



The focus of this Chapter Award nomination is CAFSM Chapter Activities for 2013-2014:

2013 Regional Flood Disaster Response Initiatives



2013 was an unprecedented year for CASFM. The Annual Conference was hosted from Tuesday through Friday, September 10-13, 2013. On Wednesday the 11th into Thursday the 12th, a 1,500 square mile regional flood disaster was erupting across the northeast corner of Colorado. By the end of the Annual Conference, up to half of the participants had been called back to the Denver metro region and Front Range urban corridor to manage what had rapidly become a \$2+ billion dollar Presidentially-declared disaster.

By Monday, September 16, 2013, more than 20,000 homes and businesses had been damaged or destroyed, 10 people had lost their lives, and more than 500 miles of roads and public infrastructure was damaged or destroyed.

CASFM members from private consulting firms and public agencies jumped into action by:

- Organizing and mobilizing a volunteer cadre of experts to help disaster-stricken communities with damage assessments, permitting, state and federal agency cooperation, and agency staff support
- Issuing a press release recommending eight strategies for resilient flood recovery, included herein
 as an attachment and available at http://www.casfm.org/2013_Flood/CASFM_media_summary_statement_2013-10-04.pdf
- Creating a library of resources for flood survivors and government agencies at http://www.casfm.org/2013_Flood/2013_Flood.htm
- Engaging and creating new relationships with U.S. and Colorado State Senators and Representatives in flood-affected communities in northeast Colorado
- Contacting local media to share expert advice from CASFM officers on behalf of the membership
- Establishing new relationships to provide technical assistance to the Colorado Department of Transportation, lead agency for infrastructure recovery under Governor Hickenlooper's statewide recovery strategy
- Creating multiple summary papers and position papers for national distribution through ASFPM News
 Views, the NFIP/CRS Update, and other publications listed in later sections
- Purchasing new business cards with general contact information for any CASFM Board at any time, now and into the future, for ease of outreach and to share the CASFM mission statement
- Publishing a position paper with ASFPM titled Using Mitigation to Rebuild Safer and More Sustainable Communities, available at http://www.floods.org/ace-files/documentlibrary/Publications/ ColoradoFlooding_Rebuilding_Safer_ASFPM_10-15-13.pdf and included herein as an attachment

Application submitted by Colorado Association of Stormwater & Floodplain Managers



2013 Flood Recovery Efforts Continued into 2014

CASFM teamed with Colorado State University (CSU) on February 27, 2014 to host the Colorado Flood Forum. The event was attended by nearly 300 people near the disaster epicenter in Broomfield, Colorado, including CASFM members, academic leaders in Colorado, emergency managers, public health and environment professionals, and elected official staff members.

Proceedings from the nine-hour event were published on the CASFM website at http://www.casfm.org/Colorado_Flood_Forum/default.htm and a white paper is currently being developed with CSU for future publication.



Engagement opportunities continue during the writing of this awards nomination summary and include technical assistance to the Colorado Flood Disaster Study Committee at the State Capital, regular updates to and from U.S. Senator Udall's office, aggregation of photographs from across the state on a single platform for viewing and sharing among members, and continued outreach to the Colorado Department of Transportation and flood-impacted communities. Recent collaboration successes, thanks in large part to leadership from Chris Sturm of the Colorado Water Conservation Board (CWCB), are showcased in the stakeholder-supported "Stream Teams" comprised of private landowners, businesses, government officials and non-government organizations across flooded watersheds. CASFM members have had a widespread positive impact on flood-affected Coloradoans since September 2013.

All activities initiated by CASFM and its members have been archived and compiled by the current Chair in hopes that other state chapters under ASFPM leadership can learn from the Colorado experience. It is the sincere hope of CASFM and its leaders and members that all ASFPM members across the nation can learn from Colorado's experience so that when flood catastrophes affect other states, professionals within the states can have a faster and more effective response and recovery than Colorado. CASFM members are proud to share their successes and limitations so that others in future floods can benefit from their experience.

