooded roadways, and track flood problems over time. Wetlands Watch expects to continue updating the app as necessary, including making the data available in GIS format for use by local governments.

No localities currently receive credit for use of the app, but if local governments promote the app and encourage its use by residents, it may receive credit. Localities can promote its use to the whole locality or to targeted audiences, such as repetitive loss areas.

| CRS CREDIT OPPORTUNITIES: Wetlands Watch's "Sea Level Rise" App |
|---|
| CRS ACTIVITIES |
| Probable Credit, Activity 332a, Outreach Projects (OP) Up to 200 points (for several projects), <i>CRS Manual</i> , 330-6 |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • Use of smart phone and tablet app that tracks high water marks and frequent flooding <p><u>Requirements</u></p> <ul style="list-style-type: none"> • Projects must discuss one of 6 flood-related topics (see page 330-4 in the Manual or Table 3 above) (this would fall under topic 1— know your flood hazard) • At least one project must address flood insurance • Projects can include informational materials, general outreach and presentations, or targeted to specific audiences • Projects must be conducted on at least an annual basis (use of the app would be ongoing) <p><u>Additional Information</u></p> <ul style="list-style-type: none"> • Follow the guidance in the <i>CRS Manual</i> (Section 330) for information on topics and delivery methods <p><u>Documentation</u></p> <ul style="list-style-type: none"> • Copies of the outreach materials that have been produced and disseminated. • Time-Saver: Use this Excel file to track your locality's outreach across different departments and by various staff. (Coastal VA CRS Workgroup Doc) • Time-Saver: ISO created an Excel file that automatically scores each outreach project, giving you an idea of how many credit points your locality could earn. |
| Potential Credit, Activity 332c Program for Public Information, (PPI) Up to 80 extra credit points (40% multiplier), <i>CRS Manual</i> , 330-12 |
| <p><u>Creditable Activity</u></p> <ul style="list-style-type: none"> • Creation of a committee and report guiding public information needs within the locality <p><u>Additional Information</u></p> |

- See details above in [Program for Public Information](#)
- To earn PPI bonus credit for any activity, that activity must be included in the PPI report
- Credit is awarded for implementing recommendations of the PPI, not the PPI itself

Documentation

- Copy of the PPI document
- Documentation of PPI committee meetings (e.g. minutes, sign in sheets, etc.).
- Documentation that the PPI has been adopted by the community
- Documentation in the form of a table or spreadsheet that the PPI has been reviewed and updated annually will be required for CRS recertification each year.

Potential Credit, Activity 332d, Stakeholder Delivery Bonus (STK)
Up to 50 points (30% multiplier), *CRS Manual*, 330-17

Creditable Activity

- Public information delivered or endorsed by PPI-recognized stakeholders outside of the local government

Requirements

- Must have a Program for Public Information (PPI) that identifies relevant stakeholder(s)
 1. Must be clear that the message is coming from someone other than the local government
 2. Must meet the criteria for [Outreach Projects](#)

Additional Information

3. See [Stakeholder Delivery](#) for more information

Documentation

- All documentation required is supplied with OP and PPI documentation. It should be made clear which projects are delivered by stakeholders and therefore warrant STK credit.

Potential Credit, Activity 322c, Local Drainage Problems (MI3)
Up to 20 points, *CRS Manual*, 320-11

Creditable Activity

- Mapping local drainage problems; making that information available to the public

Requirements

- Locality must provide information from the FIRM to any inquirers (Activity 322a), as well as local drainage problem information
- Must have a Map Information Service, searchable by address, updated annually, with personal contact (see [Public Map Information Service](#) for more information)
- Information about local drainage problems recorded by the app must be volunteered

Documentation

- 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.

Potential Credit, Activity 322f, Historical/Repetitive Flood Information in a Map Information Service (MI6)

Up to 20 points, CRS Manual, 320-14

Creditable Activity

- Mapping historical and repetitive flood areas; making that information available to the public

Requirements

- Locality must provide information from the FIRM to any inquirers (Activity 322a), as well as historical and repetitive flood information
- Must have a Map Information Service, searchable by address, updated annually, with personal contact (see [Public Map Information Service](#) for more information)
- Information about past floods in the location of interest must be volunteered

Documentation

- 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

- Protects health, safety and welfare of citizens (hazard mitigation)
- Encourages community cooperation
- Engages stakeholders and citizens
- Provides visible sea level rise adaptation support

RECOMMENDATIONS TO MAXIMIZE CRS CREDITS + CO-BENEFITS

- Promote the use of Wetlands Watch’s app for flooding awareness
- Encourage multiple departments to use the app to inform emergency management, development and site plans, transportation, etc.
- Support Wetlands Watch’s efforts to expand capabilities of the app, then use the app to get messages out to users for additional credit

FINAL RECOMMENDATIONS

While developing this report, Wetlands Watch identified several areas where localities and the Commonwealth of Virginia could advance CRS efforts and improve cross-departmental collaboration to share resources and maximize CRS credit. These recommendations are below.

