Genesee/Finger Lakes
Regional Planning Council

JOHN F. MARREN, Chair • ROBERT BAUSCH, Vice Chair • STEVEN M. LEROY, Treasurer • DAVID S. ZORN, Executive Director

Zoom Steering Committee Check-in
Model Intermunicipal Floodplain Overlay District Local Law Project

Monday, February 26, 2018
10 – 11am

Join Zoom Meeting
https://cornell.zoom.us/j/395329709

Attendees

- ✓ John Gauthier, Greece Town Engineer
- ✓ Al Fisher, Greece Town Planning Board Chair
- ✓ John Caterino, Town of Greece
- ✓ Scott Copey, Town of Greece
- ✓ Kathryn Friedman, University at Buffalo
- ✓ Rochelle Bell, Monroe County Dept. of Planning & Development
- ✓ Dennis Scibetta, Parma Town Code Enforcement Officer
- ✓ Amanda Lefton, The Nature Conservancy
- ✓ Stevie Adams, The Nature Conservancy
- ✓ Mary Austerman, New York Sea Grant
- ✓ Mark Lowery, NYSDEC Office of Climate Change
- ✓ Jayme Thomann, G/FLRPC

Agenda & Minutes

- Review minutes from December 18th Zoom meeting check-in.
- Review updates to the draft Intermunicipal Floodplain Overlay District local law.

  Include the three general flood-risk management guidelines from CRRA's Proposed State Flood Risk Management Guidance in the model local law's Article III: Applicability / District Standards.

  Stevie Adams can assist in the descriptive narrative for the select geospatial options (Article III).

  Stevie Adams suggested reviewing the ASFPM webinar, CRS Green Guide and Natural & Beneficial use of Floodplains [Pierce County, WA example] (attached).

  Mark Lowery will continue to share this project with CRRA's Model Laws Drafting Team (DOS).

- Review draft Site Plan Review Checklist for development in floodprone areas.

  The Steering Committee supports the use of this checklist during the site development review process. It has been suggested that it complement a template Floodplain Development Permit Application that can be used by any municipality in New York State (with particular focus in New York's Great Lakes Basin).

- Consider *No Adverse Impact* language for the Monroe County Development Review Committee (DRC).

  Monroe County will consider additional language for the standardized floodplain comment to include No Adverse Impact.

- Explore opportunities for simplified Floodplain Development Permit Application and Certificate of Compliance.

  In general, the municipalities do not have a separate Floodplain Development Permit Application; it is included with most residential and commercial applications as a tracking permit.

Next Steps:

- *Schedule next in-person meeting for late March or early April at the Town of Parma.*
- *Jayme will develop a template Floodplain Development Permit Application to complement the Site Plan Review Checklist for development in floodprone areas.*
- *Jayme will develop some No Adverse Impact language for consideration by the Monroe County Development Review Committee (DRC).*
- *All – continue to review and edit the draft Intermunicipal Floodplain Overlay District local law.*

Sample Outline for Intermunicipal Floodplain Overlay District (I-FOD)

Article I: Purpose & Intent

Annotations: The list below is a general set of objectives to reduce the potential and/or actual damages from an increase in frequency and severity of storm and precipitation events and flooding to infrastructure, economic assets, and natural resources.

1. Flooding is the primary natural hazard in New York State, causing millions of dollars' worth of damage to homes and businesses each year.
2. The National Flood Insurance Program (NFIP) was created in 1968 by Congress to help people financially protect themselves from flooding. The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP and enforces floodplain management regulations.
3. Even with thousands of communities participating in the NFIP, flood damages continue to rise.
4. No Adverse Impact (NAI) floodplain management is an approach developed by the Association of State Floodplain Managers (ASFPM) that ensures the action of any community or property owner—public or private—does not adversely impact the property and rights of others. For local governments, NAI floodplain management represents a more effective way to tackle flood problems.
5. Intermunicipal cooperation in comprehensive planning and land use regulation is recognized under New York General Municipal Law §119-u. Under §119-u 4., intermunicipal agreements can be used to (e) "create an intermunicipal overlay district for the purpose of protecting, enhancing, or developing community resources that encompass two or more municipalities."
6. This law outlines a foundation by which a municipality can organize and coordinate with neighboring municipalities to address the effects of climate change, including storm surge, sea-level rise, and inland flooding, to avoid "downstream" adverse effects of one community on another by coordinating during the planning and development review process.

Article II: Definitions

Annotations: There are several terms and acronyms used throughout this model local law that need to be clarified. The following are summaries of technical terms that are officially defined in the NFIP regulations and are suggested for adoption or modification in a community's floodplain management ordinance.

Floodplain, 500-year - the area adjoining a river, stream, or watercourse covered by water in the event of a 500-year flood. The 500-year flooding event is the flood having a 0.2-percent chance of being equaled or exceeded in magnitude in any given year.

Floodplain Storage Compensation - an artificially excavated, hydraulically equivalent volume of floodplain storage sufficient to offset a reduction in floodplain storage resulting from filling or construction within the local regulatory floodplain as determined by the administering agency. Such floodplain storage compensation shall be within the same watershed and shall be provided on the same property or at an alternate site if the administering agency so approves.

Special Flood Hazard Area - is the land in the floodplain within a community subject to a one-percent or greater chance of flooding in any given year. This area may be designated as Zone A, AE, AH, AO, A1-

A30, A99, V, VO, VE, or V1-V30. It is also commonly referred to as the base floodplain or l00-year floodplain.

Stream - general term for a body of flowing water. In hydrology the term is generally applied to the water flowing in a natural channel as distinct from a canal. More generally as in the term stream gaging, it is applied to the water flowing in any channel, natural or artificial. Streams in natural channels may be classified as follows:

- Perennial. One which flows continuously.
- Intermittent or seasonal. One which flows only at certain times of the year when it receives water from springs or from some surface source such as melting snow in mountainous areas.
- Ephemeral. One that flows only in direct response to precipitation, and whose channel is at all times above the water table.

Substantial Damage - damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial Improvement - any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either:

A. Before the improvement or repair is started; or

B. If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

The term does not, however, include:

A. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions;

B. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

Wetland - an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation, and is regulated by federal, state or local laws.

Article III: Applicability / District Standards

Annotation: Floodplain management ordinances are enacted by local government as a condition of NFIP participation. The NFIP has clear requirements for such ordinances, but they are minimum requirements that communities are free to enhance or exceed with stricter requirements of their own. Communities are free to undertake their own mapping and to use such techniques as future-conditions mapping to develop a more inclusive overlay district for the purpose. The following are select geospatial options for defining local floodplains.

1. Delineation of local floodplain boundaries.

    a. North America Flood Hazard Maps

b. Natural Heritage Program Variable Width Riparian Buffer

c. The Nature Conservancy Eco-Hydrologically Active (EHAs) Areas

2. Official maps.

Annotations: The legislative authority of a town, village, or city may establish an "official map" or "plan" of the municipality, showing streets, highways, and parks laid out and established by law. In addition, the official map may show drainage systems. The purpose of establishing such a map, according to the enabling statutes, is the conservation and promotion of the public health, safety, and general welfare. More specifically, Sections 277 and 278 of the Town Law, authorizing the planning board to require reservation of suitable land for a park or parks in approving subdivision plats, envision a plan whereby suitable open spaces are to be provided and to become part of the official map to insure that they are not built upon.

The statutes which delegate to municipalities the power to adopt official maps have been upheld where they did not impose so great a burden upon private land as to take it without due process of law. It has been held that an official map that affects only one-fourth of a plaintiff's property does not effect a taking without due process of the law.

A planning board must review proposed changes in the municipality's official map. For a map to be official, it must be adopted by ordinance or resolution. The ordinance or resolution that establishes a city map must require that an appropriate official or employee of the city execute and file with the clerk or register of the county or counties in which the city is situated, a certificate showing that the city has adopted an official map. The state comptroller has ruled that the filing requirement is mandatory, but has disclaimed authority to determine the effect of failure to file. When a village map is adopted, the village clerk is required to file a certificate of such adoption with the county register or clerk. A similar obligation is imposed upon a town clerk where an official map is adopted by a town. A town has not properly adopted an official map where the town clerk has failed to file with the county clerk a certificate of the map's establishment as required by Section 270 of the Town Law.

With respect to amendments of the map, the legislative body of a municipality which has established an official map has the power to change or add to such map. Changes or additions may be made so as to lay out new streets, highways, parks, or drainage systems, and they may be made as frequently as is deemed necessary for the public interest. A municipal legislature is authorized to change the official map only after notice and hearing. The notice requirements are not the same for all municipalities. A city legislature is required to publish notice of a proposed map change at least once in an official newspaper or one of general circulation, at least five days prior to the hearing. Although, the publication requirement has been omitted in Section 7-724 of the Village Law, the Town Law requires that notice of a hearing on a change in the official map must be published in a newspaper of general circulation at least 10 days prior to hearing, but no posting requirement is imposed. The several enabling statutes require that a proposed change in an official map be referred to the planning board for a report before final action is taken by the legislative authority. If the planning board does not make its report within 30 days after the referral, the legislative body is free to act upon the change without a report from the board. When a change is finally adopted by the legislative authority of a municipality, it becomes a part of the official map and has the same force and effect. Section 809 of the General Municipal Law requires that every application for a change in the official map "state the name, residence and nature and extent of the interest of any state officer or any officer or employee of such municipality or of a municipality of

which such municipality is a part, in the person, partnership or association making such application, petition or request to the extent known to such applicant."

An official map may be amended by the proper filing of an approved plat. When a plat has been approved and properly filed, subject to court review, the streets, highways, and parks shown on such plat become a part of the official map of the city, town, or village where the platted land is situated. However, the streets shown on an approved and filed plat remain private streets until they are formally dedicated and accepted by the municipality, or until the municipality has condemned the land for public use as a street. In fact, the enabling acts specifically provide that the owner of the platted land may add, as part of the plat, a notation to the effect that no offer of dedication of streets, highways, or parks shown on the plat is intended.

Article IV: Actions for Referral

Annotations: This section has been customized specifically for the Towns of Greece and Parma and Village of Hilton, Monroe County. The three municipalities participated on the Steering Committee for the Model Intermunicipal Floodplain Overlay District Local Law Project as an implementation item of their Flood Smart Action Plan (September 2016). Municipal representatives were asked to vote in a Minimum Standards Survey on what development standards are most important to be enforced across the jurisdictions in managing the upstream-downstream connection of communities. Out of sixteen choices developed from various sources such as CRS Credit for Higher Regulatory Standards, these four standards were most popular.

1. Regulated Activities

    a) Require that all improvements or repairs are counted cumulatively toward the substantial improvement requirement. *This requirement, known as cumulative substantial improvement (CSI), ensures that owners do not evade flood protection measures by making many small improvements that eventually add up to a major or substantial improvement. By adopting the definition of "Repetitive Loss" and modifying the "Substantial Damage" definition, communities can ensure that the total value of all improvements permitted over the years does not exceed 50% of the value of the structure. There are two options for ordinance language that is consistent with the definition of "repetitive loss structure" under the NFIP*.

    Option 1: A. Adopt the following definition: "Repetitive loss" means flood-related damage sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25% of the market value of the structure before the damage occurred.

    B. And modify the "substantial improvement" definition as follows: "Substantial improvement" means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the "start of construction" of the improvement. This term includes structures that have incurred "repetitive loss" or "substantial damage," regardless of the actual repair work performed.

Option 2:

A. Modify the "substantial damage" definition as follows: "Substantial Damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damage condition would equal or exceed 50% of the market value of the structure before the damage occurred. Substantial damage also means flood-related damage sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25% of the market value of the structure before the damage occurred.

b) Add a definition for "critical facilities" and require that, to the extent possible, critical facilities be located outside of the SFHA, preferably outside of the 0.2-percent chance floodplain. *This regulatory language addresses the protection of critical facilities that can include, but are not limited to*:

- *Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic, and/or water-reactive materials;*
- *Hospitals, nursing homes, and housing likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a flood;*
- *Police stations, fire stations, vehicle and equipment storage facilities, and emergency operations centers that are needed for flood response activities before, during, and after a flood; and*
- *Public and private utility facilities that are vital to maintaining or restoring normal services to flooded areas before, during, and after a flood*.

