Coastal Resilience through Community Engagement Webinar Series

Part 1: The CRS Green Guide and Natural & Beneficial Functions of Floodplains

Today’s Moderator

Chad Berginnis, CFM
Executive Director, ASFPM
Thanks to our funders!

Funding for this project is provided by the Department of the Interior through a grant from the National Fish and Wildlife Foundation’s Hurricane Sandy Coastal Resiliency Competitive Grant Program.

Coastal Resilience through Community Engagement Webinar Series

The CRS Green Guide and Natural & Beneficial Functions of Floodplains

Robyn Wiseman, CFM
Research Scientist
ASFPM

Rebecca Pfeiffer, CFM
ASFPM Natural & Beneficial Funct. Cmte. Chair

Dennis Dixon, CFM
Project Manager
Pierce County, WA
Poll Question:

How familiar are you with the concept of natural and beneficial floodplain functions?

- Very Familiar – I have been incorporating these concepts into my work for several years;
- Somewhat Familiar – I’ve heard the term, but have not really made this a part of my work; or
- Not at all familiar – I haven’t heard the term before, or am not sure what the term means

The Importance of Protecting Natural Ecosystem Assets for Flood Hazard Protection

Presented by:
Rebecca Pfeiffer, CFM
Vermont Rivers Program/ASFPM NBF Committee Co-Chair

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Rebecca Pfeiffer, CFM, Rebecca.Pfeiffer@vermont.gov, 802-490-6157
CRS for Community Resilience Webinar 1:
CRS Green Guide and Natural & Beneficial Functions of Floodplains

October 30, 2017
1:00pm – 2:30pm CT

CRS Emphasizes Avoidance Strategies and Protection of Naturally Functioning Floodplains
Align and Protect Public Values

- Public Safety and Property Protection
- Ecological Integrity, Fish & Wildlife Resource
- Avoidance Strategies to Protect River Corridors & Floodplains
- Water Quality and Quantity

Source: Friends of the Winoosi River
Source: VT Fish & Wildlife
Source: Ned Swanberg
Source: Friends of the Winoosi River
Source: VT Fish & Wildlife
Floodplains...

...Dissipate water energy & reduce flashiness

Without floodplains: Stream gravel, sediment & debris keeps moving downstream
CRS for Community Resilience Webinar 1:
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Valuing our Natural Capital

Source: www.sustainablemeasures.com

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Wetlands & Floodplains at Work

Floodplains (orange) and wetlands (blue) in the Otter Creek watershed, and flow gage hydrographs during Tropical Storm Irene.

Otter Creek, Pittsford, VT, September 3, 2011
Photo: Lars Gange Mansfield Heliflight

Estimated $1.8 million in savings during Tropical Storm Irene ALONE
Resilience

A Resilient Landscape has space for dynamic natural processes

A Resilient Community can learn and adapt

Observed Change in Very Heavy Precipitation

1958-2012

Amount of precipitation falling in heaviest 1% of all daily events

Change (%)

Source: National Climate Assessment website @GlobalChange.gov

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Source: National Climate Assessment website @GlobalChange.gov

Connectivity: Floodplain

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Connectivity: Aquatic

- More resilient to flooding
- Allow for aquatic organism passage
- Allow for movement of terrestrial species at normal flow levels

Connectivity: Ecosystem Resiliency

Barriers to movement

Connected corridors
CRS for Community Resilience Webinar 1:
CRS Green Guide and Natural & Beneficial Functions of Floodplains

FEMA Hazard Mitigation Grants For Structure Acquisition

Birmingham Buyout Program Enhances Community's Resilience
- Birmingham, Alabama Success Story
View page

Flood Ready Vermont
State of Vermont

Keep what works

Use Natural Flood Protection
The most cost-effective way to moderate flooding is to protect the natural systems that are already in place. Identifying and protecting the natural flood protection assets that your community depends on is the most inexpensive and effective way to increase the flood resilience of your community. In order to protect these assets, you must first understand them.