It is widely recognized amongst the CASFM membership that our response to and recovery efforts from 2013 regional flooding in Colorado would not have been as effective as they were without the immediate and ongoing support of colleagues from across the nation. We would like to recognize the direct assistance and support from our friends in New Jersey at NJAFM, in Texas at TFMA, in Georgia at GAFM, in Oklahoma at OFMA, and especially our ASFPM Board members and Executive Office staff. Without their guidance, expertise and tireless support CASFM would have missed opportunities to save lives, to promote mitigation, and to get out in our communities to make recovery a reality after the disasters. On the morning of Thursday, September 12, 2013, the CASFM Chair asked ASFPM Executive Director Chad Berginnis, "can we count on your support in the coming days and months knowing this will be a multi-billion dollar disaster?" Chad responded definitively, "yes," and did not fail to deliver on that promise. We at CASFM are humbled and grateful.

Other 2013/14 Initiatives



The field-deployed Emergency Management Institute (EMI) 4-day E273 course Managing Floodplain Development through the NFIP was offered twice to members and non-members, followed by the CFM exam on the 5th day. The E273 course is part of CASFM's outreach campaign to engage and empower local government officials and consultants working in and around the 2013 regional Flood Disaster areas.



Application submitted by Colorado Association of Stormwater & Floodplain Manager



Social Media was explored in 2012/2013 and new guidelines for usage adopted by CASFM members in January 2014. The Chair and Vice Chair manage a LinkedIn discussion group at http://www.linkedin.com/groups?gid=4605732&trk=my_groups-b-grp-v, and the Outreach and Training Committee co-chairs maintain a Twitter feed as @CasfmOrg. The LinkedIn page has gained more than 300 members, and the Twitter feed has more than 111 followers as of early March 2014.

CASFM received notice in early 2013 that we were approved as a **501(c)(3)** organization. We were previously a 501(c)(6) organization. The non-profit status exempts CASFM from substantial taxes, especially those associated with the Annual Conference. The application process was started in 2011 and took nearly two years to complete.

CASFM moved beyond simple spreadsheet accounting and implemented a new QuickBooks Bookkeeping System in 2013. A new web-based membership platform called Wild Apricot is being beta-tested by the CASFM Vice Chair in 2014 to determine how membership tracking, sign-up and regular communications can be aggregated into a single site. This new exploratory effort has the potential to reduce the work of three volunteers to a single volunteer, and cut the \$2,500 annual membership line item in the budget in half. This will free fiscal and human resources within the organization to support other ongoing efforts and will reduce the total time needed to manage the 700+ members expected to be part of the CASFM organization by the end of 2014.

Quarterly **Lunch and Learn** training opportunities were started in 2011 and continue through 2014. They are held in the Denver metropolitan area and provide opportunities for training, networking and obtaining continuing education credits for CFMs. The training serves the main purposes of CASFM as listed in our Articles of Incorporation.

The Colorado Association of Stormwater and Floodplain Managers (CASFM) has been a State Chapter of ASFPM since 1989. At the end of 2013, CASFM had a total of 729 active members. Our members include professionals in the field of floodplain management, flood hazard



mitigation, stormwater management, the National Flood Insurance Program, and flood preparedness, warning, and recovery. We are represented by flood hazard specialists from local and state government, consulting engineers, the research community, the insurance industry, and the fields of engineering, hydrologic forecasting, emergency response, water resources and planning.

Our members have a record of active participation in other groups with a similar mission, vision and values such as ASFPM, NAFSMA, NHMA, APWA, and ASCE on a national level and the Colorado Riparian Association and Colorado Stormwater Council on a regional level. CASFM's Board is comprised of four elected officers, five elected regional representatives, and none committee chairs.

The **Purpose of CASFM** is to promote wise and beneficial stormwater and floodplain management practices in Colorado. As a non-profit organization, it is our ultimate goal to reduce the loss of human life and property from flood and storm damage.

Application submitted by Colorado Association of Stormwater & Floodplain Managers



Activities of the Chapter

The **Regular Activities** of CASFM are open to all members. They fulfill the main purposes of the organization as listed in the Articles of Corporation as including:

- 1. To unite in common organization those professionally engaged in stormwater and floodplain management within the State of Colorado.
- 2. To engage generally in professional, educational, social and trade association related activities for stormwater and floodplain managers within the State of Colorado.