A community can prohibit new critical facilities from both the 1-percent chance (e.g., 100-year) and the 0.2-percent chance (e.g., 500-year) floodplains by adding a definition and provisions for enforcement.

c) Maintaining floodplain storage by prohibiting fill or by requiring compensatory storage. *Although floodway regulations preserve flood conveyance, they allow the flood fringe to be filled in. The resulting loss of storage can have a significant effect on downstream flood heights, especially in flat areas. Floodplain storage capacity can be preserved in two ways. The first is to simply prohibit fill, the major cause for loss of storage. Prohibiting fill will also prevent most floodplain development and will help preserve the natural and beneficial functions of the floodplain. The other method is to require compensatory storage, e.g., the developer must compensate for each cubic foot of fill, building, or other item that is displacing flood water. Generally, this is done by removing an equal volume of fill from the lot, usually at the same elevation to maintain the same hydraulic conditions*.

d) Eliminate walk out basements adjacent to streams and wetlands.

Article V: Referral Process

Annotations: This section references General Municipal Law §239. New York General Municipal Law (GML) requires that certain types of municipal planning, zoning and subdivision projects be referred to County Planning for review prior to local action being taken. The requirement seeks to promote coordination of land use decision-making and to enhance consideration of potential intermunicipal and county-wide impacts. There are three sections of GML §239 which govern this process: §239-l describes

the purpose for county review; §239-m describes planning, zoning and development review referral; §239-n describes the referral of subdivision applications.

1. Applications. All materials required by and submitted to the local board as an application. All referrals must include Cover Sheet, which should be filled out by the municipality.

2. Authorization. Referrals are assigned to Planning Board Chair and/or Code Enforcement Officer.

3. Time limits. The municipality is allowed the following timeframes to review and reply after receipt of a full statement:

- a minimum of thirty (30) days, and
- a maximum of up to two (2) days prior to a regularly scheduled meeting during which the board will be taking action (e.g., voting) on the project

4. Factors for consideration. Review letters can include advisory comments, which are meant to provide helpful insights or suggestions:

- Damage prevention and flood minimization
- Drainage and watershed

Article VI: Severability and Effective Date

1. Severability
    a. If the provisions of any article, section, subsection, paragraph, subdivision or clause of this local law shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any article, section, subsection, paragraph, subdivision or clause of this local law.

2. Effective Date
    b. This Local Law shall be effective upon filing with the Office of the Secretary of State. Approved by: _____ Date _____

Article VII: Appeals

Variances to the requirements of this local law shall be handled by the Board of Zoning Appeals as defined under _____.

Sample Site Development Plan Review Checklist

To be used along with submission requirements for general Site Plan Review. This checklist applies to parcels of land that experience localized flooding.

Technical Considerations Satisfied:

☐ Location, width and purpose/description of all existing and proposed easements, set-backs, reservations and areas dedicated to public use within and adjoining the property, such as conservation or drainage easements
☐ Names, locations, elevations, and widths of adjacent streets
☐ Building elevations of adjoining parcels
☐ Conformity with local flood damage prevention, wetlands protection, and conservation development regulations
☐ Conformity with local hazard mitigation plan

Impact on Environs Satisfied:

☐ Use of future conditions—both land use and hydrology
☐ Identify levee protection areas
☐ Identify dam failure areas
☐ Flood response/evacuation plan

Existing Natural Features Satisfied:

☐ Location of all flood hazard areas (e.g., floodways, 100-year and 500-year floodplain), including Base Flood Elevations (BFE)
☐ Map waterbodies without identified floodplains (e.g., ditches, ponds, lakes)
☐ Hydrologic features, including all perennial and intermittent streams
☐ Natural grade elevation related to floodprone areas
☐ Geologic features, such as depth to groundwater and aquifers
☐ Topography at two-foot contour intervals
☐ Soil characteristics, such as field indicators of hydric soils and drainage capacity
☐ Vegetation, including all clearing, filling, and other proposed changes to the ground
☐ In V zones (coastal high hazard areas), the line of the mean high tide and Zone V/Zone A boundary; if there is more than one Zone on the lot, the BFE and boundary locations should be depicted on the plans.
☐ Habitat assessment

Proposed Development:

☐ Retention and detention facilities based on the 24-hour, 100-year storm
☐ Location, elevation, and arrangement of site access and egress, including all paths for pedestrian and vehicular travel within the site
☐ Landscaping plans, including riparian buffer areas
☐ Architectural plans (e.g., building anchoring standards, utility standards)
☐ Materials specifications (e.g., identify flood resistant materials for areas below BFE + 2', flood vents)

Are any of the following located in a flood hazard area?

☐ Decks, access stairs and elevators, fences, retaining walls, swimming pools, or accessory buildings
☐Underground electric connections serving lots
☐ Hazardous materials (e.g., storage tanks, on-site sewage disposal components)
☐ Wellheads for water
☐ Local road systems

Coastal Resilience through Community Engagement Webinar Series

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

October 30, 2017
1:00–2:30pm CT

9

Today's Moderator

Chad Berginnis, CFM
Executive Director, ASFPM

10

Thanks to our funders!

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Coastal Resilience through Community Engagement Webinar Series

The CRS Green Guide and Natural & Beneficial Functions of Floodplains

Robyn Wiseman, CFM
Research Scientist
ASFPM

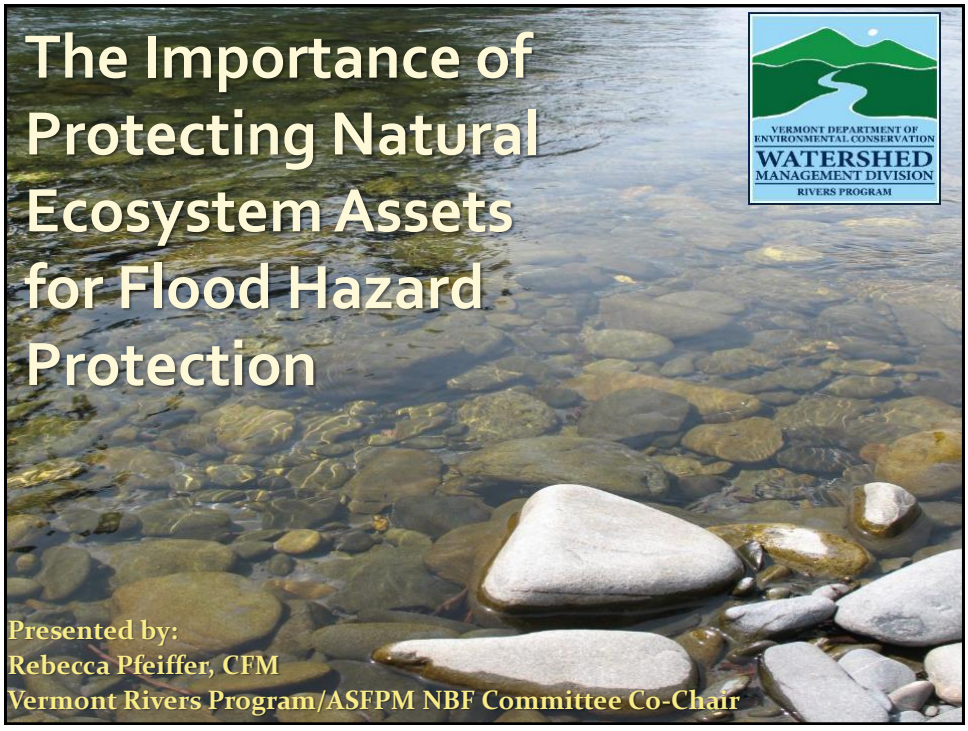
Rebecca Pfeiffer, CFM
ASFPM Natural & Beneficial Funct. Cmte. Chair

Dennis Dixon, CFM
Project Manager
Pierce County, WA

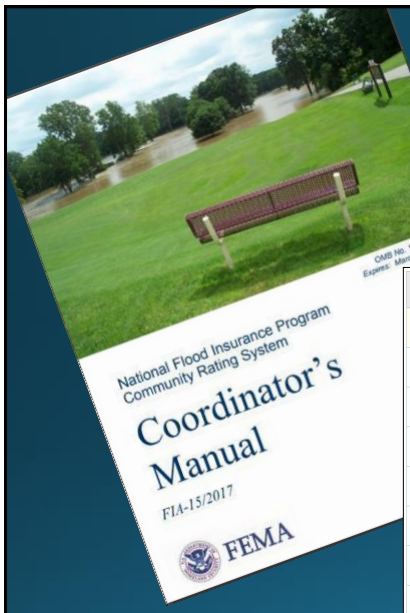
Poll Question:

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



Rebecca Pfeiffer, CFM, Rebecca.Pfeiffer@vermont.gov, 802-490-6157



CREDIT POINTS	CLASS	PREMIUM REDUCTION SFHA*	PREMIUM REDUCTION NON-SFHA**
4,500+	1	45%	10%
4,000 – 4,499	2	40%	10%
3,500 – 3,999	3	35%	10%
3,000 – 3,499	4	30%	10%
2,500 – 2,999	5	25%	10%
2,000 – 2,499	6	20%	10%
1,500 – 1,999	7	15%	5%
1,000 – 1,499	8	10%	5%
500 – 999	9	5%	5%
0 – 499	10	0	0

*Special Flood Hazard Area

CRS Emphasizes ***Avoidance*** Strategies and ***Protection*** of Naturally Functioning Floodplains

NFIP/CRS

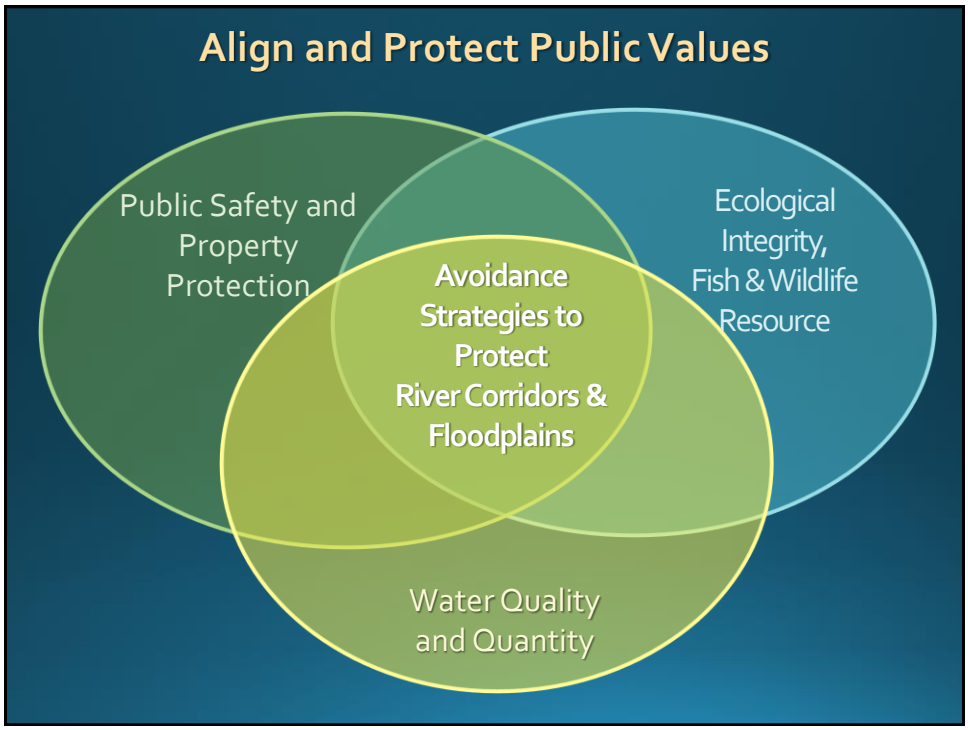
Master List of Community Rating System (CRS) Activities and Elements

