



FLOODSTAGE

MARCH 2019

Protect Your Assets: Purchase Flood Insurance

Purchasing flood insurance is one of the easiest things you can do to get ready for flood season, as most homeowner's policies do not cover flood damage. The time to act is now because there is a 30-day wait period before coverage takes effect. Talk to your insurance agent about pricing and coverage or visit www.floodsmart.gov but don't wait until it's too late!

Emergency Supply Kit Checklist

After getting flood insurance there are several things you can do to minimize losses in your home and ensure your family's safety. It is good practice to have an emergency supply kit that has enough food, water and medicine to last 3 days. Here are a few recommended items to keep in your kit:

- Water: one gallon per person per day, for drinking and sanitation.
- Non-perishable food: at least a three-day supply.
- Manual can opener: if kit contains canned food.
- Battery-powered or hand-crank radio.
- A NOAA weather radio with tone alert and extra batteries.
- Flashlight and extra batteries.
- First aid kit.
- Moist towelettes, garbage bags, and plastic ties for personal sanitation.
- Whistle to signal for help.
- Plastic sheeting and duct tape to shelter-in-place.
- Important family documents like birth certificates, insurance papers, photos, etc.
- Items for unique family needs such as prescription medications, infant formula or diapers.

Colorado Water Conservation Board (CWCB)

Are You Ready for Spring Flooding?

Floods are the number one natural disaster in the United States. In Colorado, many major floods have occurred throughout the state and have caused loss of life and damage to public and private property. Floodplain management programs have been implemented to reduce these losses, but the dangers from flooding are still significant.

As of mid-February, Colorado's statewide snowpack sat at 108% of normal. Snowpack is higher in the northern and eastern basins and lower in the southwestern basins. The climate forecasts through the runoff season suggest that these numbers could climb higher as forecasts indicate a wet spring statewide.

Higher snowpack percentages can increase the possibility of snowmelt flooding. Generally, watersheds are monitored for this once they reach 130% snowpack. Currently, no watersheds exceed this threshold, but state officials continue to monitor conditions due to the wet climate forecast moving forward. To view snowpack conditions and better understand the potential flood threat in your location, visit the Natural Resources Conservation Service's Snow Telemetry (SNOTEL) and Snow Course Data and Products [page](#).

It is worth mentioning that, as indicated by looking back through Colorado's history, the majority of flooding events occurring throughout the state are rain-based and not snowmelt-based. In fact, the last year of widespread snowmelt flooding was in 1984, although isolated instances have occurred since then. One area of ongoing concern relates to rain-on-snow events, in which high elevation, late spring rainstorms fall on still surviving snowfields. This can quickly exacerbate runoff and create problems that wouldn't exist in the absence of either the rain or the snow.

KNOW YOUR RISK

Get Updates on Current Flood Conditions

One of the best ways to reduce flood impacts is knowing and understanding your risk. The Colorado Water Conservation Board's (CWCB) Flood Threat Bulletin (FTB) provides residents an overview of potential flood threats facing the State on a daily basis from May 1 through September 30. The FTB consists of three products: The Daily Flood Threat Bulletin; Flood Threat Outlook; and State Precipitation Map. To get a daily alert on flood forecasts, [subscribe](#) today!

For those living in the Denver metro area or Urban Drainage Flood Control District's jurisdictions, visit <https://udfcd.org/flood-safety/> to find out more about the Forecasting and Flood Warning products they have available.

FLOOD AFTER FIRE

Did you know that wildfires dramatically alter the terrain and increase the risk of floods?

Reduce your risk. The time to buy flood insurance is now.