General Membership Meetings are hosted every other month, with one meeting held at the Annual Conference. The location rotates across the state to allow members to participate in person from all regions of Colorado. CASFM is now using teleconferencing and occasional videoconferencing to allow members in remote locations to attend and participate, which encourages member engagement, improves internal communication, reduces travel times, and respects the time and resources of our volunteers in the private and public sector.



The **Annual Conference** is held every September, typically in a mountain town near the center of the state. Centralizing the location allows members to attend without substantial travel times and costs. Hosting conferences away from

attend without substantial travel times and costs. Hosting conferences away from the Denver metropolitan area allows attendees an opportunity to stay at the conference site and take advantage of all networking opportunities. Multiple planning meetings are held throughout the year on an as-needed basis, often called by the Chair with Committee leaders or Officers, to assure that new business and outstanding business is on track for completion. The conference location, selected by the Conference Committee, changes every two years. 2-year commitments tend to reduce the cost of the venue and meals and allow the Conference Committee Chair to negotiate better incentives for the event.



Each year, the general membership selects the winners of the **Annual Project Awards** at the annual conference. Stormwater and floodplain projects completed in Colorado during the previous year(s) are eligible and are judged on specific criteria. The awards are highly competitive within the membership, and awards are presented at the banquet on the last evening of the Annual Conference. Details of winning projects with associated documentation are archived on the website at http://www.casfm.org/awards/default.htm. More information is available in the attached supplemental documentation. Members who have served the organization as board members and regional representatives are also recognized with a plaque at the awards banquet.

Board Meetings are held at least annually, but often twice per year depending on activity and need. Officer and committee chair descriptions were developed in 2012 to document the responsibilities of each position and refined in 2013 for a new committee established at the Annual Conference. They are included on the website and in the attached supplemental documentation.

Committee Meetings are organized and hosted independently by committee chairs. Business is conducted and reported back to the Board and members at the General Membership Meetings. Committee structures were revamped in 2012 and again in 2013 to obtain better alignment with organization activities and strengths, and to improve alignment with ASFPM Committees.

Application submitted by Colorado Association of Stormwater & Floodplain Manager



Regional Socials are hosted regularly and typically consist of an educational presentation followed by networking and socializing among the members. The socials are open to all members and are held regularly at the following frequencies:

Region	Frequency of Socials
Denver Metropolitan Area	4-5 times per year
Northeast	2-3 times per year
Northwest	2-3 times per year
Southeast	1-2 times per year
Southwest	1 time per year

The water quality committee plans and holds a **Stormwater Quality Field Trip** each year. A full busload of participants tours sites that showcase water quality features in various Colorado communities such as constructed wetlands, pervious pavements, rain gardens, low impact development areas, etc. The sites are typically within an hour's drive of Denver and tend to be located in or near the urban corridor of the Front Range.

E-mail and internet-based platforms are used to distribute important announcements to the entire membership and to allow for registration for events. E-mail is the primary method of communication and news distribution to the membership. Members can register and pay for conferences, training and events using an internet-based service that processes credit card payments. The service has been well received by the membership. It also saves administrative time and direct costs, increases ability to track fee collection, and improves the ability to revise reservations as needed.

The Outreach and Training Committee, established in September 2013 by a vote of the membership, is extremely active in creating opportunities for Training and Continuing Education on technical and non-technical topics relevant to CASFM's mission and its members. New for 2013/14, this committee is responsible for outreach activities to further the purpose of the organization's mission to promote wise and beneficial stormwater and floodplain management practices. This committee has established new relationships with the Colorado Department of Transportation, with U.S. Senator Udall's office, and with local governments in Estes Park, Lyons, Jamestown and other 2013 Flood impacted areas. The same group has successfully established a dialogue with local media in Colorado, and was highlighted on the front page of the Denver Post after hosting a Flood Forum on the September 2013 regional flood disasters. The article from the Denver Post, also carried by Boulder and Fort Collins newspapers, is available here; http://www.denverpost.com/news/boulder-flood/ci_25240594/forum-colorado-flood-not-big-one-but-still.

Training is a priority for the 385 CFMs in Colorado. Our state has the third highest number of CFMs of any state, and the organization regularly hosts the CFM Exam at the Annual Conference. CASFM members provide a 1-day training course before the exam at the Annual Conference, the pass rate for which typically exceeds 90%. **New for 2014**, the field-deployed Emergency Management Institute (EMI) 4-day E273 course Managing Floodplain Development through the NFIP was offered twice to members and non-members, followed by the CFM exam on the 5th day, as has been previously documented.