300 Series: Public Information Activities			Max	Page
310 (Elevation Certificates)				
a	EC	Elevation Certificates after CRS application	38	310-12
b	ECPO	Elevation Certificate on post-FIRM buildings	48	310-13
c	ECPR	Elevation Certificate on pre-FIRM buildings	30	310-15
320 (Map Information Service)				
a	MI1	Providing insurance information from FIRM	30	320-8
b	MI2	LOMA/floodway info/CBRS area	20	320-10
c	MI3	Other flood problems not shown on FIRM	20	320-11
d	MI4	Flood depth data	20	320-11
e	MI5	Special flood-related hazards	20	320-13
f	MI6	Historical/repetitive flood information	20	320-14
g	MI7	Natural floodplain functions	20	320-15
330 (Outreach Projects)				
a	OP	Outreach projects	200	330-6
b	FRP	Flood response preparations	50	330-9
c	PPI	Program for Public Information bonus	N/A	330-14
d	STK	Stakeholder bonus	50	330-20
340 (Hazard Disclosure)				
a	DFH	Real estate agent disclosure of SFHA	35	340-3
b	ODR	Other disclosure requirements	25	340-5
c	REB	Real estate brochure	12	340-7
d	DOH	Disclosure of other hazards	8	340-10
350 (Flood Protection Information)				
a	LIB	Library	10	350-3
b	LPD	Locally pertinent documents in the library	10	350-5
c	WEB	Website	105	350-7
360 (Flood Protection Assistance)				
a	PPA	Property protection advice	40	360-4
b	PPV	Advice after a site visit	45	360-6
c	FAA	Financial assistance advice	15	360-7
d	TNG	Training	10	360-10
370 (Flood Insurance Promotion)				
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	370-12

400 Series: Mapping and Regulations			Max	Page
410 (Floodplain Mapping)				
a	NS	New study	350	410-8
b	LEV	Leverage	N/A	410-14
c	SR	State review	60	410-16
d	HSS	Higher study standards	200	410-18
e	FWS	Floodway standard	140	410-21
f	MAPSH	Special hazards mapping	100	410-24
420 (Open Space Preservation)				
a	OSP	Preserved open space	1,450	420-3
b	DR	Deed restriction	50	420-12
c	NFOS	Natural functions open space	350	420-14
d	SHOS	Special hazards open space	150	420-19
e	CEOS	Coastal erosion open space	750	420-20
f	OSI	Open space incentives	250	420-21
g	LZ	Low density zoning	600	420-28
h	NSP	Natural shoreline protection	120	420-30
430 (Higher Regulatory Standards)				
a	DL	Development limitations	1,330	430-6
b	FRB	Freeboard	500	430-11
c	FDN	Foundation protection	80	430-16
d	CSI	Cumulative substantial improvements	90	430-18
e	LSI	Lower substantial improvements	20	430-19
f	PCF	Protection of critical facilities	80	430-21
g	ENL	Enclosure limits	240	430-23
h	BC	Building code	100	430-26
i	LDP	Local drainage protection	120	430-30
j	MHP	Manufactured home park	15	430-31
k	CAZ	Coastal A Zone regulations	500	430-32
l	SHR	Special hazards regulations	100	430-38
m	TSR	Tsunami hazard regulations	50	430-46
n	CER	Coastal erosion regulations	370	430-48
o	OHS	Other higher standards	100	430-52
p	SMS	State-mandated standards	20	430-53
q	RA	Regulations administration	67	430-55

1 2017 CRS Coordinator's Manual

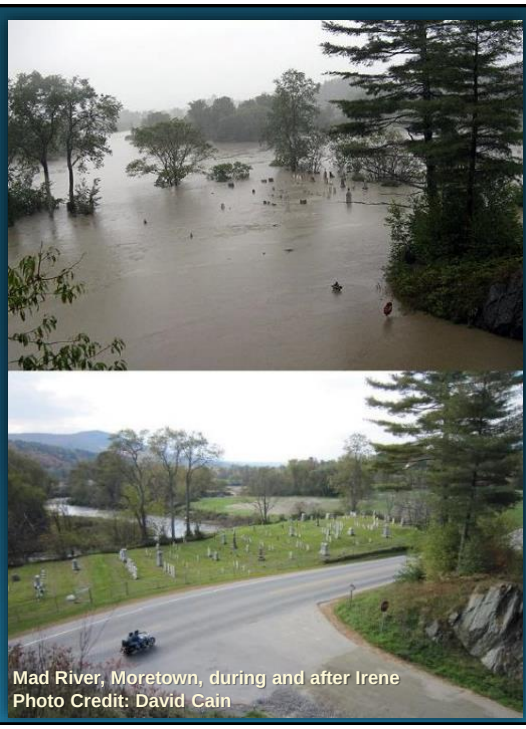
Rebecca Pfeiffer, CFM, Rebecca.Pfeiffer@vermont.gov, 802-490-6157



Rebecca Pfeiffer, CFM, Rebecca.Pfeiffer@vermont.gov, 802-490-6157

Floodplains…

…Dissipate water energy & reduce flashiness

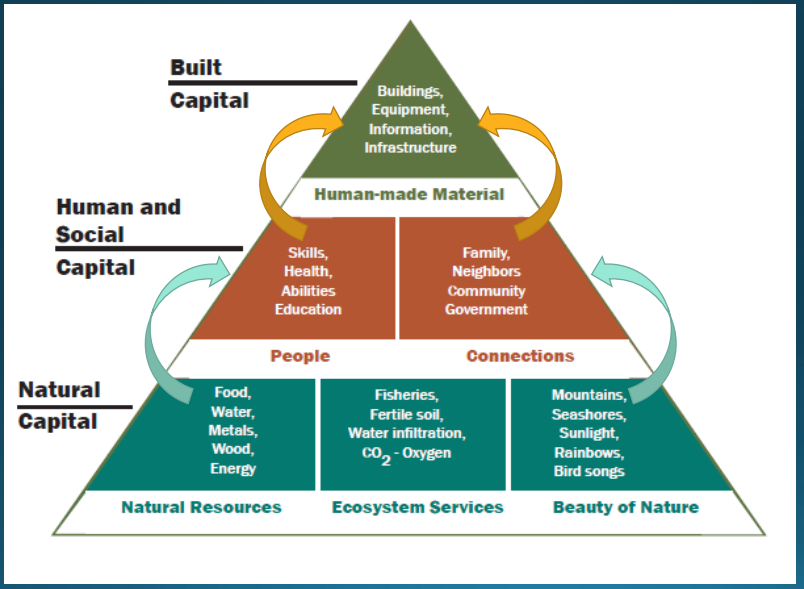


Mad River, Moretown, during and after Irene
Photo Credit: David Cain

Without floodplains: Stream gravel, sediment & debris keeps moving downstream

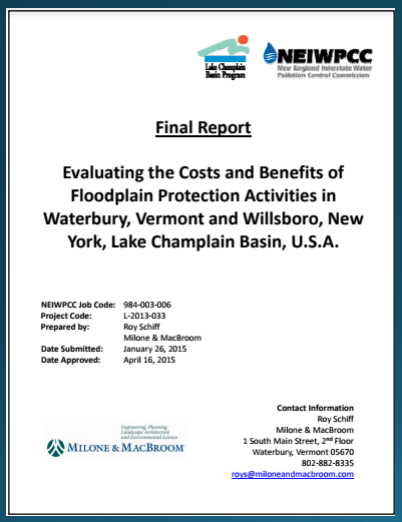
Rebecca Pfeiffer, CFM, Rebecca.Pfeiffer@vermont.gov, 802-490-6157

Community Capitol



Source: www.sustainablemeasures.com

Valuing our Natural Capital

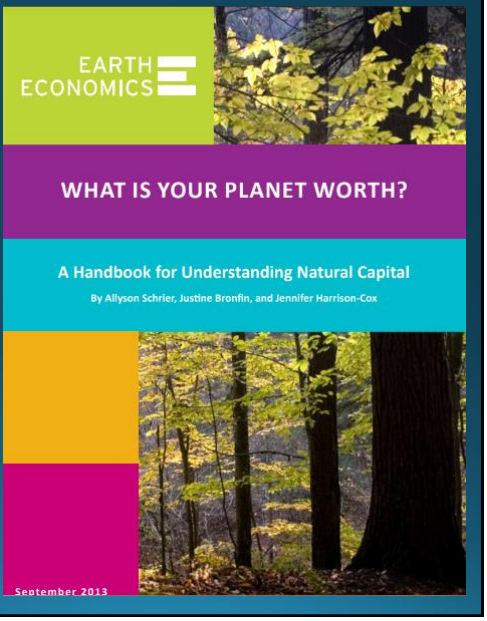


Final Report

Evaluating the Costs and Benefits of Floodplain Protection Activities in Waterbury, Vermont and Willsboro, New York, Lake Champlain Basin, U.S.A.

NEIWPCC Job Code: 984-003-006
Project Code: L-2013-033
Prepared by: Roy Schiff, Milone & MacBroom
Date Submitted: January 26, 2015
Date Approved: April 16, 2015

Contact Information
Roy Schiff
Milone & MacBroom
1 South Main Street, 2nd Floor
Waterbury, Vermont 05670
802-882-8335
roys@miloneandmacbroom.com



EARTH ECONOMICS

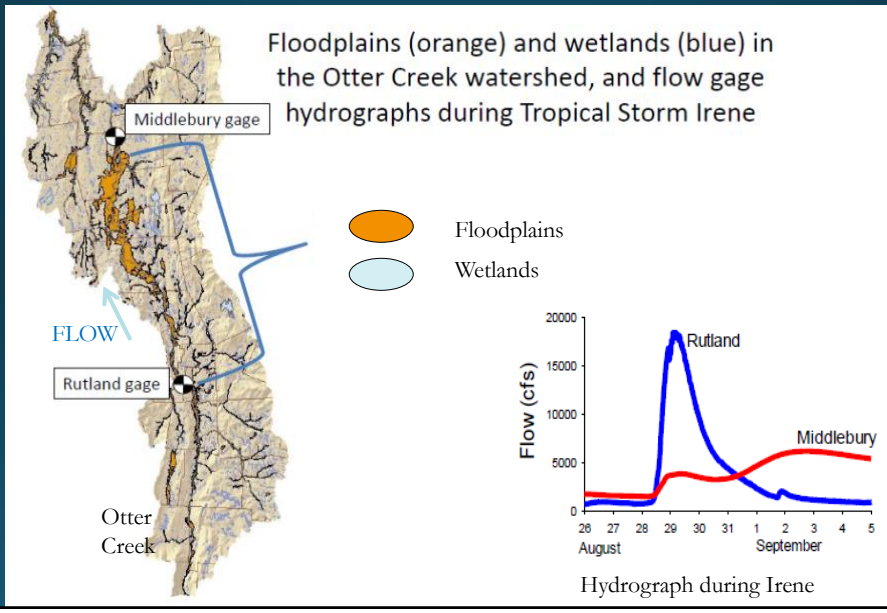
WHAT IS YOUR PLANET WORTH?