Locality Recommendations

- Follow recommendations in each table to maximize credit and co-benefit opportunities
- Create a locality CRS team consisting of representatives from each locality department, led by the CRS Coordinator
- Improve collaboration with outside stakeholders to benefit from existing data sources, outreach efforts, open space preservation, etc. and to assist in advancing the goals of those stakeholders
- Review the activities identified throughout the report as Easy Credit and High Credit to take advantage of activities with the greatest benefits
- Pursue programs and activities that will assist with sea level rise adaptation in your locality and improve community resilience

State Recommendations

- Each department/agency within the Commonwealth of Virginia should review its programs for potential Uniform Minimum Credit opportunities, with guidance from a CRS professional
- Consider adopting an erosion control line, which could be based on ongoing studies of coastal erosion at the VIMS [Shoreline Studies Program](#)
- Require real estate companies to disclose at listing the specific flood zone (SFHA, X-Zone, etc.) in which a property is located
- The Department of Conservation and Recreation should create creditable outreach documents for localities to allow for consistent messaging and save locality resources
- Update the [Flood Risk Information System](#) to include additional data and earn Uniform Minimum Credit (see North Carolina's [FRIS](#) as an example)
- The Virginia Department of Emergency Management should consider becoming a Cooperative Technical Partner as it fulfills the *Commonwealth of Virginia Hazard Mitigation Plan* Mitigation Actions FL-14 and FL-15 to improve flood data and mapping
- State-operated open space preservation, acquisition and tax credit programs should coordinate with localities to prioritize protection of land in floodplains or high hazard areas and communicate state land holdings that will provide localities with CRS credit

CONCLUSION

This report serves as a guide for local governments to identify existing programs that may be eligible for CRS credit. A single action can provide multiple co-benefits, further justifying implementation of that action and encouraging participation in the CRS. Once a locality joins the CRS program and works to improve its rating, it is likely to take on additional activities that provide co-benefits, reduce flood risk, and help adapt to sea level rise.

To be successful in the Community Rating System, a locality must take a collaborative, multi-departmental approach. The CRS Coordinator must work with all relevant departments to ensure credit is earned for every applicable activity, and must coordinate with elected officials and outside stakeholders. Many opportunities for CRS credit and other co-benefits are best realized through collaboration.

Participation in the CRS program allows localities to address increasing flood insurance rates by providing discounts to policyholders within their locality. The activities implemented to earn these discounts improves the safety of the floodplain and their community and supports other programs and policies that advance community goals. There are many programs, policies, and requirements common to Virginia localities that will help to earn CRS credit, provided the locality pursues a collaborative CRS program.

ABOUT WETLANDS WATCH

Wetlands Watch, an environmental non-profit located in Norfolk, VA operates statewide to conserve and protect wetlands through education and advocacy. Since 2006, we have worked to help coastal communities in Virginia adapt to sea level rise and conserve our coastal ecosystem as the only environmental nonprofit working at the local governmental level on sea level rise adaptation.

Wetlands Watch, Inc. 2017

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www.wetlandswatch.org

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In an effort to broaden public engagement in sea level rise adaptation, Wetlands Watch has developed an iPhone app to track flooding. The logo above is from the “Sea Level Rise” app that can be downloaded on iTunes.

APPENDIX A: ACTIVITIES AND ELEMENTS CHART (FROM THE 2013 CRS COORDINATOR'S MANUAL)