Contact your local insurance agent for more information or visit the National Flood Insurance Program at www.fema.gov/national-flood-insurance-program

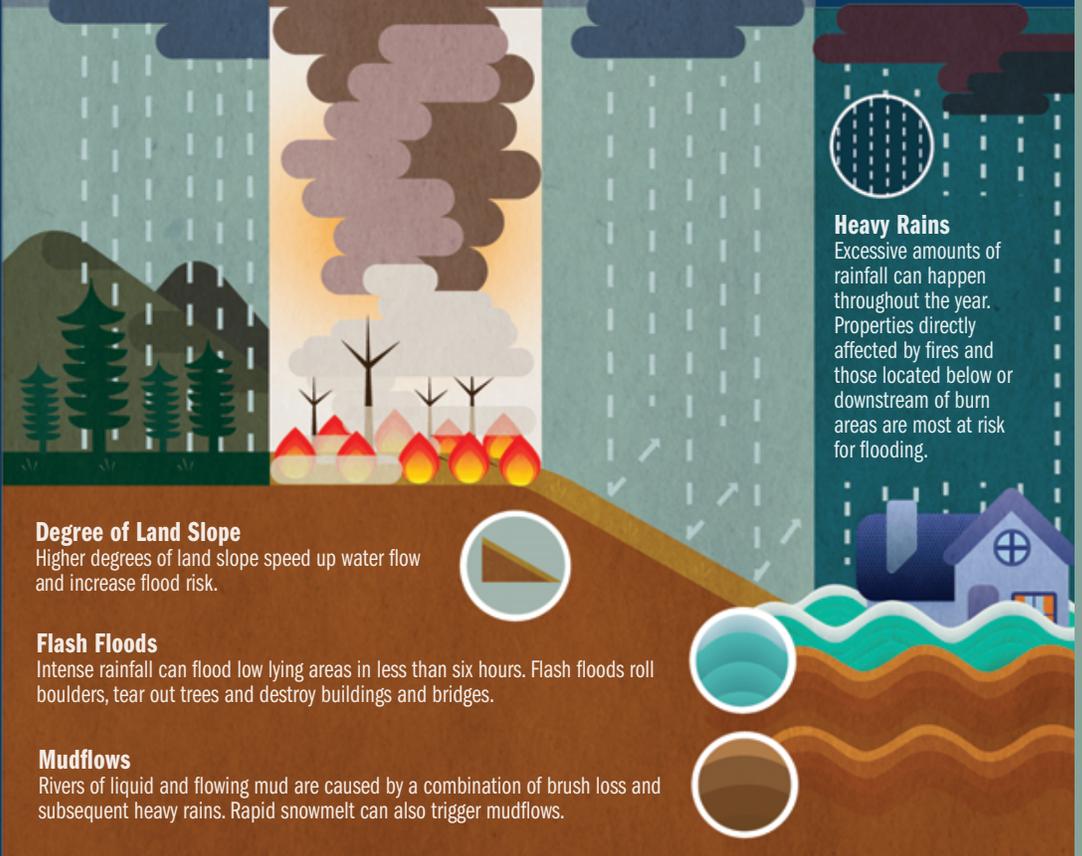


During normal conditions, vegetation helps absorb rainwater.

But after an intense wildfire, burned vegetation and charred soil form a water repellent layer, blocking water absorption.

During the next rainfall, water bounces off the soil.

And as a result, properties located below or downstream of the burn areas are at an increased risk for flooding.



Degree of Land Slope

Higher degrees of land slope speed up water flow and increase flood risk.

Flash Floods

Intense rainfall can flood low lying areas in less than six hours. Flash floods roll boulders, tear out trees and destroy buildings and bridges.

Mudflows

Rivers of liquid and flowing mud are caused by a combination of brush loss and subsequent heavy rains. Rapid snowmelt can also trigger mudflows.



Heavy Rains

Excessive amounts of rainfall can happen throughout the year. Properties directly affected by fires and those located below or downstream of burn areas are most at risk for flooding.

How to Prepare for Rains After the Flames

Wildfires dramatically alter landscapes and soil conditions, which can cause heightened flood risk from heavy rains, flash flooding and mudflows. Areas outside of the regulatory floodplain may now be susceptible to flooding in post-wildfire conditions and smaller rainstorms can pose greater threats. Flood insurance is the first and best line of defense to protect property, though increased awareness can also go a long way. The Federal Emergency Management Agency's (FEMA) [Flood After Fire Toolkit](#) provides communities with outreach materials to help educate residents living in these high risk locations.