A Handbook for Understanding Natural Capital

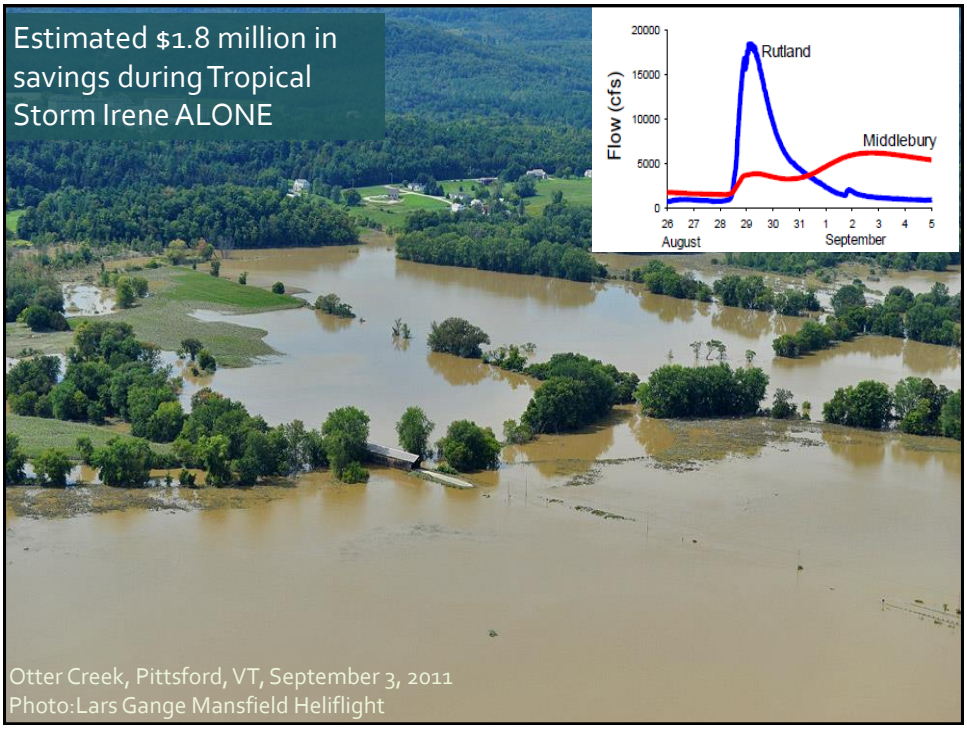
By Allyson Schrier, Justine Bronfin, and Jennifer Harrison-Cox

September 2013

Wetlands & Floodplains at Work



Hydrograph during Irene

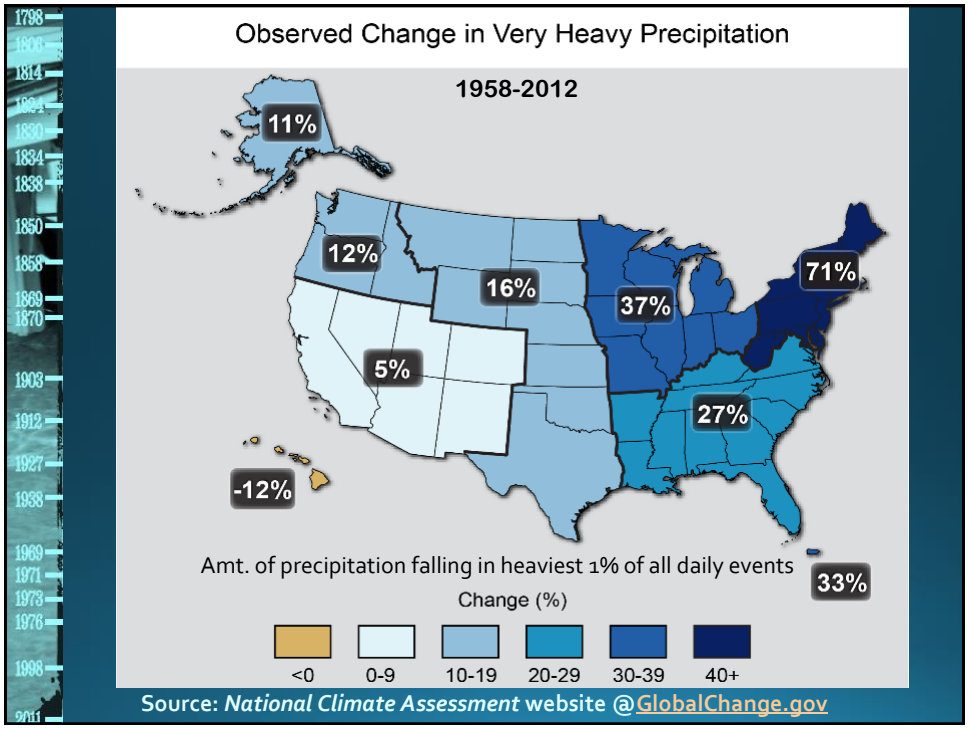


Rebecca Pfeiffer, CFM, Rebecca.Pfeiffer@vermont.gov, 802-490-6157

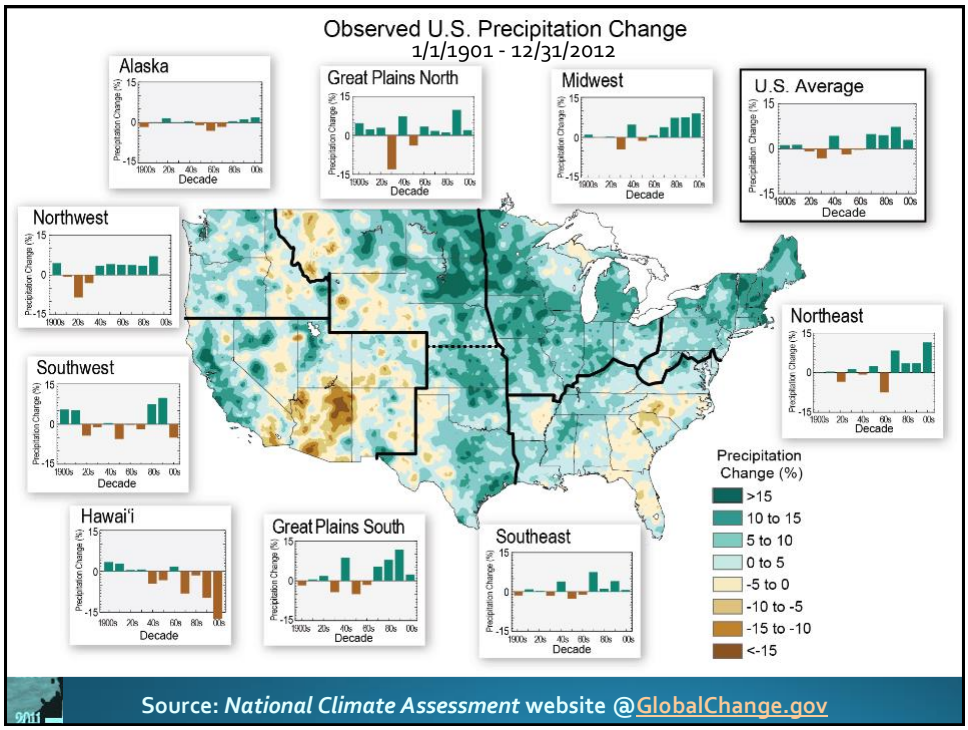
Resilience

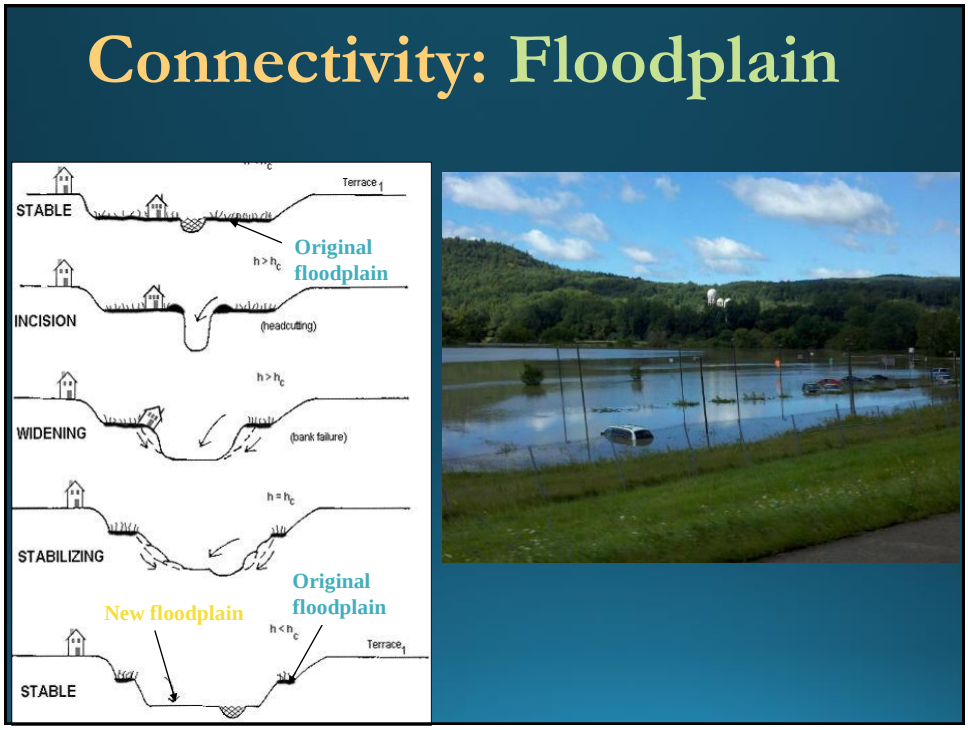
A *Resilient Landscape* has space for dynamic natural processes