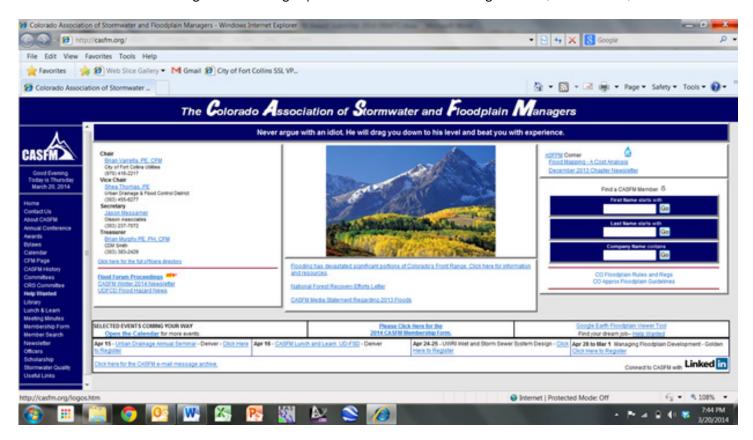
CASFM has a strong relationship with the Urban Watersheds Research Institute (UWRI), which provides 1- and 2-day training opportunities, generally on technical topics. The training staff is comprised of CASFM members and offers all members discounted enrollment fees. The training is hosted in the Denver metropolitan area, where the greatest concentration of members live and work. More information on UWRI training opportunities is available at http://www.urbanwatersheds.org/.

CASFM publishes The Open Channel newsletter twice annually. It is published and distributed electronically, a link to which is emailed to all members, and posted on the website. The Winter 2014 newsletter can be found at the following location: http://www.casfm.org/newsletters/default.htm. A copy of the Winter 2014 newsletter is included in the attached supplemental information.



Website

The CASFM website is our organizational flagship and showcases the entire organization, its members, and its mission.



The most frequently accessed information/functions are found in the following locations:

Searchable database of members

Calendar of events

Bylaws

Articles of Incorporation

Officers & regional representatives

Committees and committee chairs

Library of professional resources

Official communication (example)

CASFM Awards

Meeting minutes

Job opportunities

www.casfm.org (homepage)

http://www.casfm.org/calendar.htm#current

http://www.casfm.org/bylaws.htm

http://www.casfm.org/articles_incorporation.htm

http://www.casfm.org/officers.htm

http://www.casfm.org/committees.htm

http://www.casfm.org/library.htm

http://www.casfm.org/CRS_Committee/default.htm

http://www.casfm.org/awards/default.htm

http://www.casfm.org/minutes_frame.htm

http://www.casfm.org/help_wanted



ASFPM Support

CASFM has actively **promoted the ASFPM mission** to promote education, policies, and activities that mitigate current and future losses, costs, and human suffering caused by flooding, and to protect the natural and beneficial functions of floodplains. Actions over the past 24 years showcase the organizational commitment to sound floodplain and stormwater management. Examples include:

- Twice hosted 2014 field deployment of EMI training E273, Managing Floodplain Development through the NFIP; http://training.fema.gov/emicourses/crsdetail.asp?cid=E273&ctype=R
- Vice Chair participated in the Natural Hazards Symposium in July 2013 as a panelist on a Stafford Act Mitigation Strategies session http://www.colorado.edu/hazards/workshop/2013/Sessions/ws201324.html
- Sponsor of 2013 Running of the Chapters at the ASFPM Annual National Conference
- Hosted the 2011 ASFPM Foundation State Flood Risk Symposium in Boulder, Colorado. CASFM was selected competitively among a pool of qualified state chapters to hold the event at the Natural Hazards Center at the University of Colorado
- Hosted the 2007 Arid Regions Conference in Breckenridge, Colorado
- CASFM members have served on the ASFPM Board and on the ASFPM Foundation Board
- CASFM members have served on the ASFPM Executive Committee
- Hosted field deployment of EMI training for the Community Rating System http://training.fema.gov/

Policy Activity – CASFM members are actively tracking, summarizing, and responding to recent policy trends and actions across the nation, and in neighboring states and regions. Members are engaged by researching new and evolving trends to bring them to the general membership for comment and review to national audiences. A few recent examples follow:

