

Inside this Issue

- 1 New Elevation and Floodproofing Certificates
- 1 FEMA Region X Mitigation Measures
- 2 Evaluating Investments in Community Resilience
- 3 Benefits of a Hydrology and Hydraulic Review
- 3 Are you prepared for El Niño?
- 4 Online Training Calendar

Strategic Alliance for Risk Reduction
FEMA Region X Service Center
20700 44th Avenue West, Suite 110
Lynnwood, Washington 98036
(425) 329-3699

News from Region X

New Elevation and Floodproofing Certificates

The Office of Management and Budget (OMB) has approved revisions to the Elevation Certificate and the Floodproofing Certificate for Non-Residential Structures. The new expiration date for these forms is November 30, 2018.

Once finalized the new EC will be posted to the FEMA document library at www.fema.gov/media-library/assets/documents/160.

Elevation Certificate training is available from STARR online. For registration information visit <http://j.mp/starronlinetraining>.

FEMA Region X Mitigation Measures

Resilient Communities Require Strong, Safe Construction

Too many communities within the United States are experiencing ever-increasing damage, financial loss and suffering from flooding, wildfires, wind and other natural hazards. While effective solutions are complex and vary by region and neighborhood, the most critical factors are where and how we build our homes, businesses and public infrastructure.

Logic and experience have taught us that flood-hazard areas will, from time to time, get wet. Fire-prone landscapes occasionally burn, and we will continue to be visited by severe winds, heat, cold, earthquakes, drought and other challenges. The important considerations are how we respond, recover, and take action to limit future damage.

We build in risky locations for a wide variety of reasons. The natural resources of the area may provide some people with a livelihood. Others enjoy recreational opportunities or just admire the beauty. There are good reasons, though, to take some steps to plan and regulate where and how new structures are built. We also often need to address issues of repetitive damage to existing buildings that are in harm's way.

Several national policies promote wise regulation of high-hazard areas. One example is the National Flood Insurance Program (NFIP). It was designed to help reduce risk, in part, by encouraging establishment and enforcement of local floodplain management ordinances.



Under NFIP rules, new construction in flood-prone areas must be elevated or flood-proofed. Additionally, when older buildings in flood zones are substantially improved or substantially damaged by flooding or other causes, community officials and property owners must work together to develop solutions that reduce risk and meet current codes.

Over time, all of this helps to break the costly cycle of damage, repair and repeat damage that is so

Continued on next page

RiskMAP
Increasing Resilience Together

Mitigation (cont.)

detrimental to entire communities. Adopting policies that exceed the minimum NFIP requirements brings an even greater degree of safety, along with significant insurance rate savings. Requiring disaster-resistant construction through building code adoption and enforcement is another important way to reduce risk. The decision to build beyond minimum code standards can also provide enormous benefits.

There are countless design options that add strength, durability and safety to the construction of homes, businesses and infrastructure. While they add slightly to the initial cost, these investments can prevent devastating financial loss and suffering. On average, hazard mitigation investments have demonstrated a return of \$4 for each dollar invested. Better, stronger, safer construction can benefit entire communities.

Everyone likes success stories:

- Elevated structures help avoid damage in flood zones.
- Adding extra “freeboard” to the design further improves the odds (and brings lower flood insurance rates).
- Fire-resistant roofing, eaves, siding, patios, landscaping and other details, combined with a perimeter of defensible space, reduce the risk of fire losses.
- Wind- and earthquake-resistant building techniques are effective and affordable.

All of the above save lives and property!

Written by Roger Faris

This article was produced by FEMA Region X Mitigation Division and originally appeared in the FEMA Mitigation Measures newsletter in November 2015.

Evaluating Investments in Community Resilience

New Guide Explains

Communities weighing choices for capital improvement projects intended to improve resilience to severe weather, wildfires, earthquakes, or other types of hazards now have a new guide to help them sort through the costs and benefits of each when deciding which investment is best for their particular circumstances.