For more information on what to expect after a wildfire and for more ideas on wildfire preparedness messaging, visit California's (Cal Fire) Ready for Wildfire website: <http://www.readyforwildfire.org/After-a-Wildfire/>

Get to Know Your Local Flood Regulations!

Do you know what's in your local flood damage prevention ordinance? If not, get to know it in advance of a disaster. Work with your attorney to understand what regulations are required to be in compliance with the local code; what the responsibilities of the floodplain administrator are; and what enforcement provisions are available if violations arise.

How Communities Can Help Keep Residents Safe

Adopt Higher Floodplain Management Standards!

Adopting higher standards promotes safer development and provides greater protection from flood risk. Minimum State and FEMA requirements may not address unique flood threats in your community. For more information on higher standards check out the Association of State Floodplain Manager's "[A Guide for Higher Standards in Floodplain Management](#)."

If your community already regulates to higher standards (including the State's), then maybe joining the Community Rating System (CRS) is right for you! The CRS is a voluntary incentive program that recognizes communities implementing floodplain management practices exceeding the minimum requirements of the NFIP to provide protection from flooding. The CWCB has put together a [website](#) focused on the CRS in Colorado to serve as a "one-stop-shop" aiding communities interested in or already a part of the program.

How to Regulate to Best Available Information (BAI)

In some communities, FEMA regulatory or effective information may not be as accurate as a local or state initiated study (i.e. Best Available Information). Regulating to this information is allowable, though it must be designated by the CWCB prior to local adoption. For more information on the designation process see Rules 13 and 14 of the [Rules and Regulations for Regulatory Floodplains in Colorado](#). When regulating to Best Available Information, the most restrictive information should apply. For example, if a new study shows a smaller floodplain than what's printed on the Flood Insurance Rate Map, the Flood Insurance Rate Map will take precedence until the BAI becomes effective information on a FEMA map. See the [BAI Fact Sheet](#) for more information. When regulating to BAI in post-disaster and Preliminary mapping scenarios, please refer to State [Policy 22](#): Temporary Designation of Best Available Floodplain Data.

Mitigation!

Apply for funding to mitigate risks in your communities. Not sure how to prioritize projects? Work with your local emergency manager, community officials, and key stakeholders to review what's in your hazard mitigation plan. Mitigation funding sources include:

- **FEMA Flood Mitigation Assistance Grant Program:** This [program](#) provides States, Territories, federally-recognized tribes and local communities for projects and planning that reduces or eliminates long-term risk of flood damage to structures insured under the NFIP.
- **FEMA Pre-Disaster Mitigation Grant Program:** This [program](#) provides States, Territories, federally-recognized tribes and local communities implementing a sustained pre-disaster natural hazard mitigation program. The goal is to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters.

- **Army Corps of Engineers Silver Jackets Program:** This program funds efforts aimed at finding long-term solutions to flood risk management. If interested in applying for funding, please work with Kevin Houck at the CWCB (contact information below). For more information and details on other ongoing projects throughout the state visit: <https://silverjackets.nfrmp.us/State-Teams/Colorado>.



A Word from our Friends at FEMA: Managing Flood Risks Locally

Several times I have heard former FEMA Administrator Brock Long say, “disasters are former FEMA Administrator managed, locally executed, and federally supported” when talking about roles during disaster response and recovery. This phrase clearly and succinctly identifies the various responsibilities of government during and after an event, but I would argue the same applies during peace time. Often, I get calls or emails from local floodplain managers asking how to handle a situation or if a proposed project meets the FEMA requirements. My typical response is “Forget FEMA requirements, what does your floodplain ordinance say? What are the local requirements?” This is not meant to avoid the question but now 252 communities in Colorado have gone through the process of locally adopting regulations that meet or exceed the minimum standards for participation in the National Flood Insurance Program. In 2011 when the state adopted higher floodplain standards, many communities realizing the risk chose to adopt even higher requirements. Ultimately this means more resilient communities when the next flood happens, but it also means every community has the potential to have different and unique requirements for managing their flood risk. It certainly takes all levels of government and we all have a role, but the premier mitigation program nationwide for managing and reducing flood risk is local floodplain management. I hope the calls and emails never stop coming because each presents a challenge but also an opportunity. Just have your ordinance close by when you reach out.