CRS Activities and Elements

| <u>300 Series: Public Information Activities</u> | <u>Max</u> | <u>Page</u> | <u>400 Series: Mapping and Regulations</u> | <u>Max</u> | <u>Page</u> |
|---|------------|-------------|--|------------|-------------|
| 310 (Elevation Certificates) | | | 410 (Floodplain Mapping) | | |
| a EC Elevation Certificates after CRS application | 38 | 310-11 | a NS New study | 290 | 410-8 |
| b ECPO Elevation Certificate on post-FIRM buildings | 48 | 310-13 | b LEV Leverage | N/A | 410-14 |
| c ECPR Elevation Certificate on pre-FIRM buildings | 30 | 310-15 | c SR State review | 60 | 410-16 |
| 320 (Map Information Service) | | | d HSS Higher study standards | 160 | 410-18 |
| a M11 Providing insurance information from FIRM | 30 | 320-7 | e FWS Floodway standard | 110 | 410-21 |
| b M12 LIMWA/floodway info/CBRS area | 20 | 320-9 | f MAPSH Special hazards mapping | 50 | 410-24 |
| c M13 Other flood problems not shown on FIRM | 20 | 320-11 | g CTP Cooperating Technical Partner | 132 | 410-25 |
| d M14 Flood depth data | 20 | 320-11 | 420 (Open Space Preservation) | | |
| e M15 Special flood-related hazards | 20 | 320-13 | a OSP Preserved open space | 1,450 | 420-3 |
| f M16 Historical/repetitive flood information | 20 | 320-14 | b DR Deed restriction | 50 | 420-11 |
| g M17 Natural floodplain functions | 20 | 320-15 | c NFOS Natural functions open space | 350 | 420-13 |
| 330 (Outreach Projects) | | | d SHOS Special hazards open space | 50 | 420-19 |
| a OP Outreach projects | 200 | 330-6 | e OSI Open space incentives | 250 | 420-20 |
| b FRP Flood response preparations | 50 | 330-9 | f LZ Low density zoning | 600 | 420-26 |
| c PPI Program for Public Information bonus | 80 | 330-12 | g NSP Natural shoreline protection | 120 | 420-28 |
| d STK Stakeholder bonus | 50 | 330-17 | 430 (Higher Regulatory Standards) | | |
| 340 (Hazard Disclosure) | | | a DL Development limitations | 1,330 | 430-6 |
| a DFH Real estate agent disclosure of SFHA | 35 | 340-3 | b FRB Freeboard | 500 | 430-10 |
| b ODR Other disclosure requirements | 25 | 340-5 | c FDN Foundation protection | 80 | 430-16 |
| c REB Real estate brochure | 12 | 340-7 | d CSI Cumulative substantial improvements | 90 | 430-17 |
| d DOH Disclosure of other hazards | 8 | 340-10 | e LSI Lower substantial improvements | 20 | 430-19 |
| 350 (Flood Protection Information) | | | f PCF Protection of critical facilities | 80 | 430-21 |
| a LIB Library | 10 | 350-3 | g ENL Enclosure limits | 240 | 430-23 |
| b LPD Locally pertinent documents in the library | 10 | 350-5 | h BC Building code | 100 | 430-25 |
| c WEB Website | 105 | 350-6 | i LDP Local drainage protection | 120 | 430-29 |
| 360 (Flood Protection Assistance) | | | j MHP Manufactured home park | 15 | 430-31 |
| a PPA Property protection advice | 40 | 360-4 | k CAZ Coastal A Zone regulations | 650 | 430-32 |
| b PPV Advice after a site visit | 45 | 360-6 | l SHR Special hazards regulations | 100 | 430-35 |
| c FAA Financial assistance advice | 15 | 360-7 | m OHS Other higher standards | 100 | 430-37 |
| d TNG Training | 10 | 360-10 | n SMS State-mandated standards | 20 | 430-38 |
| 370 (Flood Insurance Promotion) | | | o RA Regulations administration | 67 | 430-40 |
| a FIA Flood insurance assessment | 15 | 370-3 | | | |
| b CP Coverage plan | 15 | 370-6 | | | |
| c CPI Plan implementation | 60 | 370-9 | | | |
| d TA Technical assistance | 20 | 370-11 | | | |