Prepared by National Institute of Standards and Technology (NIST) economists, the [Community Resilience Economic Decision Guide for Buildings and Infrastructure Systems](#) details steps for evaluating the “economic ramifications” of contemplated resilience investments as well as the option of maintaining the status quo.

The new publication complements NIST’s recently issued [Community Resilience Planning Guide for Buildings and Infrastructure Systems](#). That guide lays out a practical six-step process that communities can follow to develop resilience plans that help them prepare for hazards, adapt to changing conditions and withstand and rapidly recover from disruptions. Community-developed resilience plans help governments, utilities, service providers and other organizations set priorities and allocate resources for mitigating damage, maintaining vital services, and if a hazard does strike, building back better.

The new economic guide helps communities to nail down critical elements of these proactive, long-term plans—the capital investments most likely to yield the greatest returns, the sum of net cost savings, damage avoided and secondary benefits reaped by the community. It



NIST’s Community Resilience Planning Guide for Buildings and Infrastructure Systems lays out a six-step process to help communities improve their resilience by setting priorities and allocating resources to manage risks for their prevailing hazards. (Click to open full infographic.)

provides the basis for comparing and contrasting alternate investments during development of the resilience plan, the fourth step in the process laid out in the planning guide.

In addition, the approach described by the NIST economists enables evaluation of prospective resilience investments in the broader context of other community goals such as economic development and emergency management. It also details how to do an accounting of anticipated costs and benefits as well as noneconomic considerations such as environmental, social and cultural impacts that do not have a market-determined price tag.

The economic evaluation reckons with the challenge of uncertainty posed by hazard events that are likely over a particular planning period—yet unpredictable in terms of their timing and severity. It describes several methods that communities can use to estimate future costs, losses and benefits in light of the uncertainty inherent in the process.

For more information contact Mark Bello at (301) 975-3776. The National Institute of Standards and Technology (NIST) is an agency of the U.S. Department of Commerce.

RiskMAP
Increasing Resilience Together

Benefits of a Hydrology and Hydraulic Review

A case example of a major flood mitigation and habitat restoration project in Tillamook, Oregon

The Southern Flow Corridor project is located in the second largest delta in Oregon at the confluence of five rivers near Tillamook, Oregon. A diverse group of non-governmental, local, state, and federal partners helped plan and fund this project that will, once completed, both mitigate future flood damages in the area and restore over 500 acres of marine delta habitat, thereby benefiting numerous fish and wildlife species. The partial restoration of the delta will result in reductions in the magnitude and recurrence of floods in some of the neighboring portions of the city of Tillamook. FEMA Region X led the completion of an Environmental Impact Statement for the proposed action in 2015, which was only the third EIS that FEMA has conducted in the nation.

The purpose and need of the project largely centered on hydrologic and hydraulic issues, hence FEMA RX decided that it would be advantageous to have a separate contractor conduct a partial peer review of the design and modeling submitted by the principal contractor RX EHP staff met several times with both contractors to discuss issues and possible modifications to the design and modeling. One key need for the EIS was to be able to describe to the public the general confidence bounds for the flood reduction predictions which varied over both the landscape of the analysis area, and by the

magnitude (i.e. recurrence interval) of the flood event. Modeling the changes in the sediment and hydrology regimes in this complex river delta system that would likely result from engineered changes to the existing channels and levees was difficult and required careful consideration of assumptions, especially since the available flow modeling was one-dimensional (hence some assumptions become more critical). The results of the peer review are available as an appendix to the EIS.

One of the products of the review was to conduct a sensitivity analysis of the modeling efforts to date. This analysis helped identify which variables in the model had the greatest impact on predicted future flood benefits (i.e. most influenced model results) and show how those predictions would vary across the analysis area if somewhat different values were selected. The products of the analysis allowed the range of probable outcomes to be both narratively described and visually displayed over a range of flood recurrence events. It also resulted in adjustments to some of the key variables such as channel roughness and boundary conditions for portions of the project area.

The analysis was not intended to produce statistical probabilities of occurrence for predicted flood benefits for alternatives – that was not possible. It was intended display the relative (versus absolute) differences between the no action and action alternatives described in the EIS. The efforts and products of

the peer review allowed this critical discussion to appear in the EIS so that the public would be apprised of the logic track and data used in the design and modeling, and have an informed opportunity to comment.