By, Matthew Buddie, FEMA Region VIII Flood Management & Insurance Branch

“disasters are state managed, locally executed, and federally supported”

Training Opportunities

MARCH WORKSHOPS

CWCB and FEMA are putting on an MT-1 & 2 training on March 18th and an [Elevation Certificate](#) training on March 19th in Colorado Springs.

EMERGENCY MANAGEMENT INSTITUTE

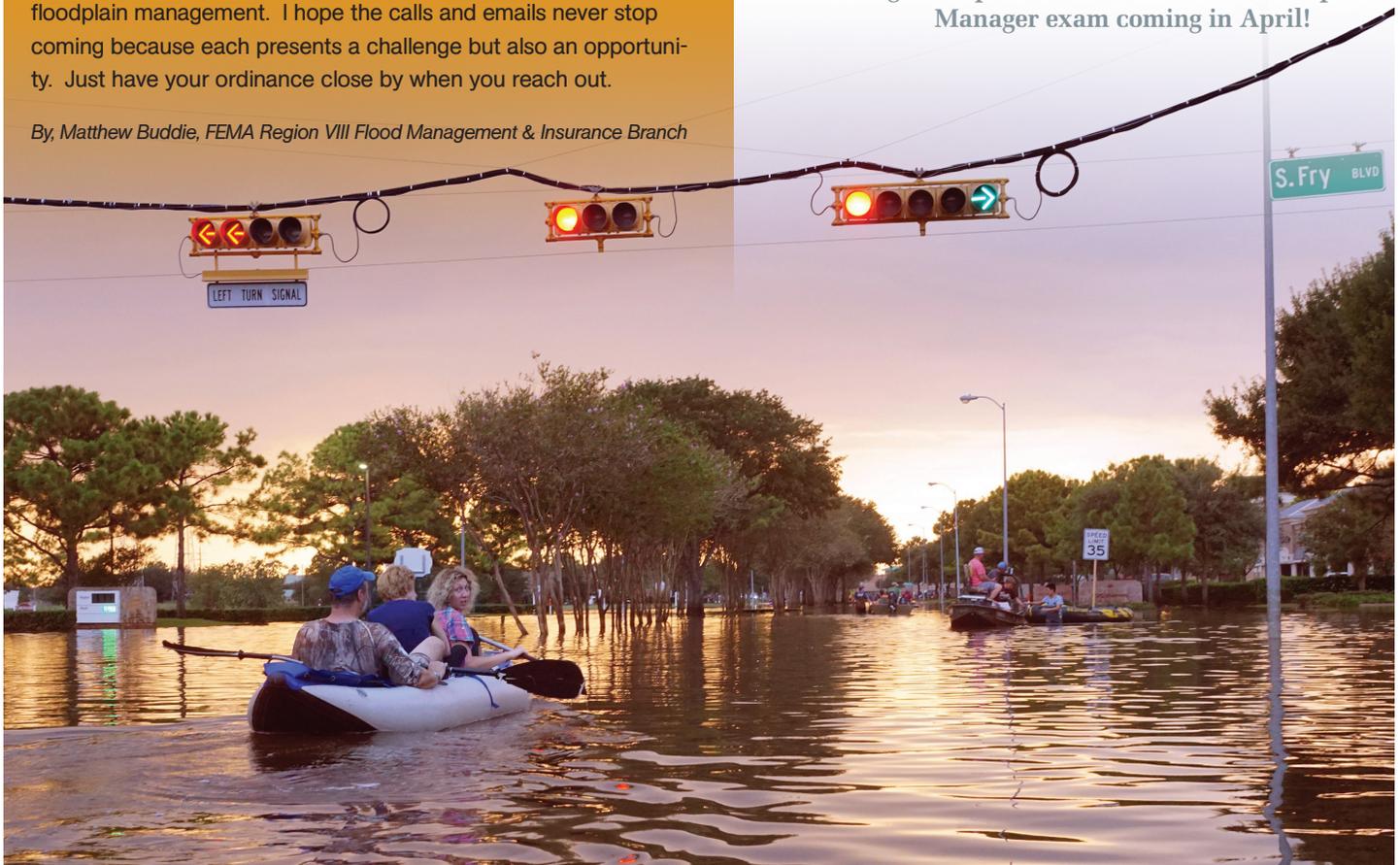
Visit the Federal Emergency Management Institute in Emmitsburg, MD, which offers a variety of floodplain management courses. Click here to view the [Course Catalog](#).