A *Resilient Community* can learn and adapt



Rebecca Pfeiffer, CFM, Rebecca.Pfeiffer@vermont.gov, 802-490-6157





Rebecca Pfeiffer, CFM, Rebecca.Pfeiffer@vermont.gov, 802-490-6157

Connectivity: Aquatic

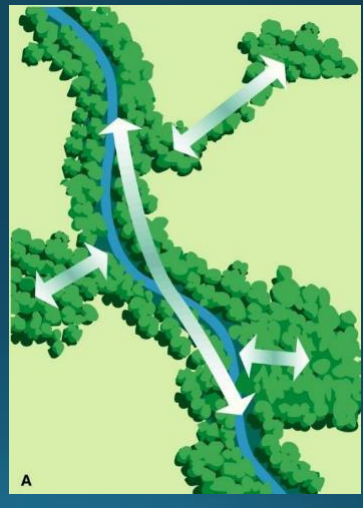
Culvert is a barrier

Bankfull Culvert

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

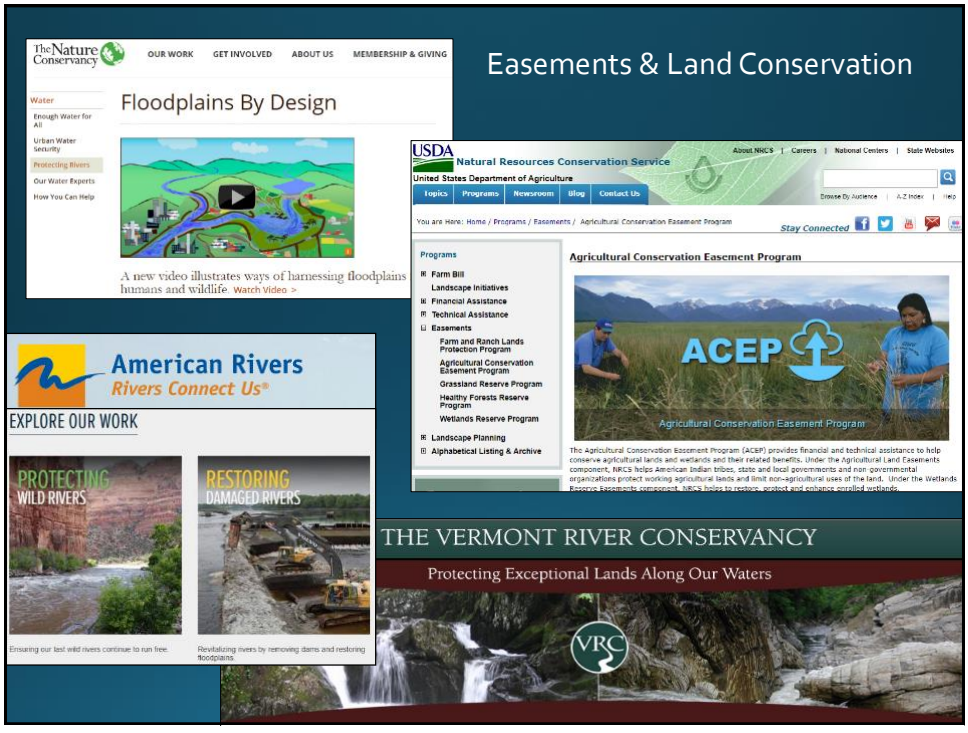
Connectivity: Ecosystem Resiliency

Barriers to movement

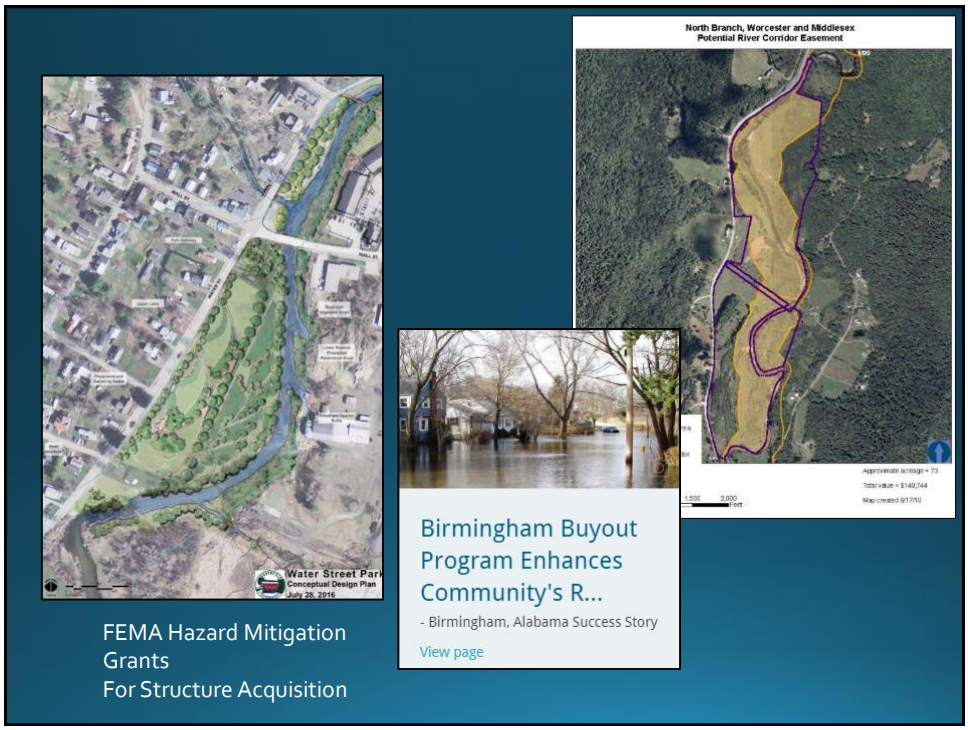


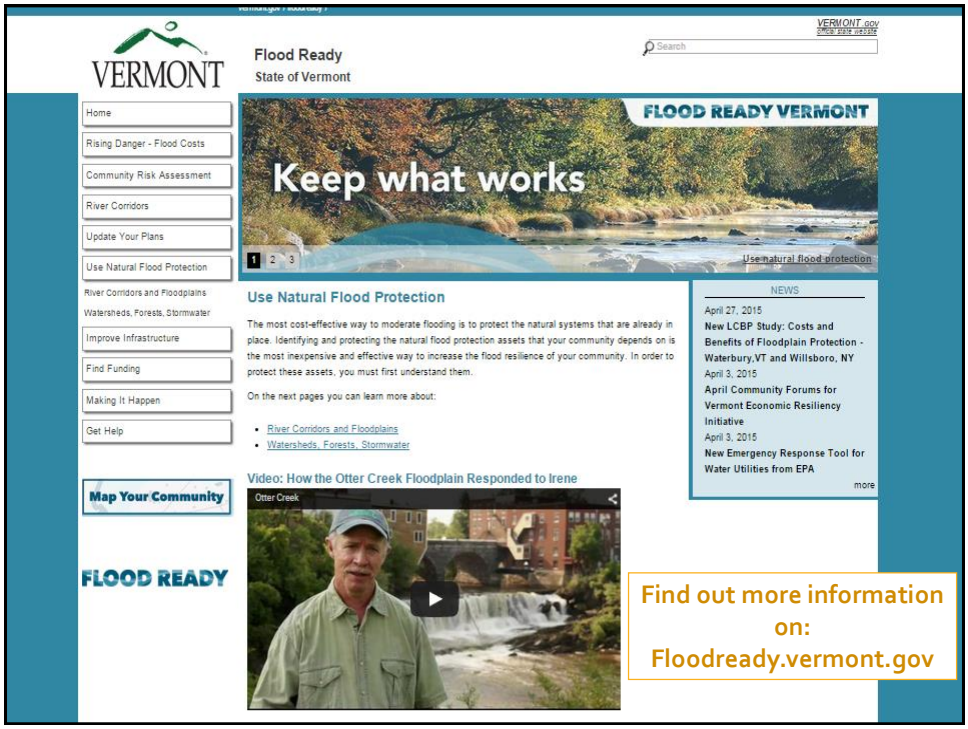
Connected corridors

Rebecca Pfeiffer, CFM, Rebecca.Pfeiffer@vermont.gov, 802-490-6157



Rebecca Pfeiffer, CFM, Rebecca.Pfeiffer@vermont.gov, 802-490-6157





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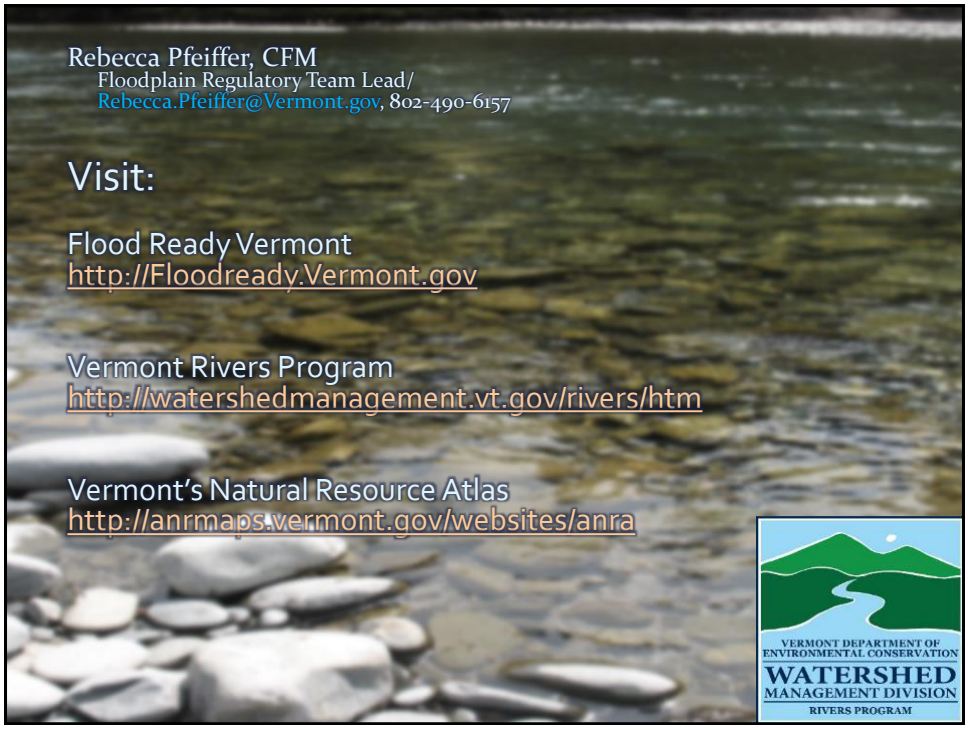
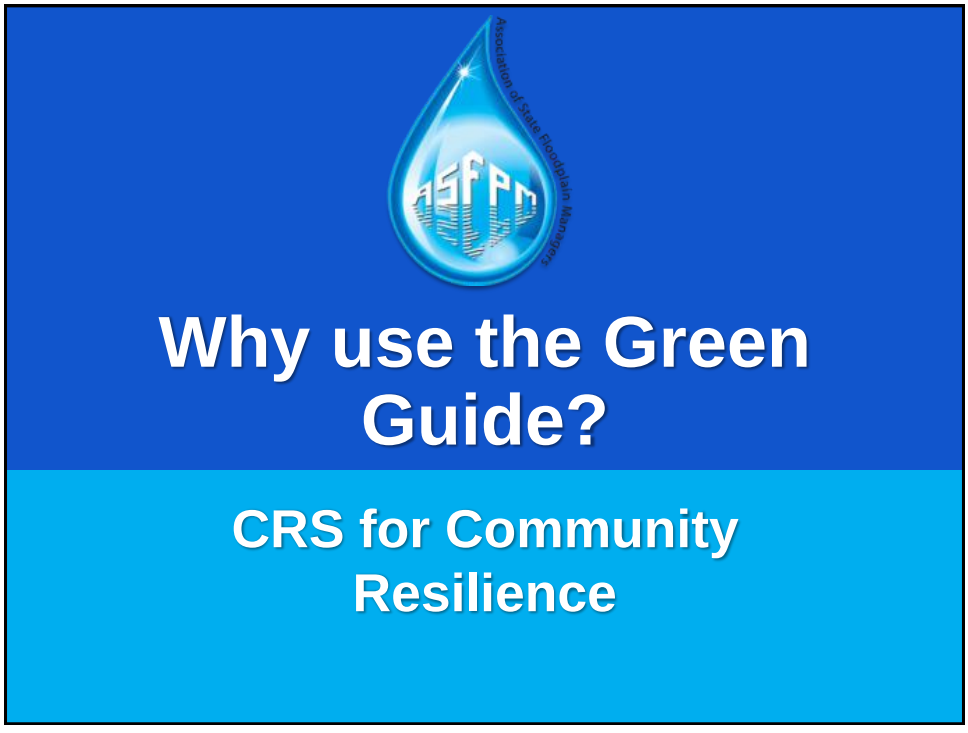

Rebecca Pfeiffer, CFM
Floodplain Regulatory Team Lead/
Rebecca.Pfeiffer@Vermont.gov, 802-490-6157
Visit:
Flood Ready Vermont
http://Floodready.Vermont.gov
Vermont Rivers Program
http://watershedmanagement.vt.gov/rivers/htm
Vermont's Natural Resource Atlas
http://anrmaps.vermont.gov/websites/anra
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
RIVERS PROGRAM

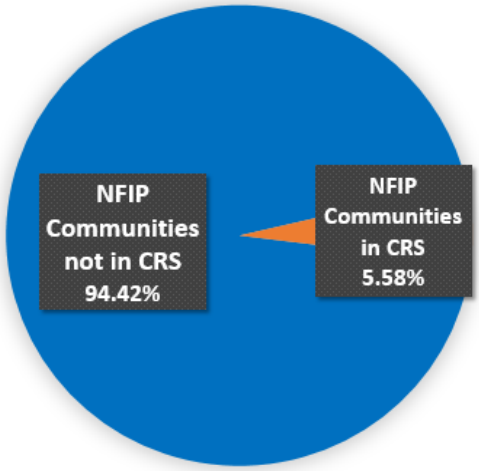

Association of State Floodplain Managers
ASFPM
Why use the Green Guide?
CRS for Community Resilience

About the NFIP and CRS

CRS Green Guide, 2017 Image Credit: AlexiusHoratius, via the Wikimedia Commons. Slide 37