- Colorado 2013 Flood Lessons-Learned article for ASFPM News & Views, Dec. 2013;
 http://www.floods.org/ace-files/documentlibrary/News_Views/Dec_2013_News_Views_PDF.pdf
- Prepared a Colorado 2013 Flood Successes article for the NFIP/CRS Update Newsletter from the CASFM CRS Committee; http://goo.gl/MWaHI9
- October 2013 press release recommending 8 strategies for resilient flood recovery after the Sept. regional flood disaster;
 http://www.casfm.org/2013_Flood/CASFM_media_summary_statement_2013-10-04.pdf
- Position paper with ASFPM titled Using Mitigation to Rebuild Safer and More Sustainable Communities; http://www.floods.org/ace-files/documentlibrary/Publications/ColoradoFlooding_ Rebuilding_Safer_ASFPM_10-15-13.pdf
- Supported PDM Grant renewal for Obama FY 2013 budget. A letter was issued through the Colorado Division of Emergency Management; http://www.casfm.org/PDM_Grant_Support_Letter_CASFM.pdf
- Provided comments to the national CRS Task Force in 2012 for the new CRS Manual;
 http://www.casfm.org/CRS_Committee/CRS_Task_Force_letter.pdf
- Comments were compiled regarding the Levee Assessment Mapping Process (LAMP);
 http://www.casfm.org/FEMA/CASFM_Final_Comments.pdf
- Non-Levee Embankments position was outlined and delivered to ASFPM and FEMA;
 http://www.casfm.org/papers/CASFM_Non_Levee_Embankment_Letter.pdf



Supplemental Information



COLORADO ASSOCIATION OF STORMWATER AND FLOODPLAIN MANAGERS 2480 W. 26th Ave., Suite 156-B Denver, CO 80211

Friday, October 4, 2013

Purpose: Media Statement for Colorado Floods

Distribution: Unlimited

Topic: Rebuilding guidance for northeastern Colorado communities affected by the

2013 regional floods

Coloradoans,

The September 2013 flooding across northeast Colorado is a tragic regional disaster that has changed and disrupted lives and livelihoods. The Colorado Association of Stormwater and Floodplain Managers (CASFM) is an organization of professionals that understand the state of Colorado must rebuild from this effort so that residents and business owners return to a sense of normalcy. This basic human need, this fundamental desire to return to normal life and business, is paramount to our long-term survival as a community of neighbors, friends, colleagues and family members.

Members of CASFM in private industry and in public service are working toward the same cause; to reduce the loss of human life and property from flood and storm damage. In Colorado's time of need there is nothing more crucial than taking a moment to stop, to think, and to envision a future condition that is better than the present. The only way we can secure that vision is to build back smarter, stronger and more resilient to floods and debris flows. To create a resilient state in the future, we recommend communities and government agencies take the following bold actions today;

- 1. Consider detailed flood hazard assessments before issuing building permits to provide time for post-flood information to be collected and community reconstruction plans to be created from that information. A library of emergency permitting procedures and guidelines are available on the CASFM website.
- Support the public safety intent behind the State Floodplain Regulations by instituting them immediately on all rebuilding efforts. These regulations are available on the Colorado Water Conservation Board website.
- 3. **Develop Advisory Base Flood Elevations (ABFEs)** for rebuilding structures in and around flooded areas. This should include high water marks from 2013 flooding, historic flood records, and FEMA Flood Insurance Study data.
- 4. **Rebuild outside the floodplain** whenever possible to reduce the potential for damage in the future. One of the most effective ways to mitigate future losses is to relocate structures and infrastructure outside known hazard areas.

OFFICERS



COLORADO ASSOCIATION OF STORMWATER AND FLOODPLAIN MANAGERS 2480 W. 26th Ave., Suite 156-B **Denver, CO 80211**

- 5. Utilize CASFM members and website library for rebuilding guidance. Our 700member organization of Certified Floodplain Mangers (CFMs), engineers, planners, scientists, environmentalists and stormwater managers are available to direct communities to assistance.
- 6. Support the implementation of master plans locally and regionally by executing them during flood recovery rebuilding efforts rather than replacing in-kind.
- 7. Consider FEMA repetitive flood loss clauses that affect the cost of flood insurance in areas most frequently impacted by flooding. Local governmental entities should consider available flood evidence and history before issuing permits in high hazard areas, especially in Front Range canyon watersheds and along the South Platte River.
- 8. Complete a post-disaster analysis of the 2013 flood to track how federal recovery funds were spent on the disaster in individual communities. This will allow all communities to measure the effectiveness of these recovery efforts during future floods that will occur in Colorado.