On the next page you can learn more about:
- River Conditions and Floodplains
- Vegetation, Trees, Stormwater

Find out more information on: Floodready.vermont.gov

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Floodplain Regulatory Team Lead/
Rebecca.Pfeiffer@Vermont.gov, 802-490-6157

Visit:
Flood Ready Vermont
http://Floodready.Vermont.gov

Vermont Rivers Program
http://watershedmanagement.vt.gov/rivers/htm

Vermont’s Natural Resource Atlas
http://anrmaps.vermont.gov/websites/anra

Why use the Green Guide?
CRS for Community Resilience
About the NFIP and CRS

CRS Participants in Numbers

Percentage of NFIP Communities Participating in CRS

NFIP Communities not in CRS 94.42%
NFIP Communities in CRS 5.58%

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CRS Participants in Numbers

Percentage of Policies in Force in CRS vs. Non-CRS Communities

Flood Insurance Policies in CRS Communities 67.69%
Flood Insurance Policies in Non-CRS Communities 32.31%

CRS Class Breakdown

<table>
<thead>
<tr>
<th>CRS Class</th>
<th>Points Required</th>
<th>SFHA Discount</th>
<th>Non-SFHA Discount</th>
<th>PRP Discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4,500</td>
<td>45%</td>
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<tr>
<td>2</td>
<td>4,000</td>
<td>40%</td>
<td>10%</td>
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<tr>
<td>3</td>
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<td>35%</td>
<td>10%</td>
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<tr>
<td>10</td>
<td>&lt; 500</td>
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<td>0%</td>
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CRS Class Breakdown

1444 CRS Communities as of May 1, 2017

<table>
<thead>
<tr>
<th>CRS Class</th>
<th>Count</th>
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<tbody>
<tr>
<td>9</td>
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<tr>
<td>8</td>
<td>480</td>
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<tr>
<td>7</td>
<td>376</td>
</tr>
<tr>
<td>6</td>
<td>218</td>
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<td>2</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Natural and Beneficial Functions (NBF)

- Creation of habitat for fish, fowl and wildlife, including many endangered species
- Enhanced air and water quality
- Groundwater recharge
- Restoration of natural ecosystems and ecosystem services
- More sustainable environment in your community
- Creation or enhancement of recreation opportunities

Image Credit: Fernando Flores, via the Wikimedia Commons

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**Natural and Beneficial Functions**

**Class 4 Status**

**Class 1 Status**

<table>
<thead>
<tr>
<th>300 Series</th>
<th>400 Series</th>
<th>500 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Information Activities</td>
<td>412.a: More-restrictive floodway standard</td>
<td>500 Series</td>
</tr>
<tr>
<td>412.a: Maintaining Elevation Certificates</td>
<td>412.f: Mapping of SFHA</td>
<td>Flood Damage Reduction Activities</td>
</tr>
<tr>
<td>412.b: Maintaining Elevation Certificates for post-FIRM buildings</td>
<td></td>
<td>512.a: Floodplain management planning</td>
</tr>
<tr>
<td>412.c: Maintaining Elevation Certificates for pre-FIRM buildings</td>
<td></td>
<td>512.b: Repetitive loss area analysis</td>
</tr>
<tr>
<td>422.a: Basic FIRM information</td>
<td></td>
<td>522.a: Buildings acquired or relocated</td>
</tr>
<tr>
<td>422.c.a: Natural functions open space</td>
<td></td>
<td>522.b: Buildings on the repetitive loss list</td>
</tr>
<tr>
<td>422.f: Open space incentives</td>
<td></td>
<td>522.c: Severe Repetitive Loss properties</td>
</tr>
<tr>
<td>422.d: Flood depth data</td>
<td></td>
<td>522.d: Critical facilities</td>
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<tr>
<td>422.e: Special flood-related hazards</td>
<td></td>
<td>522.e: Buildings located in the V or coastal A Zone</td>
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<tr>
<td>422.g: Natural floodplain functions</td>
<td></td>
<td>522.f: Floodplain management planning</td>
</tr>
<tr>
<td>432.a: Development Limitations</td>
<td></td>
<td>532.a: Flood protection project technique used</td>
</tr>
<tr>
<td>432.b: Outreach Projects</td>
<td></td>
<td>532.b: Flood protection improvement</td>
</tr>
<tr>
<td>432.c: Flood protection library</td>
<td></td>
<td>532.c: Flood insurance coverage assessment</td>
</tr>
<tr>
<td>432.d: Stakeholder delivery</td>
<td></td>
<td>532.d: Flood response preparations</td>
</tr>
<tr>
<td>442.a: Financial assistance advice</td>
<td></td>
<td>532.e: Flood coverage improvement plans implementation</td>
</tr>
<tr>
<td>452.a: Storm water management regulations</td>
<td></td>
<td>532.f: Financial assistance advice</td>
</tr>
<tr>
<td>452.b: Watershed master plan</td>
<td></td>
<td>532.g: Financial assistance advice</td>
</tr>
</tbody>
</table>