CASFM

The Colorado Association of Stormwater and Floodplain Managers provides training and networking opportunities throughout the year. For more information about the organization and membership visit:

<https://www.casfm.org/events/>.

*Keep an eye on the calendar for an upcoming Floodplain 101 and Certified Floodplain Manager exam coming in April!



How Other State Agencies Are Working to Mitigate Risk

Colorado Division of Homeland Security and Emergency Management Updates

2018 Hazard Mitigation Assistance (HMA) Grants

On January 31, 2019 Colorado's Division of Homeland Security & Emergency Management (DHSEM) formally submitted the 2018 Hazard Mitigation Assistance (HMA) Pre-Disaster Mitigation (PDM) and Flood Mitigation Assistance (FMA) state grant application to FEMA for funding consideration. It is estimated that FEMA will identify local sub-applications for further review by April 1, 2019 with funding selection estimated by May 1, 2019. FEMA anticipates project awards by December 30, 2019.

Included in the State's grant application are nine Hazard Mitigation Plan (HMP) updates and eight (8) project sub-applications under PDM. Two project sub-applications under FMA were also submitted, in addition to two requests for Advanced Assistance (AA) under each program. Colorado's PDM and FMA projects are being evaluated by FEMA for potential funding under this nationally competitive program. For more information, please contact DHSEM's Mitigation Section.

State Hazard Mitigation Plan and Enhanced Plan

Colorado DHSEM received final FEMA approval of the five-year update to the standard State Hazard Mitigation Plan (SHMP) on December 19, 2018. DHSEM continues to work internally and with state partners to meet elements required in order to formally request enhanced plan status from FEMA in December 2019.

A FEMA "enhanced plan state" must demonstrate a sustained, proven commitment to mitigation and results in eligibility for increased funding under the Hazard Mitigation Grant Program (HMGP) following a presidential disaster declaration. To receive FEMA approval of an enhanced plan, Colorado must continue to implement a comprehensive state-wide mitigation program, effectively use available mitigation funding, be capable of managing increased funding to achieve its mitigation goals, and provide annual certification to FEMA as a part of ongoing requirements to maintain enhanced plan status. For more information, please contact Patricia Gavelda: patricia.gavelda@state.co.us

Mitigation Planning and the Community Rating System (CRS)

On October 9, 2018 FEMA published guidance on defining integration of the CRS program and associated flood insurance benefits to local communities during hazard mitigation plan updates to improve identification and assessment of flood risks and set strategies to reduce those risks. The FEMA "Mitigation Planning and Community Rating System Key Topics Bulletin" provides an overview on how to coordinate planning efforts between the CRS and local Hazard Mitigation Plans (HMPs) and can be accessed at:

<https://www.fema.gov/media-library/assets/documents/171290>

State Emergency Management Mitigation Contacts

- Steve Boand, State Hazard Mitigation Officer (SHMO); Mitigation Section Supervisor, Colorado Division of Homeland Security & Emergency Management (DHSEM), (720) 852-6713, steven.boand@state.co.us

- Scott Baldwin, Deputy SHMO; Mitigation Projects Unit Team Supervisor, (DHSEM), (720) 852-6696, scott.baldwin@state.co.us

- Matt Arsenault, Mitigation Project Specialist, DHSEM, (720) 708-8358, matt.arsenault@state.co.us

- Deanna Butterbaugh, Mitigation Project Specialist, DHSEM, (720) 512-0275, deanna.butterbaugh@state.co.us

- Patricia Gavelda, Alternate Deputy SHMO; Mitigation Plans Unit Team Supervisor, DHSEM, (970) 749-8280, patricia.gavelda@state.co.us