The history of Colorado provides ample evidence that large natural disasters will occur in the future. Instituting these eight measures will help future generations in Colorado avoid repeating the life-changing disruptions of September 2013 in the next major floods.

As floodplain managers, stormwater managers, scientists, engineers, planners, and agents of the greater good, it is incumbent upon all of our members to work tirelessly to help our neighbors, friends, families and visitors get back on their feet. It is also incumbent upon all floodplain professionals to provide those generations with a more resilient future than the recent past or the present could provide against floods that will visit Colorado and other states again.

CASFM members are committed to helping Colorado rebuild now, and to assuring our state's future is stronger, more economically vibrant, and more resilient than our past.

Ever at Colorado's service,

Shea Thomas. PE Brian Varrella, PE, CFM Jason Messemer Brian Murphy, PE, CFM **CASFM Chair** CASFM Vice Chair CASFM Secretary **CASFM Treasurer**

Further information about flooding and flood mitigation issues can be found on the CASFM website at www.CASFM.org, or by contacting the CASFM Chair Brian Varrella at casfmmedia@gmail.com. The Colorado Association of Stormwater and Floodplain Managers is a non-profit organization of 700 members working in and around Colorado's watersheds and floodplains, and our cadre of experts are available to assist communities as needed.

OFFICERS



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COLORADO FLOODING RECOVERY 2013 Using Mitigation to Rebuild Safer and More Sustainable Communities

Release date October 11, 2013

This paper outlines some of the actions that communities, individuals, businesses, and state and federal officials can take to reduce the suffering, damage, and risks from events like the northeast Colorado floods in the future.

The vast destruction on the Colorado Front Range and northeast Plains from the recent September flooding is devastating, but may be a harbinger of what we can expect in the future. The history of our nation and the world provide ample evidence that large natural disasters can occur frequently, and with a vengeance. This region has experienced devastating flooding in the past, such as the Big Thompson floods of 1976, Fort Collins flooding in 1997, Denver metro are flooding in 1965, Boulder flooding in 1935 and others. They have a common element of intense rainfall in areas subject to flash flooding, and the events are matching or exceeding record flood levels in many areas. It is important to recognize large events like this flooding WILL happen again.

Whether it is flash flooding, debris flows, rapid snowmelt events, tornado outbreaks, large river floods, wildfires or earthquakes, natural hazards remain a primary force that can bring catastrophic consequences to every region of the United States. Once the monumental job of attending to the pressing human needs through rescue and relief, immediate response, and short term recovery is well underway, Colorado and the nation will turn attention to the rebuilding of the heavily damaged communities and properties. Citizens throughout the nation will contribute to this rebuilding, not only with personal contributions, but with our tax dollars. We must evaluate how we plan, mitigate, and respond to natural hazards, ensuring that the nation is not ignoring the recurring and predictable threat of natural hazards. We must rebuild in a way that will reduce vulnerability to known western states hazards of flash flooding, rapid snowmelt, debris flows and mudslides in the future in order to avoid the human suffering and economic disruption that always follows.

Floods along the Front Range and northeastern Plains of Colorado are some of the worst regional disasters the region has suffered in recorded history. Similar large events – and their increasing likelihood across the nation – should teach us valuable lessons that we must consider in the days, weeks, and months ahead. There is a need to take this disaster and use it as an opportunity to avoid the next one, not to rebuild in a way that will ensure another disaster or just have less damage and disruption next time. Our reaction across the United States must be different than those of previous generations. The rules need to change or we will keep repeating our mistakes, proving, yet again, that we have not learned from our own history.