**CRS Green Guide, 2017**

Image Credit: Fernando Flores, via the Wikimedia Commons.
## CRS Green Guide, 2017

**Element Name** | **Possible Points** | **Element Name** | **Possible Points**
--- | --- | --- | ---
322.g. Natural Floodplain Functions | 20 | 432.a. Development Limitations | 1,330 |
332.a. Outreach Projects | 200 | 432.l. SFRH Regulations, Inland | 100 |
332.d. Stakeholder Delivery | 50 | 432.m. SFHR Regulations, Coastal | 370 |
412.e. More Restrictive Floodway Standard | 140 | 442.d. Erosion Data Maintenance | 20 |
422.a. Open Space Preservation | 1,450 | 452.a. Stormwater Management Regulations | 380 |
422.b. Deed Restrictions | 50 | 452.b. Watershed Master Plan | 315 |
422.c. Natural Functions Open Space | 350 | 452.c. Erosion and Sediment Control Regulations | 40 |
422.d. SFRH Open Space | 150 | 452.d. Water Quality Regulations | 20 |
422.e. Coastal Erosion Open Space | 750 | 512.c. Natural Floodplain Functions Plan | 100 |
422.f. Open Space Incentives | 250 | Activity 520 | 2,250 |
422.g. Low Density Zoning | 600 | 542.c. Capital Improvement Program | 70 |
422.h. Natural Shoreline Protection | 120 |  |  |
Why use the Green Guide?

- Receive stackable credits
- How to earn credit for state requirements
- Tips on documenting and calculating credits
- Best practices and success stories from actual communities

Best Practices and Success Stories

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**Existing Activities Eligible for Credit**

- **State Requirements**
  - Mandatory freeboard
  - Zero-rise floodplain standards
  - Coastal management
- **Local regulations, plans and permits!**
  - Erosion and sediment control
  - Water quality
- **Low density zoning**

**Receive Stackable Credits**

Many of the credits earned for implementing measures that support natural and beneficial floodplain functions earn credit under several categories!

**Stackable Credit:**

Earning credit for multiple elements by completing and documenting one task (or several related tasks)

Image: Flood waters of the Illinois River at Cooper Park, East Peoria, IL
Activities and Elements

- Explain technical information in plain language
- Overview of relevant impact adjustments
- Detailed Element profiles for each of the 25 Green Elements with natural and beneficial functions!

Impact Adjustment:
Ratio used to adjust the amount of credit your community receives for implementing an element

Usually calculated by taking area of regulatory floodplain affected by element divided by overall regulatory floodplain

Tips on Documenting and Calculating Credits

- Each element profile outlines the difficulty level for implementation AND documentation.
- Difficulty levels verified by experts in the field.