Visit <http://southernfloweis.org/> for more information.

Are you prepared for El Niño?

Climate experts are warning residents in the Pacific Northwest to prepare for what could be the strongest El Niño on record. These predictions suggest a warmer, drier winter for Washington, Idaho, and Oregon, but severe rainfall for Alaska. Whether a dry or wet winter is predicted for where you live, it only takes one storm to cause devastating flooding. So what does that mean for you and your residents? Since there is typically a 30-day waiting period before flood insurance takes effect, now is the time to talk to residents in your community about their increased flood risk and the importance of having flood insurance.

Due to increased media attention surrounding El Niño, FloodSmart wants to help you answer questions that residents may have about flood insurance. FloodSmart—the marketing and education campaign of the National Flood Insurance Program—offers many tools and resources on FloodSmart.gov to help you talk to residents about flood risk and flood insurance. Visit the [Before a Flood](#) page for tips on things homeowners can do to minimize losses and ensure their family's safety.

Continued on next page

Ask the Help Desk

The Region X Service Center is here to help with technical, training, mitigation, mapping, and project status questions. How can we help you?

Send your questions by email to RegionXHelpDesk@starr-team.com.

RiskMAP
Increasing Resilience Together

El Niño (cont.)

You may recall the widespread flooding that occurred during the 2009 winter season, when a strong, warm, and wet Pacific weather system brought significant rainfall to western Washington and caused more than \$72 million in flood damage. Heavy rainfall can trigger flooding along rising rivers and creeks or from clogged storm drains.

The National Oceanic and Atmospheric Administration predicts that El Niño will bring above-average precipitation in southern Alaska as well as in the Alaskan Panhandle this winter—which means an above-average risk

of flooding. With more than 600 fires that have burned millions of acres in the State, 2015 was the worst wildfire season in Alaska’s history. These wildfires left the ground charred, barren, and unable to absorb water, creating conditions ripe for [flash flooding and mudflows](#).

Alaska residents need to be aware of the potential for flooding and prepare now to ensure that they are covered in the event of a flooding event. Encourage property owners to be fully educated about their risk, and have them contact their insurance agent to discuss the benefits of flood insurance. Make sure they understand that if they experience a flood this season, they could be left

paying for the damage out of pocket since flood damage is typically excluded from homeowners, renters, and business insurance policies. These [talking points](#) can also help you educate your community on the importance of flood insurance

This winter, don’t let out of sight mean out of mind. Now is the time to reach out to your residents, help them better understand their flood risk, and encourage them to protect what matters with a flood insurance policy. It’s a conversation you won’t regret.



Online Training

(All times Pacific)

Elevation Certificates

January 7, 10am
February 18, 10am
Online* - 2 CEC

CRS: Preparing for a Verification Visit

January 19, 10am
Online* - 1 CEC

CRS: Floodplain Management Planning (Activity 510)

January 20, 10am
Online* - 1 CEC

Tools for Determining BFE

January 21, 10am
Online* - 1 CEC

NFIP Basics

February 4, 10am
Online* - 1 CEC

Introduction to CRS

February 16, 10am
April 19, 10am
Online* - 1 CEC

CRS and Higher Regulatory Standards

February 17, 10am
Online* - 1 CEC

Floodplain Development Permit Review

March 3, 9 am
Online* - 1 CEC

Inspecting Floodplain Development

March 3, 10:30 am
Online* - 1 CEC

CRS: Preparing for a Verification Visit

March 15, 10am
Online* - 1 CEC

CRS: Flood Warning & Response (Activity 610)

March 16, 10am
Online* - 1 CEC

Using Risk MAP Products in Floodplain Management

March 17, 10am
Online* - 1 CEC

CRS and Natural Floodplain Functions

April 20, 10am
Online* - 1 CEC

*To register for online courses, visit STARR’s training site online at j.mp/starronlinetraining, or email RXTraining@starr-team.com.