CRS Activities and Elements

| <u>400 Series: Mapping and Regulations</u> | <u>Max</u> | <u>Page</u> | <u>Max</u> | <u>Page</u> |
|--|------------|-------------|------------|-------------|
| 440 (Flood Data Maintenance) | | | | |
| a AMD Additional map data | 160 | 440-3 | | |
| b FM FIRM maintenance | 15 | 440-8 | | |
| c BMM Benchmark maintenance | 27 | 440-9 | | |
| d EDM Erosion data maintenance | 20 | 440-13 | | |
| 450 (Stormwater Management) | | | | |
| a SMR Stormwater management regulations | 380 | 450-4 | | |
| b WMP Watershed master plan | 315 | 450-14 | | |
| c ESC Erosion and sedimentation control | 40 | 450-18 | | |
| d WQ Water quality regulations | 20 | 450-20 | | |
| 500 Series: Flood Damage Reduction Activities | | | | |
| 510 (Floodplain Management Planning) | | | | |
| a FMP Floodplain management planning | 382 | 510-4 | | |
| b RLAA Repetitive loss area analysis | 140 | 510-29 | | |
| c NFP Natural floodplain functions plan | 100 | 510-35 | | |
| 520 (Acquisition and Relocation) | | | | |
| All Acquisition and relocation of buildings | 2,250 | 520-2 | | |
| 530 (Flood Protection) | | | | |
| PB(R) Retrofitted buildings | 1,600 | 530-2 | | |
| PB(S) Structural flood control & drainage projects | 1,000 | 530-2 | | |
| 540 (Drainage System Maintenance) | | | | |
| a CDR Channel debris removal | 200 | 540-5 | | |
| b PSM Problem site maintenance | 50 | 540-11 | | |
| c CIP Capital improvements program | 70 | 540-13 | | |
| d SDR Stream dumping regulations | 30 | 540-16 | | |
| e SBM Storage basin maintenance | 120 | 540-18 | | |
| f EPM Coastal erosion protection maintenance | 100 | 540-21 | | |
| 600 Series: Warning and Response | | | | |
| 610 (Flood Warning and Response) | | | | |
| a FTR Flood threat recognition system | 75 | 610-5 | | |
| b EWD Emergency warning dissemination | 75 | 610-8 | | |
| c FRO Flood response operations plan | 115 | 610-11 | | |
| d CFP Critical facilities planning | 75 | 610-15 | | |
| e SRC StormReady community | 25 | 610-17 | | |
| f TRC TsunamiReady community | 30 | 610-18 | | |
| 620 (Levees) | | | | |
| a LM Levee maintenance | 95 | 620-6 | | |
| b LFR Levee failure threat recognition | 30 | 620-10 | | |
| c LFW Levee failure warning | 50 | 620-12 | | |
| d LFO Levee failure response operations | 30 | 620-14 | | |
| e LCF Levee failure critical facilities | 30 | 620-16 | | |
| 630 (Dams) | | | | |
| a SDS State dam safety program | 45 | 630-5 | | |
| b DFR Dam failure threat recognition | 30 | 630-6 | | |
| c DFW Dam failure warning | 35 | 630-8 | | |
| d DFO Dam failure response operations | 30 | 630-10 | | |
| e DCF Dam failure critical facilities | 20 | 630-12 | | |

APPENDIX B: ADDITIONAL FUNDING AND INCENTIVE RESOURCES

Many funding sources have been listed throughout this document for specific activities. Here is an additional list of funding sources for more general floodplain management projects.

General

- In Virginia, funding for CRS activities is available from the Department of Conservation and Recreation (DCR) through the Dam Safety, Flood Prevention and Protection Assistance Fund. This fund typically requires a 50/50 match and has historically been awarded to dam projects, but as of late 2014 DCR is working on removing existing obstacles for use in floodplain management, including the match. The 2014 Grant Manual is available [here](#) as a Word download (the 2015 Manual was not yet available as of this printing).
- [Floodplain Management Guide for Illinois Communities](#): Although directed at Illinois communities, this succinct document compiles several Federal government and national non-profit grant programs that may be applicable to coastal communities for floodplain management projects. The state grant programs listed may also be applicable in Virginia.
- Capital Improvement Plans or Capital Investment Programs may be able to be used in some localities for flood mitigation projects, including large-scale drainage projects and potentially land purchases and mitigation for individual structures.

Flood Mitigation

- Wetlands Watch recently released a report that included a review of new and innovative financing mechanisms that could be used for flood mitigation in Virginia. Read “[The Challenge of Mitigation Virginia’s Flooding and Sea Level Rise Impacts](#)” or see the excerpt in [Appendix D](#).
- Federal Housing Authority [203k loans](#)
- U.S. Army Corps of Engineers’ review of [Local Flood Proofing Programs](#) (2005). Chapters 5 and 6 review several mitigation funding opportunities including taxes, local funds and fees, grants, property owners, creative financing, low interest loans, rebates, cost sharing, and full funding opportunities.
- New York State created an [Office of Storm Recovery](#) that helps Sandy victims with recovery and future mitigation.
- Connecticut has established a \$25 million fund, [Shore Up Connecticut](#), for coastal flood damage mitigation. Legislation to create a revolving loan fund in Virginia was introduced in the 2015 session of the General Assembly (SB 1317) and passed the Senate but died in the House of Delegates
- FEMA’s [Hazard Mitigation Assistance](#) programs for planning, mitigation, elevation, etc.
- Department of Housing and Urban Development’s [Community Development Block Grant Disaster Recovery Program](#) is eligible for structural mitigation projects (see post-Sandy rules [here](#))

Property Acquisitions

- New Jersey's [Blue Acres](#) program provides funding from state bonds for floodplain acquisitions in targeted watersheds.
- Some cities set aside one-time or annual funding from the city budget for buyouts or elevations. The availability of the funding may be determined by a particular neighborhood, income level, flood history, etc. Examples include Newport News, VA and Fort Collins, CO.
- Some localities use Community Development Block Grant (CDBG) funding from the Department of Housing and Urban Development to demolish structures on privately owned property, leaving the property in private ownership and allowing new structures that meet current building codes (this is credited in the CRS in Activity 532)
- USDA's Natural Resources Conservation Service's Emergency Watershed Protection Program – Floodplain Easement Option)
- FEMA's [Hazard Mitigation Assistance](#) programs can be used for acquisitions