Low  Medium  High
Quick Demo of the Green Guide

Walk-through of our site
ASPFM Flood Science Center

Welcome to the Association of State Floodplain Managers Flood Science Center. The Flood Science Center strives to apply and analyze technical, biological, social and economic aspects of flood science to promote education, policies and activities that mitigate current and future flood losses, abate costs and human suffering caused by flooding and to protect the natural and beneficial functions of floodplains—all without causing adverse impacts.

The Flood Science Center provides knowledge and research services and works through collaborative relationships with federal, academic, foundation and non-governmental organization partners to advance the numerous facets of flood science.

Below are links to some of the most recent products we have worked on.

CRS for Community Resilience

The goal of CRS for Community Resilience is to increase the number of communities making voluntary, effective measures to increase flood resilience. This project promotes CRS participation, provides guidance on actions that increase a community's rating, and works directly with communities to increase their resiliency through the CRS process.

This project aims to:

1. Get more communities to participate in the CRS, and
2. Increase resiliency by having a road map to undertake activities that strengthen the natural ecosystems and reduce growing vulnerability to floods.

Have a question, recommendation or CRS success story of your own? Share it with us!
1. Introduction

Who doesn't want to reduce flood insurance premiums for citizens in their communities and do something good for the environment? Through participation in the Community Rating System (CRS), a community can undertake activities (in CRS-speak, a specific action is called an "element") that earn credits which lead to flood insurance premium reductions for a majority of policyholders.

The purpose of the CRS Green Guide is to highlight 25 of the 94 elements in the 2017 CRS Coordinator's Manual, which have beneficial impacts beyond flood risk reduction. The "co-benefits" this Green Guide seeks to feature include but are not limited to protection of the natural and...
Nature-Based Strategies for Improving Urban Health and Safety

Michelle C. Kondo, Eugenia C. South, and Charles C. Branas

ABSTRACT: Place-based programs are being revisited as key opportunities to prevent disease and promote public health and safety for populations at large. As one key type of place-based intervention, nature-based and green space strategies can play an especially large role in improving health and safety for dwellers in urban environments such as US legacy cities that lack nature and greenery. In this paper, we describe the current understanding of place-based influences on public health and safety. We focus on nonchemical environmental factors, many of which are related to urban abandonment and blight. We then review findings from studies of nature-based interventions regarding impacts on health, perceptions of safety, and crime. Based on our findings, we suggest that further research in this area will require (1) refined measures of green space, nature, and health and safety for cities, (2) interdisciplinary science and cross-sector policy collaboration, (3) observational studies as well as randomized controlled experiments and natural experiments using appropriate spatial counterfactuals and mixed methods, and (4) inter-environmental calculations of potential economic, social, and health costs and benefits of urban greening initiatives.

KEYWORDS: Urban nature, Green space, Place-based interventions, Public health, Crime

There is growing support of place-based programs to help prevent disease and promote public health and safety. This movement is largely motivated by...

The objective of the Community Rating System (CRS) is to reward communities that are doing more than meeting the minimum NFIP requirements to help their citizens prevent or reduce flood losses. The CRS also provides an incentive for communities to initiate new flood protection activities. The CRS Coordinator’s Manual is the guidebook for the CRS and sets the criteria for CRS classification. It explains how the program operates, what is credited, and how credits are calculated. Although it is primarily a reference for CRS activities and credits, it can also help guide communities that want to design or improve their floodplain management programs.

Secure
https://www.fema.gov/media-library/assets/documents/8708

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PIERCE COUNTY  
COMMUNITY RATING SYSTEM  
SUCCESSES

Dennis Dixon, CFM  
Pierce County Planning & Public Works
Origin Story

1914 Channelized floodplain

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Dennis Dixon, ddixon@co.pierce.wa.us, 253-798-3696
How did we do it?

2014 Reconnected floodplain

The rewards

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Best practices

National Flood Insurance Program (NFIP) Community Rating System (CRS)

Class 2 Counties
King Co.
Pierce Co.
Thurston Co.

File structure for Last Reverification submittal package

QUESTIONS?
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(253)798-3696
ddixon@co.pierce.wa.us

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-OR-