CRS Participants in Numbers

Percentage of NFIP Communities Participating in CRS

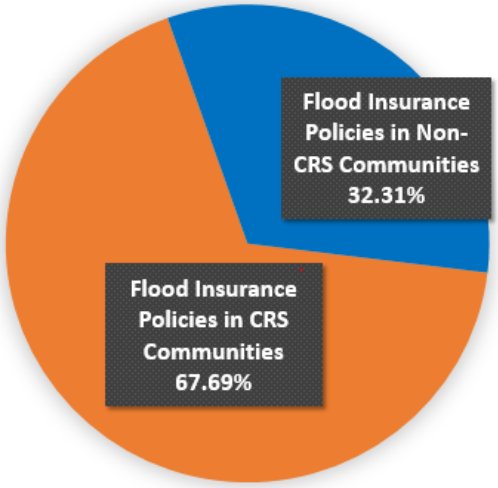


CRS Green Guide, 2017 Source: (FEMA, 2012) Slide 38

Robyn Wiseman, CFM, Robyn@floods.org, 608-828-3000

CRS Participants in Numbers

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

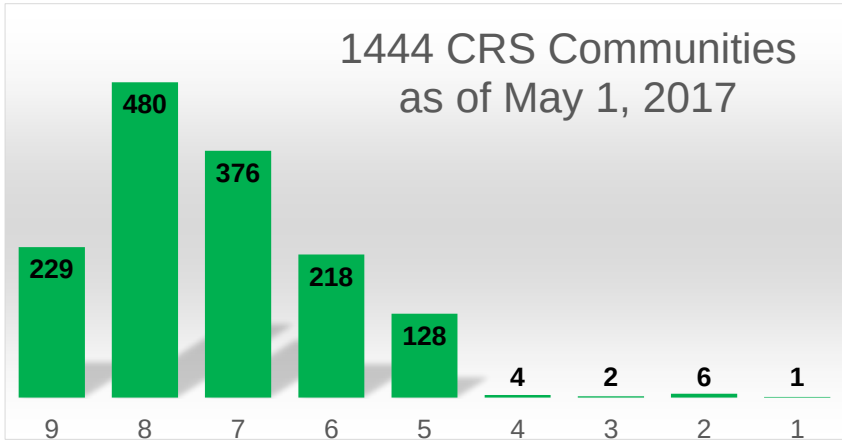


CRS Green Guide, 2017 Source: (FEMA, 2012) Slide 39

CRS Class Breakdown

CRS Class	Points Required	SFHA Discount	Non-SFHA Discount	PRP Discount
1	4,500	45%	10%	0%
2	4,000	40%	10%	0%
3	3,500	35%	10%	0%
4	3,000	30%	10%	0%
5	2,500	25%	10%	0%
6	2,000	20%	10%	0%
7	1,500	15%	5%	0%
8	1,000	10%	5%	0%
9	500	5%	5%	0%
10	< 500	0%	0%	0%

CRS Class Breakdown

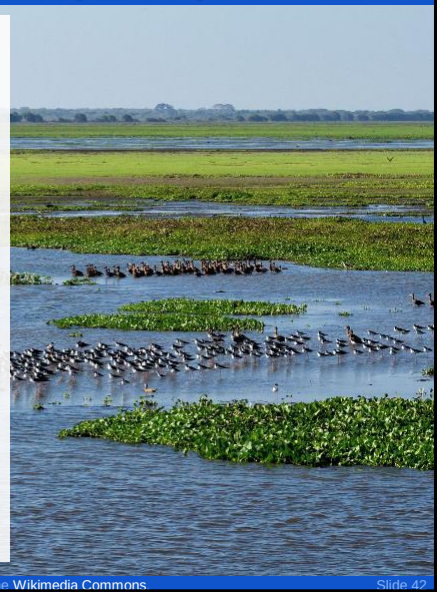


FEMA NFIP/CRS

CRS Green Guide, 2017 Slide courtesy of Amanda Gowans, ISO/CRS Specialist. Slide 41

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



CRS Green Guide, 2017 Image Credit: Fernando Flores, via the Wikimedia Commons. Slide 42

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Natural and Beneficial Functions

Class 4 Status →

Class 1 Status →

NAI® No Adverse Impact

CRS Green Guide, 2017 Image Credit: Fernando Flores, via the Wikimedia Commons. Slide 43

300 Series Public Information Activities	412.e: More-restrictive floodway standard 412.f: Mapping of SFHA	500 Series Flood Damage Reduction Activities
312.a: Maintaining Elevation Certificates	422.a: Open space preservations	512.a: Floodplain management planning
312.b: Maintaining Elevation Certificates for post-FIRM buildings	422.b: Deed restrictions	512.b: Repetitive loss area analysis
312.c: Maintaining Elevation Certificates for pre-FIRM buildings	422.c: Natural functions open space	512.c: Natural floodplain functions plan
322.a: Basic FIRM information	422.d: SFHA open space	522.a: Buildings acquired or relocated
322.b: Additional FIRM information	422.e: Coastal erosion open space	522.b: Buildings on the repetitive loss list
322.c: Other flood problems not shown on the FIRM	422.f: Open space incentives	522.c: Severe Repetitive Loss properties
322.d: Flood depth data	422.g: Low density zoning	522.d: Critical facilities
322.e: Special flood-related hazards	422.h: Natural shoreline protection	522.e: Buildings located in the V or coastal A Zone
322.g: Natural floodplain functions	432.a: Development Limitations	532.a: Flood protection project technique used
332.a: Outreach Projects	432.b: Freeboard	532.b: Flood protection improvement
332.b: Flood response preparations	432.c: Foundation protection	532.c: Protected buildings
332.c: Program for Public Information	432.d: Cumulative substantial improvements	542.a: Channel debris removal
332.d: Stakeholder delivery	432.e: Lower substantial improvements	542.b: Problem site maintenance
342.a: Disclosure of flood hazard	432.f: Protection of critical facilities	542.c: Capital improvement program
342.b: Other disclosure requirements	432.g: Enclosure limits	542.d: Stream dumping regulations
342.c: Real estate agents' brochure	432.h: Building code	542.e: Storage basin maintenance
342.d: Disclosure of other hazards	432.i: Local drainage protection	600 Series Warning and Response
352.a: Flood protection library	432.j: Manufactured home parks	
352.b: Locally pertinent documents	432.k: Coastal A Zones	612.a: Flood threat recognition system
352.c: Flood protection website	432.l: SFHA regulations	612.b: Emergency warning dissemination
362.a: Property protection advice	432.m: Tsunami hazard regulations	612.c: Flood response operations
362.b: Protection advice provided after site visit	432.n: Coastal erosion hazard regulations	612.d: Critical facilities planning
362.c: Financial assistance advice	432.o: Other higher standard	612.e: StormReady community
362.d: Advisor training	432.p: State-mandated regulatory standards	612.f: TsunamiReady community
372.a: Flood insurance coverage assessment	432.q: Regulations administration	622.a: Levee maintenance
372.b: Coverage improvement plan	442.a: Additional map data	622.b: Levee failure threat recognition system
372.c: Coverage improvement plan implementation	442.b: FIRM maintenance	622.c: Levee failure warning
372.d: Technical assistance	442.c: Benchmark maintenance	622.d: Levee failure response operations
400 Series Mapping and Regulations	442.d: Erosion data maintenance 452.a: Storm water management regulations	622.e: Levee failure critical facilities planning 632.a: State dam safety program
412.a: New study	452.b: Watershed master plan	632.b: Dam failure threat recognition system
412.b: Leverage	452.c: Erosion and sedimentation control regulations	632.c: Dam failure warning
412.c: State review	452.d: Water quality regulations	632.d: Dam failure response operations
412.d: Higher study standards		632.e: Dam failure critical facilities planning

Robyn Wiseman, CFM, Robyn@floods.org, 608-828-3000

300 Series Public Information Activities	412.e: More-restrictive floodway standard	500 Series Flood Damage Reduction Activities
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412.d: Higher study standards	452.c: Erosion and sedimentation control regulations	632.e: Dam failure critical facilities planning
	452.d: Water quality regulations	

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		

Robyn Wiseman, CFM, Robyn@floods.org, 608-828-3000

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

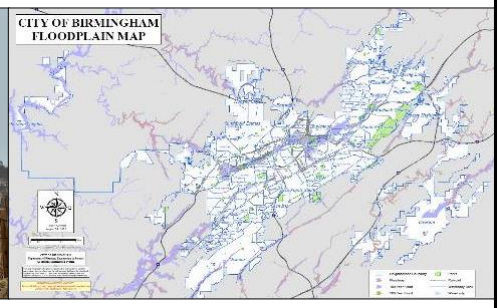
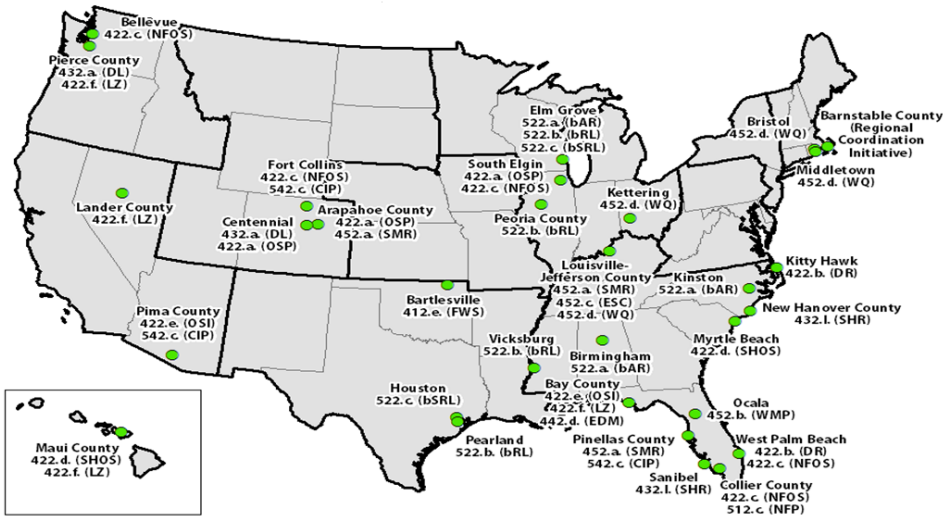


Image Credits: (left) Putnevpics via Flickr Creative Commons; (right) Map via Birmingham Dept of Planning, Engineering & Permits GIS. Slide 47

Best Practices and Success Stories



CRS Green Guide, 2017 Updated 24 January 2017 by Jason Hochschild @ ASFPM Slide 48

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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

CRS Green Guide, 2017 — Image from Louisville MSD. — Slide 49

Receive Stackable Credits

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

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

Stackable Credit:

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

CRS Green Guide, 2017 — Image Credit: Arthur Greenberg, via the Wikimedia Commons — Slide 50

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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

CRS Green Guide, 2017 Slide 51

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.

CRS Green Guide, 2017 Icons by Diablo Tim from The Noun Project. Slide 52

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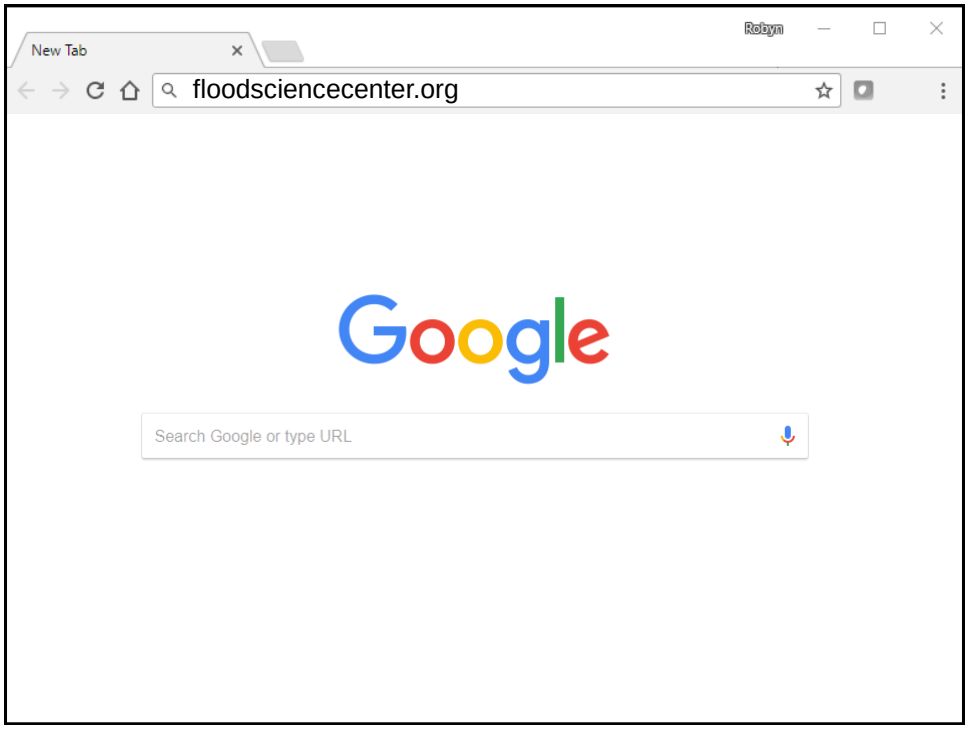
Quick Demo of the Green Guide