Open Space Protection

- Downzoning (tax incentives)
- Land Preservation Tax Credits
- Purchase/Transfer of Development Rights
- Use Value Taxation and Agricultural and Forestal Districts
- Coastal Zone Management Program Section 306A Land Acquisition Grants
- Coastal and Estuarine Land Conservation Program
- Virginia Outdoors Foundation/Open-Space Lands Preservation Trust Fund
- Virginia Land Conservation Foundation
- Virginia Clean Water Revolving Loan Fund Land Conservation Loan Program
- Virginia State Water Control Board authorized to provide loans to the Virginia Water Facilities Revolving Loan Fund - allows local governments to provide low-interest loans or other incentives to create living shorelines (Va. Code § 62.1-22.5)
- Emergency Watershed Protection Program – Floodplain Easement Option
- [Agricultural Conservation Easement Program](#) (also for wetlands preservation)
- [North American Wetlands Conservation Fund](#)

Open Space Landholding Entities

- [List of conservation organizations, land trusts, and conservancies in Virginia](#)
- Schools (fields)
- Public beaches
- Local and state parks and preserves
- Church retreats
- Hunting clubs
- Public Access Authorities
- Virginia Natural Area Preserve System
- Virginia Outdoors Foundation
- Virginia Land Conservation Foundation
- Natural Resources Conservation Service (Emergency Watershed Protection Program – Floodplain Easement Option)

Appendix C: LIST OF GREEN INFRASTRUCTURE AND FLOODING RESOURCES

- [“A Flood of Benefits: Using Green Infrastructure to Reduce Flood Risk,”](#) The Nature Conservancy, 2014
- [“Accelerating Cost-Effective Green Stormwater Infrastructure: Learning from Local Implementation,”](#) Berkley Law, University of California, 2015
- [“Coastal Stormwater Management Through Green Infrastructure: A Handbook for Municipalities,”](#) Environmental Protection Agency and Office of Wetlands, Oceans and Watersheds, National Estuary Program, 2014
- [“Coastal Wetlands and Flood Damage Reduction,”](#) UCASC TNC WCS Lloyds, 2016
- [“Enhancing Sustainable Communities with Green Infrastructure,”](#) Environmental Protection Agency, 2014
- [“Flood and Stormwater Mitigation Using Green Infrastructure,”](#) URS
- [“Flood Loss Avoidance Benefits of Green Infrastructure for Stormwater Management,”](#) EPA, 2015.
- [“Green Infrastructure and the Sustainable Communities Initiative,”](#) HUD, 2015
- [“Green Infrastructure Benefits for Floodplain Management: A Case Study,”](#) Stormwater Journal, 2011
- [“Green Infrastructure Opportunities that Arise During Municipal Operations,”](#) Environmental Protection Agency and Office of Wetlands, Oceans, and Watersheds, National Estuary Program, 2015
- [“How Cities Use Parks For Green Infrastructure,”](#) American Planning Association City Parks Forum Briefing Papers, 2001
- [“Low Impact Development – an economic fact sheet,”](#) North Carolina Cooperative Extension
- [“Much Ado About Flooding: Using Green Infrastructure to Reduce a Growing Problem,”](#) American Rivers, 2013
- [“Portland’s Green Infrastructure: Quantifying the Health, Energy, and Community Livability Benefits,”](#) City of Portland, Oregon, Bureau of Environmental Services, 2010
- [“Putting a Price on Riparian Corridors as Water Treatment Facilities,”](#) California Regional Water Quality Control Board, San Francisco Bay Region, 2009
- [“Quantifying Flood Mitigation Services,”](#) Watson, 2016
- [“The Economics of Green Infrastructure: Strategies for Flood Mitigation,”](#) NOAA Coastal Services Center
- [“The Staten Island Bluebelt: A Natural Solution to Stormwater Management,”](#) New York City Environmental Protection
- [“The Economics of Low-Impact Development: A Literature Review,”](#) ECONorthwest, 2007
- [“Strategically Placing Green Infrastructure: Cost-Effective Land Conservation in the Floodplain,”](#) Resources for the Future, 2013
- [“Wanted: Green Acres: How Philadelphia’s Greened Acre Retrofit Program is catalyzing low-cost green infrastructure retrofits on private property,”](#) Natural Resources Defense Council, 2015

APPENDIX D: EXCERPT FROM “THE CHALLENGE OF MITIGATING VIRGINIA’S FLOODING AND SEA LEVEL RISE IMPACTS”, WETLANDS WATCH, NOVEMBER 2014

Virginia Needs Innovative Financing

As shown above, there is not enough direct government funding to meet the flood damage mitigation and sea level rise adaptation needs for residential and commercial properties in Virginia.