- Mark Thompson, Mitigation Planning Specialist, DHSEM, (720) 630-0770, markw.thompson@state.co.us

For more information about Colorado's Mitigation Specialists, or current mitigation projects and plans please visit:

<https://www.colorado.gov/pacific/mars/mitigation>

Colorado Department of Transportation Update

The Colorado Department of Transportation (CDOT) is adapting infrastructure planning practices from lessons learned in the 2013 Floods. CDOT Region 4, the epicenter of the 2013 disaster, is combining new resiliency practices and procedures coupled with 2-dimensional hydraulic modeling to build transportation assets that can weather the storms of the coming decades. A pilot study by CDOT and AEM Corp for Interstate 70 discovered 72% of the total risks from natural hazards to users of I-70 come from flooding; a reality confirmed by the lessons of 6 years of Flood recovery. CDOT Region 4 discovered it had saved more than \$14 million using 2-dimensional hydraulic models during design analyses in the past 3 years. It successfully applied this technology to more than 30% of the 95 projects supported by the Hydraulics Unit to develop a more detailed and granular hydraulic analysis of bridges, culverts and roadways in Colorado waterways.

Now CDOT Region 4 is partnering with Headquarters staff to explore an opportunity to take this experience statewide.

An initiative is under development to value-engineer CDOT projects at the planning and scoping stage of design construction to save \$20 million annually. The Region 4 Hydraulics

Unit Lead is collaborating with the CDOT Office of Process Improvement, the Federal Highway Administration Resource Center, and private sector partners to discover this analytical project savings. 2-dimensional hydraulic analysis is currently used by 44 state DOTs and is now finding new life in the data-rich environment of the post-2013 Flood zone, where GIS information and LiDAR data is now abundant to the public. If successful, CDOT's 2-dimensional quick-check initiative would improve transportation safety, optimize public investments in infrastructure, and improve the ecological performance of large bridges and culverts on Colorado's highways by the year 2021.

Colorado Resiliency and Recovery Office:

The CRRC began after the 2012 and 2013 fires and floods in an effort to learn lessons from the disaster and to find ways to improve disaster response, recovery, and preparedness throughout the state. For more information, visit:

www.coresiliency.com/crrc

Updates from the Flood and Watershed Protection Section at the CWCB

The CWCB is the state agency in charge of managing flood threats- before, during, and after flood events. The CWCB actively monitors potential flooding, with special attention paid to available snowpack data and seasonal climate forecasts. The CWCB continues to operate the CAP-SSSE partnership with FEMA. This program encourages responsible development in floodprone communities, encourages the purchase of flood insurance, and is a mechanism for the State to maintain contact with communities regarding flood threats and other relevant issues. The CWCB also continues to operate the Cooperating Technical Partnership with FEMA, which maintains up-to-date flood hazard maps and other flood hazard information, helping communities to make risk informed decisions. Additionally, the CWCB is involved in the Colorado Flood Technical Assistance Partnership, which works to identify flood threats, assist affected jurisdictions, and cooperate with relevant agencies.

2013 Flood Recovery in 2019

In early September 2013 several days of rain caused massive flooding across Colorado's Front Range communities. Streams reclaimed floodplains, destroyed infrastructure, and ripped vegetation from riverbanks. In total, the flood caused approximately \$4 billion in damage. The CWCB led the effort to repair, re-align, and restore the flood affected rivers and floodplains. As the Statewide sponsor of the Natural Resources Conservation Service 2013 Phase II Emergency Watershed Protection (EWP) Program, the CWCB was tasked with overseeing and implementing \$50 million in stream recovery work. The CWCB also participated in the implementation of another \$20 million in stream recovery work funded through other programs, the most notable of which was the U.S. Dept of Housing and Urban Development's Community Development Block Grant – Disaster Recovery program. The State Department of Local Affairs and the CWCB created a Watershed Resiliency pilot program with the HUD funds, creating capacity in local watershed coalitions, developing resiliency recovery plans, providing stream designs, and constructing projects.