Walk-through of our site



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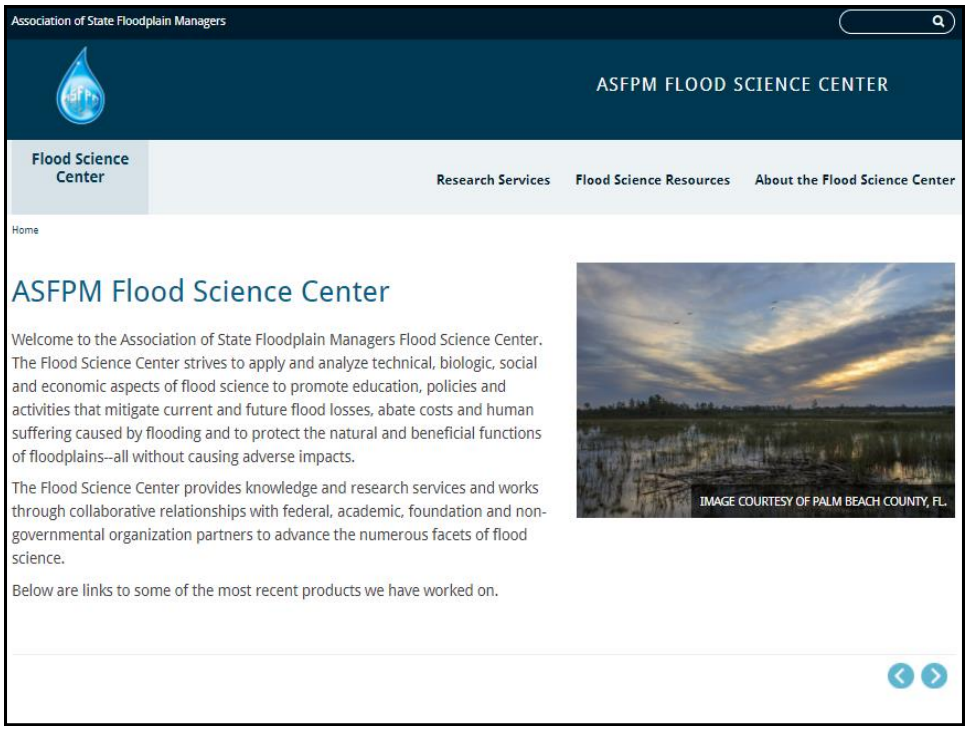
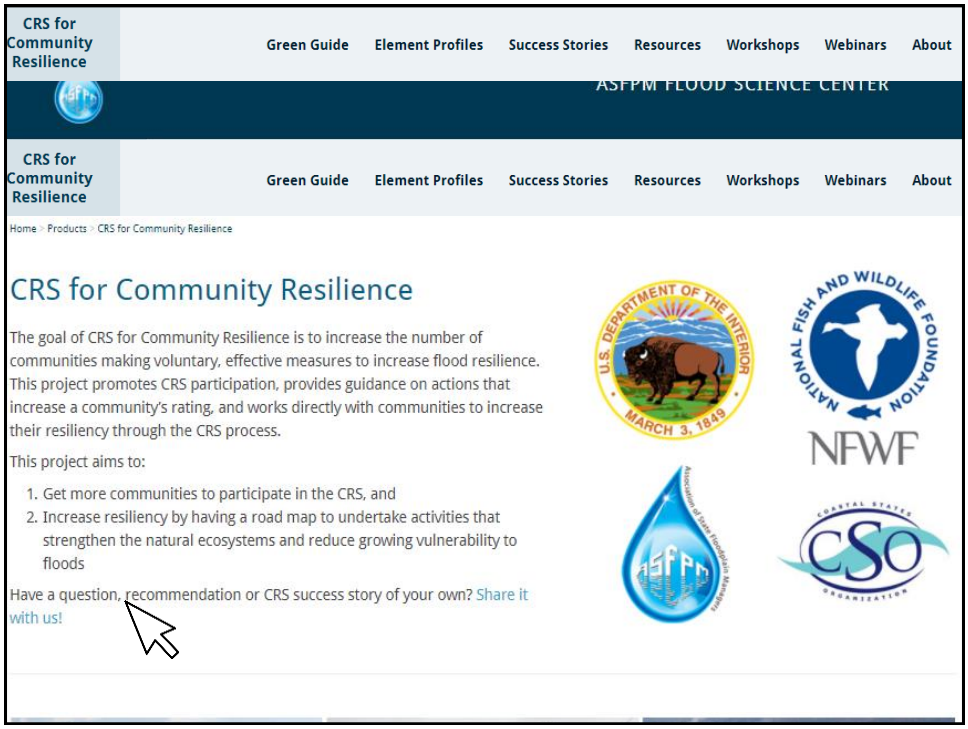
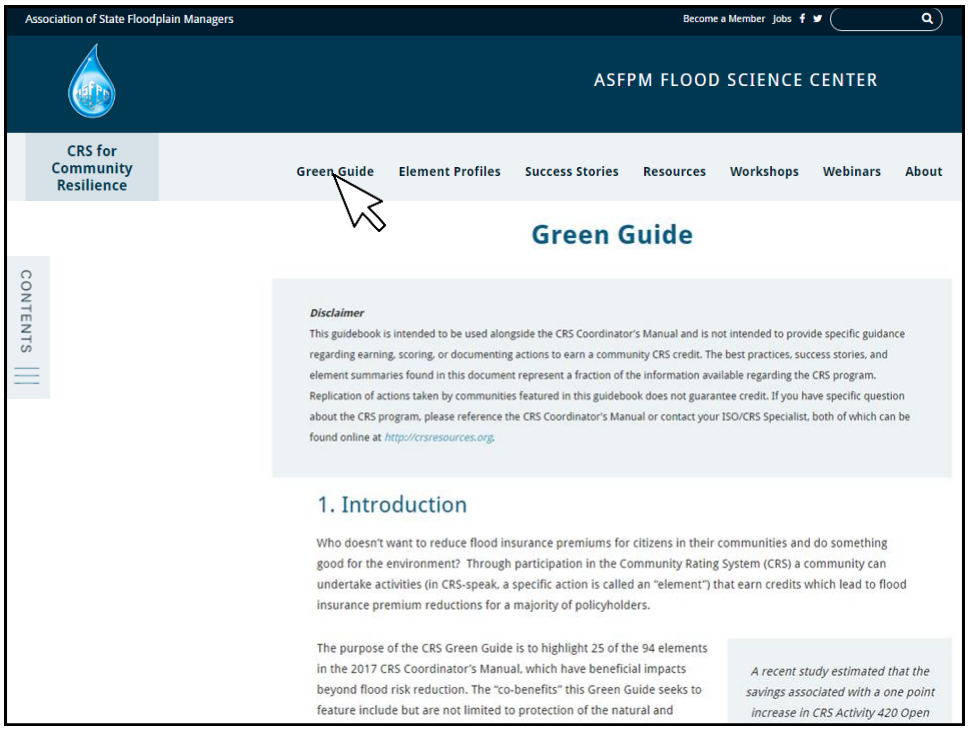
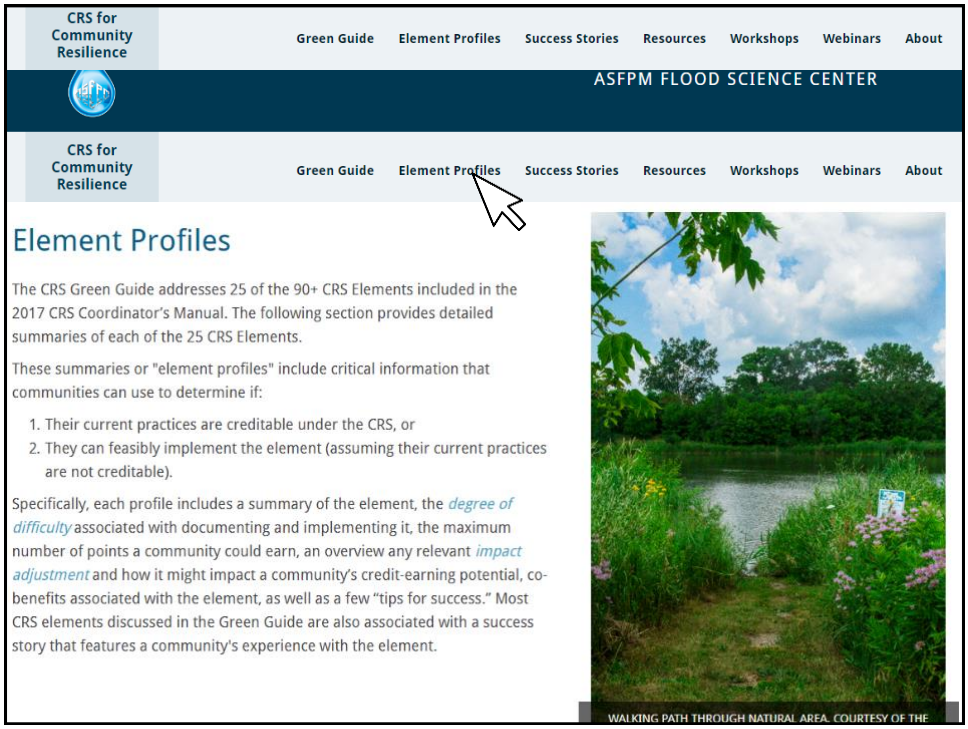
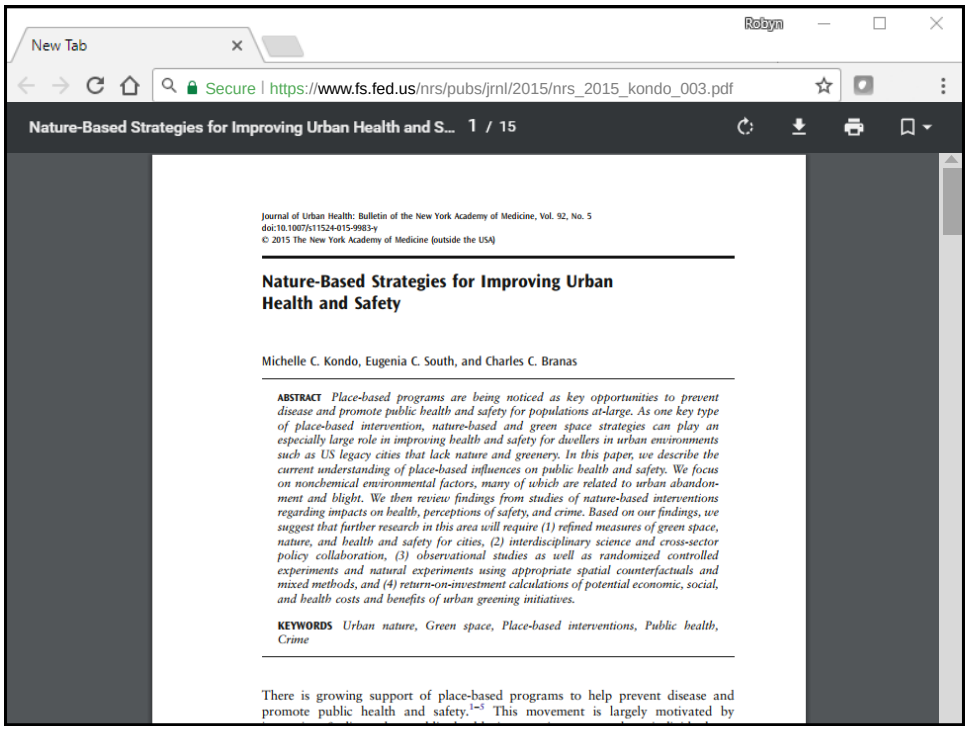










New Tab

Secure | https://www.fs.fed.us/nrs/pubs/jrnl/2015/nrs_2015_kondo_003.pdf

Nature-Based Strategies for Improving Urban Health and S... 1 / 15

Journal of Urban Health: Bulletin of the New York Academy of Medicine, Vol. 92, No. 5
doi:10.1007/s11524-015-9983-y
© 2015 The New York Academy of Medicine (outside the USA)