There are many hundreds of millions – likely many billions – of dollars in mitigation and adaptation needs for repetitive loss properties that are not being counted as we calculate the costs of flooding and adaptation to sea level rise in Virginia. In addition, local government infrastructure adaptation needs and the additional mitigation measures taken to reduce flood insurance premiums add to this cost.

Unfortunately, the restrictions on available government flood hazard mitigation funds make many commonsense, value-added solutions difficult or impossible. As noted above, HMA funding involves only eligible structures that have already suffered a number of flooding events. It does not cover the costs of infrastructure flood mitigation needs, such as raising roads, resetting stormwater systems, and making other necessary infrastructure changes to maintain the usefulness of properties. Furthermore, this single structure, post-flooding approach frustrates a locality seeking to anticipate future flooding due to sea level rise, or seeking a larger solution to mitigate flooding in an entire neighborhood (storm surge barriers, dikes, pump stations, comprehensive buy-out programs, etc.).

The challenge going forward is to find innovative financing mechanisms, in both the public and private sectors, to provide additional mitigation and adaptation funding outside of existing government programs. Without this innovative financing, shoreline communities in Virginia will suffer a slow decline as mitigation and adaptation funding lags behind increasing impacts. As a result, neighborhoods will become less attractive to existing residents and potential new residents. Without innovative financing, property tax values will decline and local governments will have fewer resources to address flood mitigation needs, accelerating the downward cycle.

Despite the many challenges facing our region, there are some simple first steps to immediately increase mitigation and adaptation funding, maintain current property tax values, avoid disruption of real estate values, and create jobs. Examples of financing mechanisms can be found in existing revolving loan funds created in Virginia to meet environmental, public safety, and economic development needs. Other examples can be found in innovative mortgage programs designed to reward sustainable practices. Finally, there is an innovative mitigation fund recently established in Connecticut that serves as a model for adoption in Virginia.

Revolving Loan Funds

There are a number of revolving loan funds established in Virginia to meet public goals. Most of the statewide funds are administered by the [Virginia Resources Authority](#) (VRA). The VRA administers the [Clean Water Revolving Loan Fund](#), the [Drinking Water Revolving Loan Fund](#), the [Airports Revolving Loan Fund](#), and the [Dam Safety and Flood Prevention Fund](#). (The Dam

Safety and Flood Prevention Fund does support some flood prevention activities, mostly in the area of outreach and education, and is focused mainly on dam safety.) The Clean Water Revolving Loan Fund added a [Land Conservation Loan Program](#) authority in 2003, which allows the acquisition of land/open space where it could be shown to contribute to water quality improvement.

Preservation Virginia, a private non-profit organization, administers a [Historic Preservation Revolving Fund](#). Until its transfer in 1999, this fund was administered by Virginia state government and its initial capital charge was from appropriated funds. This Fund provides an interesting model for using public funds for individual, privately owned structures and properties and for administration by a non-profit, third party.

Regionally, the Middle Peninsula Planning District Commission operates a [revolving loan and grant fund for onsite septic repair costs](#). The program provides financial assistance to individuals with malfunctioning, failing, and absent on-site wastewater treatment systems. The program is available to homeowners in the Middle Peninsula Planning District of Virginia. This fund often receives capital charges from the Virginia Clean Water Revolving Loan Fund.

Flood Mitigation Revolving Loan Fund

These loan funds offer low-cost loans to meet the loan program purposes; as the loans are repaid, the returned funding is lent out to new recipients to finance additional work, multiplying the original capital charge or investment. It would be fairly simple to create a similar fund for flooding/sea level rise mitigation and adaptation that would allow many more properties to be flood-proofed. Such funds could begin to eliminate the backlog of properties waiting for remediation, act as an economic stimulus by creating thousands of construction trade jobs, and restore the value of affected properties, preserving the property tax base.

The terms of a mitigation/adaptation revolving loan program can be structured in a number of ways, by focusing loans on structures: in certain areas that flood frequently, (with certain levels/percentage of a structure's value in flood losses), in known high-risk flood areas (regardless of existing loss, anticipating future flooding), owned by households with certain income levels, with certain types of structural uses (residential, rental, multi-family rental, commercial, etc.), and so on.

Funding a Flood Mitigation Revolving Loan Fund

The capital infusion of funding can be accomplished in a number of ways as well. Direct appropriation of funding or tax and revenue set asides have been used in current Virginia revolving loan funds. Bond funding by local and state government can also provide the initial capitalization, perhaps even using "[green bonds](#)" as a marketing push. Funding can be done by a single locality, although a regional approach would be preferable.