The CWCB's mission is to conserve, develop, protect, and manage Colorado's water for present and future generations. Following the 2013 floods, CWCB executed this mission by developing comprehensive watershed and stream master plans to unify stakeholders around a common vision that emphasized natural stream function and ecosystem health along with property and infrastructure protection. The vision was not singularly flood mitigation, but also systemic stream resiliency. The recovery effort was an exciting opportunity to bring long-lasting resilience to the flood-affected streams.

For more information on flood recovery efforts and outcomes visit coloradoewp.com/colorado-watershed-flood-recovery-2013-2018. Documents describing the program, efforts within specific watersheds, and individual project success stories are available via the link.

EWP PROGRAM HIGHLIGHTS

- 117 projects completed in 9 flood-affected watersheds
- Timeline: March 2015-2018
- Over 65 miles of stream of river improvements implemented
- Total construction costs of over \$70 million (program under budget)
- Worked with over 700 private property owners
- Near-term damage reduction as a result of implemented projects of \$270 million (both public infrastructure and private property).
- Program coordinated the growing of native plants through the Colorado State Forest Service to fully meet the supply demands of projects
- In total, CWCB coordinated project implementation through 28 different project sponsors, including watershed coalitions, special districts and local governments.

Closing the Radar Gap

In addition to the San Luis Valley, a well-known "radar hole" exists in the Four Corners area of SW Colorado. This radar gap exists because beams from nearby radar towers (primarily Grand Junction) are blocked by mountain topography. This problem has been known for many years. In fact, in a 2017 publication issued by the Colorado Climate

Center, "An Assessment of Weather and Climate Monitoring Systems in Colorado – Current Systems, Gaps, and Future Needs", a survey of local stakeholders around the state indicate that the biggest weather and climate data unmet need is a gap filling radar in the San Luis Valley and Southwestern Colorado. This has recently increased urgency due to the recent 416 fire, and the resulting flood and debris threat that will exist for the next several years.

Through a partnership of numerous local and state agencies, a gap-filling radar has been funded and in the process of being implemented at the Alamosa Airport to serve the San Luis Valley. With this success, focus has been extended to the SW basin to provide a similar tool for improving emergency management processes and water supply forecasting, as well as several related efforts such as transportation condition monitoring.

A working group consisting of local, state, and federal agencies as well as other stakeholders has been established and is led by CWCB staff. The purview of this working group is to examine logistical issues (most significantly, where to site the proposed radar), develop local partnerships for the purposes of ongoing operations and maintenance activities, and identify capital funding for the radar itself. The first meeting of this group took place on November 9, 2018, and the group has held monthly meetings since that time.

Since the convening of the working group, much progress has been made in all three areas. Most significantly, the Colorado Department of Local Affairs has allocated \$1.7M of state funds to the capital costs of building the radar. Work continues in all three areas, and CWCB staff hope to have the radar operational prior to the 2020 flood season.



Watershed & Flood Protection Section



Kevin Houck – (303) 866-3441 ext 3219

Section Chief, Oversees all program areas including: flood risk identification, designation of floodplains, flood risk reduction and mitigation, response and recovery, watershed restoration, and weather modification.



Joe Busto - (303) 866-3441 ext 3209

Weather Modification, Permitting, compliance, and grants; South Platte flood channel management; snow science; and applied research projects.



Thuy Patton – (303) 866-3441 ext 3230

Floodplain Mapping Coordinator, manages the FEMA Floodplain Map Modernization and the Risk Map Program for the State, development of scopes of work, acts as liaison between FEMA and local governments.



Chris Sturm – (303) 866-3441 ext 3236

Stream Restoration Coordinator, responsible for implementing the goals and objectives of the Watershed Protection Program. Duties include leading department in watershed health planning and implementation.



Stephanie DiBetitto – (303) 866-3441 ext 3221

Community Assistance Program Coordinator for the NFIP, performs community assistance visits, conducts public outreach and training, coordinates with FEMA and other State Programs, and provides technical assistance to communities.

CWCB

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FEMA



COLORADO
Colorado Water
Conservation Board
Department of Natural Resources

OUR MISSION:

To Conserve, Develop, Protect and
Manage Colorado Water for Present
and Future Generations.

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