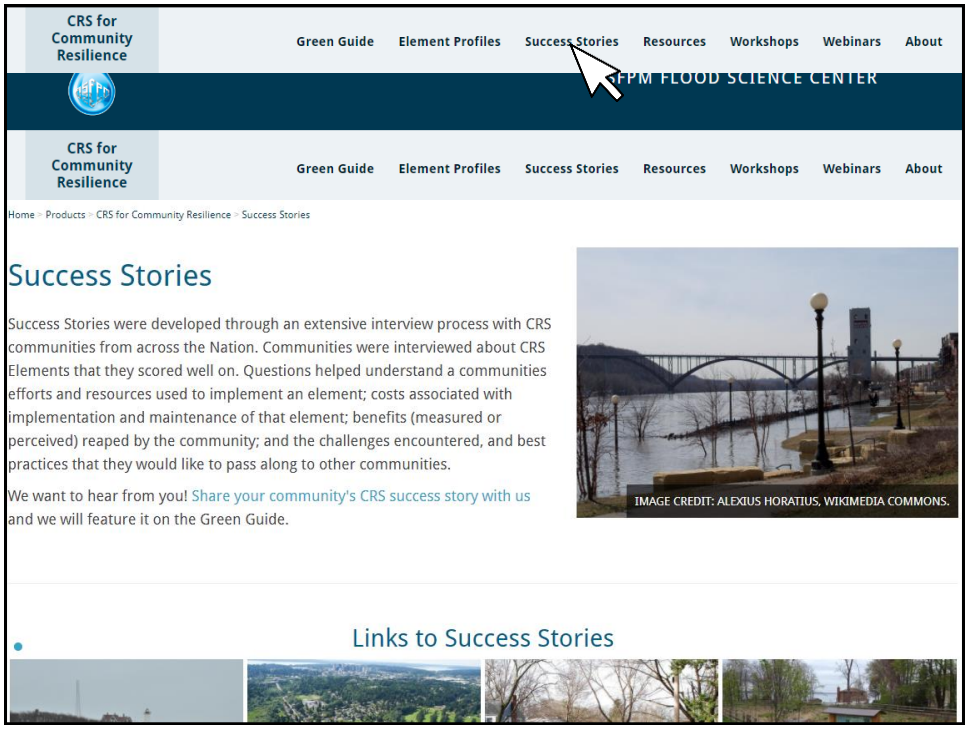
Nature-Based Strategies for Improving Urban Health and Safety

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

ABSTRACT *Place-based programs are being noticed 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) return-on-investment 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.[1–5] This movement is largely motivated by



CRS for Community Resilience

Green Guide | Element Profiles | Success Stories | Resources | Workshops | Webinars | About

FPM FLOOD SCIENCE CENTER

CRS for Community Resilience

Green Guide | Element Profiles | Success Stories | Resources | Workshops | Webinars | About

Home > Products > CRS for Community Resilience > Success Stories

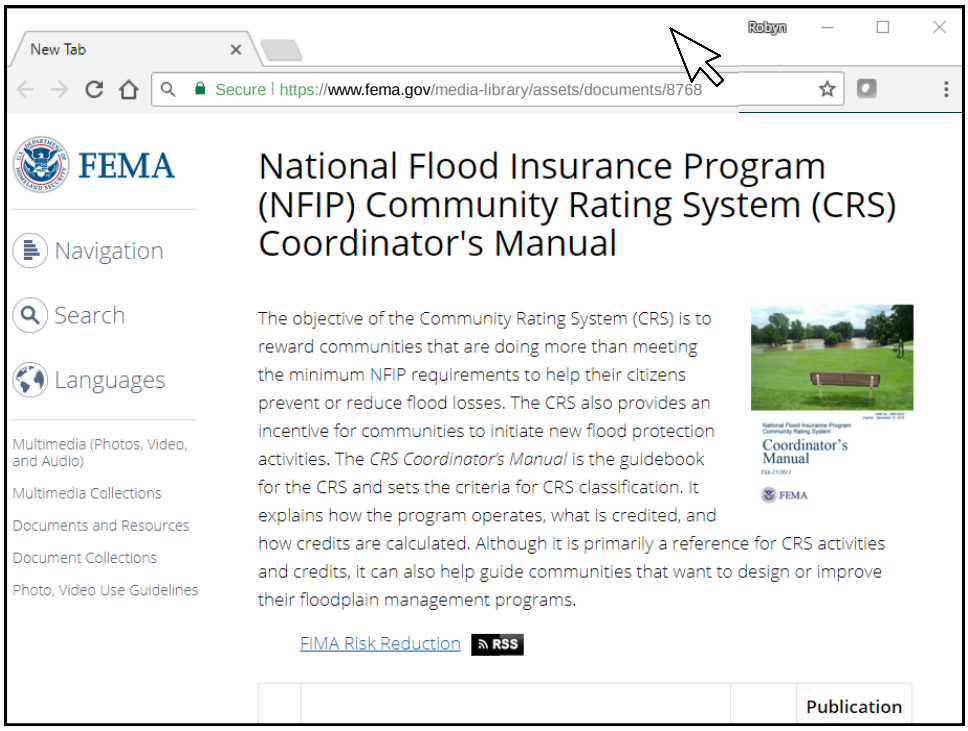
Success Stories

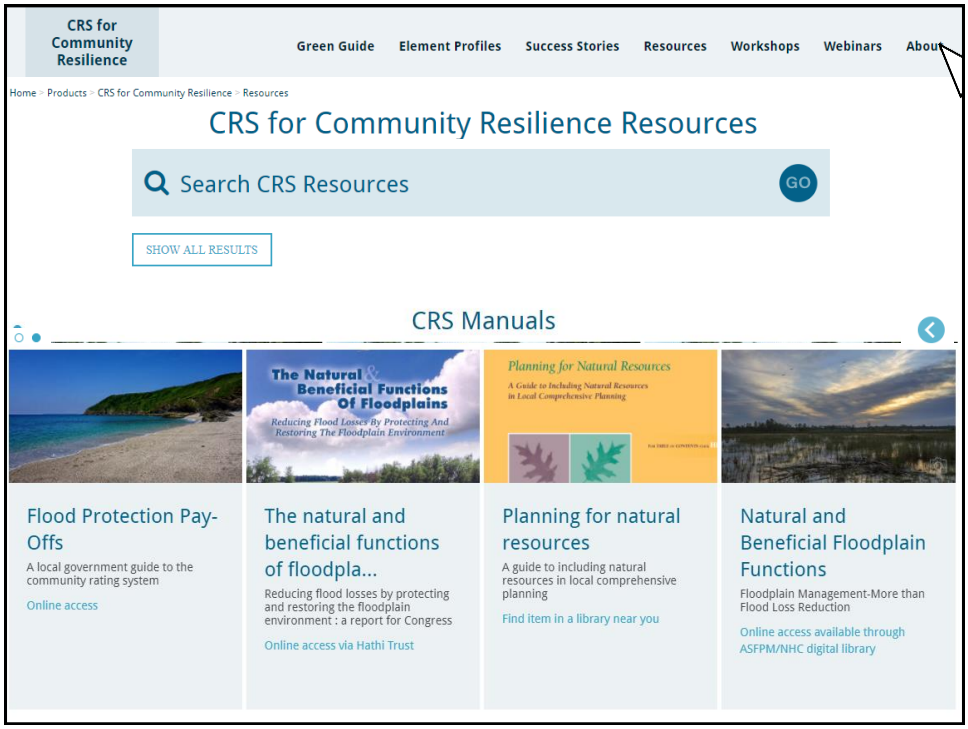
Success Stories were developed through an extensive interview process with CRS communities from across the Nation. Communities were interviewed about CRS Elements that they scored well on. Questions helped understand a communities efforts and resources used to implement an element; costs associated with implementation and maintenance of that element; benefits (measured or perceived) reaped by the community; and the challenges encountered, and best practices that they would like to pass along to other communities.

We want to hear from you! Share your community's CRS success story with us and we will feature it on the Green Guide.

IMAGE CREDIT: ALEXIUS HORATIUS, WIKIMEDIA COMMONS.

Links to Success Stories





Robyn Wiseman, CFM, Robyn@floods.org, 608-828-3000

Robyn Wiseman, CFM
Research Scientist
Association of State Floodplain Managers
Robyn@floods.org
608-828-6345

CRS Green Guide, 2017 Slide 63

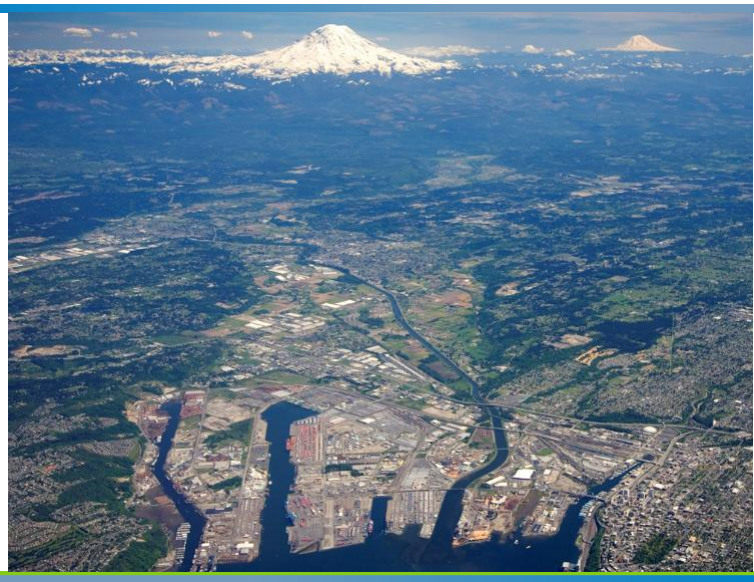
Pierce County

PIERCE COUNTY COMMUNITY RATING SYSTEM SUCCESSES

Dennis Dixon, CFM
Pierce County Planning & Public Works

Who – Where – Why

Pierce County



10/27/2017 CRS Green Guide Webinar 65

Origin Story

Pierce County

10/27/2017 CRS Green Guide Webinar 66

Dennis Dixon, ddixon@co.pierce.wa.us, 253-798-3696

How did we do it?

Pierce County

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The rewards

Pierce County

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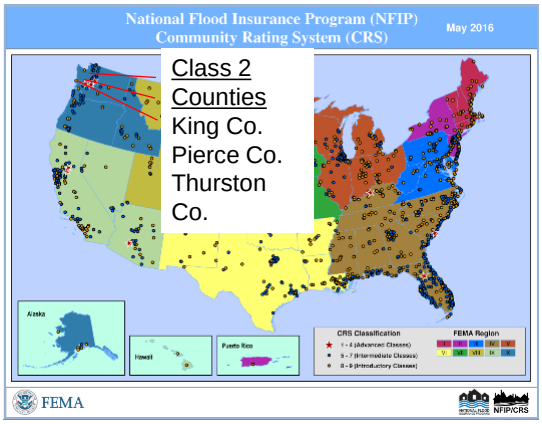
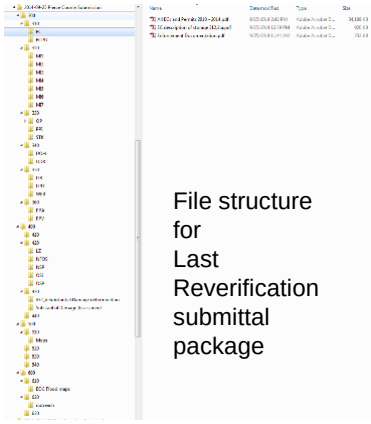
Dennis Dixon, ddixon@co.pierce.wa.us, 253-798-3696

Best practices

Pierce County





File structure for Last Reverification submittal package

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Coastal Resilience Webinars

Coastal Resilience through Community Engagement Webinars

https://www.floodsciencecenter.org/products/crs-community-resilience/webinars/

-**OR**-

http://bit.ly/2ys6650