The regional approach could be achieved through a special service district (SSD) devoted to mitigation and adaptation efforts. [State code allows](#) the creation of these SSD's and they could be used as the fiscal entity developing regional programs for these efforts, much preferable to

single municipality efforts. Similarly, [Virginia state code](#) allows the establishment of “Drainage, Soil Conservation, Sanitation, and Public Facilities” districts providing other models of organization for these efforts. While funds under these SSD’s are somewhat limited and cannot be used for individual property benefit, they could be used for projects to protect a cluster of properties or to fund needed flood mitigation for existing infrastructure. A special legislative authorization for a “mitigation/adaptation SSD” could be tailored in a number of ways to allow funding to flow to individual property owners.

Another option for mitigation/adaptation funding is a recently-established program in the state of Connecticut, [Shore Up Connecticut](#), a shoreline resiliency loan fund. This fund was established with \$25 million in general obligation bonds issued by the state of Connecticut. This marks the first time a state government has taken comprehensive action to deal with the financial aspects of coastal flooding adaptation. At present this is not a revolving loan fund, but it does fund up to \$300,000 per residence or small business structure at reasonable interest rates (2.894% APR – fixed). Of additional interest for sea level rise, the mitigation work must be set to the 500 year flood level + one foot, because state money is involved. The program is administered through the nonprofit Housing Development Fund.

Adaptation Mortgages/Refinancing

Beyond the repetitive loss properties, the lack of mitigation funding can have broader impacts, as briefly mentioned above. As flood insurance premiums rise on previously subsidized, older properties, real estate sales are affected. Affected households pay elevated rates of flood insurance, increasing the property’s cost of ownership and making the property less attractive. This causes some properties to be worth less as sellers lower their asking price to offset the flood insurance costs. This impact is being observed now in Hampton Roads. Alternatively, but resultant of the same impact, homeowners are removing slow to sell properties from the market and converting them to rental properties. Unchecked, this trend can erode the property tax base and change ownership patterns in neighborhoods within many low-lying localities.

Flood damage mitigation measures taken on these properties can reduce flood insurance premiums, restoring much, if not all, of the marketability and value to these properties. Relatively simple solutions are available to increase the funding for the mitigation/adaptation work on residential and commercial properties, borrowing examples from other areas of need and, in one case, from another part of the country.

We can learn from and modify models for private lending to homeowners for broader social and environmental goals in the energy efficiency area. [Energy Efficiency Mortgages \(EEM\)](#) and [Energy Improvement Mortgages \(EIM\)](#) incorporate the savings from energy efficiency measures and retrofits into the homeowner mortgage calculations, allowing buyers to purchase energy-efficient homes or retrofit existing homes with energy efficiency measures. These programs evolved in the 1980’s and 1990’s as the nation sought to incentivize energy efficiency measures on existing housing stock.

Backed by the federal mortgage insurance and underwriting agencies (Fannie Mae, Freddie Mac, Federal Housing Administration, Veterans Administration) EEM mortgages include the energy

savings into the loan calculations, increasing the household cash flow, allowing people to buy energy efficient homes they could not otherwise afford. Under a EIM, a larger mortgage is allowed with the additional funds rolled into the mortgage and set aside, to be paid to the homeowner once the energy efficiency retrofits have been installed.

Flood Mitigation Mortgages

Similar mortgage arrangements can and should be created for flood mitigation and sea level rise adaptation. These mortgages will reduce household cash flow (through lower NFIP premiums) and maintain or increase the value of the house. With a range of mitigation and adaptation options available, starting with installing flood vents, to raising HVAC systems, all the way to structural waterproofing and structural elevation, these mortgages could cover this range with a set of eligible practices, scaled to household income thresholds. Available to the buyer, or as a refinance option to an existing homeowner, these mortgage options could have a great deal of flexibility.

Already in Hampton Roads, some banks are offering conventional Federal Housing Authority (FHA) [203\(k\) renovation loans](#) specifically to homes needing flood protection to reduce flood insurance premiums, to make the house more salable and valuable. A formal flood mitigation program established through federal law and/or regulation would accelerate the use of these loans and mortgages for flood mitigation. A federal flood specific mitigation mortgage underwriting/guarantee program would focus attention on the need, broaden the participation and use of these loans, and reduce the backlog of properties waiting in line for flood mitigation funding. It could also stimulate additional mortgage loan activity, providing economic benefit to banks and credit unions.

Fostering Comprehensive Community Adaptation

Current post-hazard mitigation funding is focused on a single repetitive loss property with eligibility determined by a complex set of rules that also constrain adaptation options. Often when a property is elevated, adjacent properties with similar impacts, or impacts not yet realized, can wait years or decades before they are elevated. This frustrates comprehensive approaches to mitigation involving multiple properties, especially in those areas where mixed owner-occupied and rental properties are adjacent, as different rules apply to each class of property.

These rules also frustrate common-sense adaptation options that involve tear-down and rebuild in a different configuration than the original structure, even if the new configuration is more resilient than a simple elevation on the same footprint. They also impede multiple actions on adjacent properties that would yield economies of scale that can lower overall costs for the whole community.

Alternative financing mechanisms, especially those administered by the flood-impacted communities, can evade those restrictions and result in more comprehensive mitigation options and mitigation approaches better fitted into flood-prone neighborhoods. The freeing of US Department of Housing and Urban Development Community Development Block Grant funding

for post-Sandy disaster relief and hazard mitigation was an example of how new funding sources yield new mitigation options.

Create Jobs

The hundreds of millions of dollars of mitigation/adaptation costs represent jobs. The flood mitigation and sea level rise adaptation work must be done to protect private property, maintain a locality's property tax base, and protect taxpayer/ratepayer exposure through the NFIP. If we can adopt innovative financing as described above, this work will continue for decades and employ many people in the banking, insurance, design, and construction sectors in Hampton Roads. Additionally, the expertise that is created here can be exported to other coastal regions, spurring greater job creation.

While figures are inexact, using estimates for remodeling job creation (20 jobs/\$1 million in rehab outlays) in just the four cities studied the \$431 million in mitigation costs would create over 9,200 jobs (Econsult, Bell). Moreover, as stated above, this "repetitive loss" mitigation demand figure is a very low estimate, of the total cost for reducing flood impacts. With innovative financing mechanisms, thousands of jobs can be created in a new flood mitigation sector.

Save Money and Reduce Risk Exposure

In addition to creating jobs, money spent today on mitigation will save millions or billions of dollars in the future on avoided disaster recovery costs, while also making communities more resilient by reducing disruption to everyday life during and after flood events. Research shows that every dollar spent on mitigation will save four dollars on disaster recovery (Multihazard Mitigation Council), reducing economic disruption, lowering physical and emotional drain on affected residents, and allowing communities to get back on their feet more quickly after an event.

ENDNOTES

¹ http://ccrm.vims.edu/recurrent_flooding/Recurrent_Flooding_Study_web.pdf

² Programs with interconnected co-benefits, like those rewarded by the CRS, offer a whole-community approach to floodplain management. This methodology furthers the goals of [No Adverse Impact](#) (NAI) and [Multi-Objective Management](#) (MOM) in floodplain management. NAI floodplain management “is an approach that ensures the action of any community or property owner, public or private, does not adversely impact the property and rights of others.”² MOM “uses existing financial and other resources to look at the whole watershed affecting the flood problem.”² MOM also involves all relevant stakeholders, an approach favored by the CRS.

³ Va. Code § 15.2-2223

⁴ <http://apavirginia.org/documents/legislation/Toolbox.pdf>

⁵ <https://www.planning.org/zoningpractice/2007/pdf/aug.pdf>

⁶ Va. Code § 15.2-2286

⁷ Va. Code § 15.2-4405

⁸ §10.1-605; 4VAC50-20-175 and 4VAC50-20-54

⁹ <http://pubs.usgs.gov/circ/1392/pdf/circ1392.pdf>

¹⁰ 16 U.S.C. § 4601-8(f)(3)

¹¹ Updates to the ACEP are under review; public comment period ends April 28, 2015

¹² 16 U.S.C. 4401

¹³ Clean Water Act Section 404 (33 U.S.C. 1344)

¹⁴ Va. Code §10.1-709

¹⁵ CRS Manual, 450-2

¹⁶ Technical Memorandum: The Runoff Reduction Method

Center for Watershed Protection & Chesapeake Stormwater Network April 18, 2008, at 6

¹⁷ CRS Manual 450-14

¹⁸ CRS Manual 450-21

¹⁹ 9VAC25-890-30

²⁰ 9VAC25-870-380

²¹ CRS Manual, 540-5

²² *Livingston v. VDOT*, 284 Va. 140 (2012)

²³ CRS Manual, 530-2

²⁴ Va. Code § 36-98

²⁵ 44 C.F.R. § 201.6

²⁶ E.O. 11988 (3)(c): "If property used by the general public has suffered flood damage or is located in an identified flood hazard area, the responsible agency shall provide on structures, and other places where appropriate, conspicuous delineation of past and probable flood height in order to enhance public awareness of and knowledge about flood hazards."