There will be pressure to roll back existing standards, to rebuild quickly and to not incorporate higher standards to create safer communities. Past flooding from storms and hurricanes across the United States demonstrated that, (1), much of the nation has inadequate rebuilding policy to deal with situations when a large area is impacted by an extreme event, and (2), significant pressure will be brought forth politically to relax reconstruction standards. These reactions expose rebuilt structures to similar or more devastating risk than that which preceded the disaster, creating a situation where citizens are placed at risk, where emergency responders are burdened with rescues and evacuations, and where future generations must assume the financial burden of rebuilding again. The bigger the event, the more likely we are to see a backslide in flood risk mgt. policies that would make our cities and citizens safer in the next event. Currently, communities across the entire state of Colorado are adopting new statewide floodplain regulations, and may need to institute building moratoria allowing new standards to become effective in order to avoid structures being rebuilt at high risk.

The 7 fatalities and 1,918 square miles of flooded lands in Colorado have shown the nation how quickly critical infrastructure can be interrupted by flooding. Water distribution networks, transportation networks, wastewater treatment plants and bridges and culverts

were destroyed from Estes Park to Loveland, from Boulder to Greeley, and from Kersey to Sterling. These experiences remind us that critical facilities, including hospitals, fire and police stations, water treatment facilities and evacuation shelters must be protected so they are operable during and following events at least as severe as those expected on average every 500 years. In the past year the State of Colorado has initiated higher regulatory floodplain standards statewide that include critical facility protection measures for rebuilding so that these facilities remain functional during disasters. It is imperative that these regulations are enforced during the re-building process and not "relaxed" in order to prevent 2013 damages from reoccurring in the future. In canyon areas across the state where flash floods, snowmelt events and long-duration rain events can move cars, boulders and houses, a greater level of protection is warranted.

Right now is the best window of opportunity to incorporate actions to make Colorado communities impacted by flooding more resilient to future flood events. In the devastating aftermath of a significant regional disaster like this, there also exists a window of opportunity for communities to make wise redevelopment choices that will help support the economic and social vitality for generations to come. The desire to return to "normal" is strong in the aftermath of a disaster, but difficult and deliberate choices today will lead Coloradoans to a more sustainable and safer path in the future. Politically bold decisions in the present can lead to reduced future recovery costs, reduced future human misery and suffering, and reduced future hardships for families and businesses alike. It is much more difficult to make necessary land use policy changes during a "sunny day", or after the event has been forgotten, than it is to make needed changes right now when people are faced with the consequences of the storm. Decision makers across Colorado are listening and watching and may be more receptive to significant – although sometimes disruptive actions – that can result in effective mitigation of future flood hazards and losses. There are admirable examples of communities across Colorado that chose a more resilient future in their darkest hours after a devastating event.

NEEDED ACTIONS

Steps for Rebuilding in Damaged Areas—Do It Smarter and Safer!

Massive quantities of public funds will be invested into reconstruction of devastated areas of Colorado over the next weeks, months, and years. Governor Hickenlooper has already committed to rebuilding two US Highways by December 1 of this year; a monumental task. Reconstruction can and must result in safer, more disaster resistant communities, homes, businesses, and infrastructure. These actions are not only necessary in northeast Colorado, but in all such areas of the nation, where the at-risk population is increasing daily as people build in the mountains, the canyons, and riverine floodplains where the people and their property are at risk of flooding. Many Western United States communities impacted by wildfires in the past 10 years have seen flash flood risks increase five-fold overnight and now must also consider mud and debris flows. The following actions will be necessary in this process:

- Utilize a building moratorium on issuing building permits to provide time for swift but detailed flood hazard assessments to be conducted and community reconstruction plans to be created. This will reduce future damages and risks for property owners and the community.
- 2. Assess the damage to each structure immediately to determine if it should be rebuilt. If rebuilding is appropriate, state and local rules and standards for safe construction must be followed. On September 20, 2013, the Colorado Office of Emergency Management reported Colorado floods resulted in 7 fatalities, 2,085 destroyed buildings (home and businesses), 16,866 damaged buildings, 200 miles of damaged roads and 50 bridges washed out or severely damaged. Each building must be inspected to determine if it was substantially damaged. If it was, the rebuilding must be done to new standards and elevations to comply with National Flood Insurance program, Colorado Statewide Regulations, and local community regulations and building code requirements. Substantial damage estimates must be done quickly before property owners become impatient and start to repair their structure in place so they can get back into their homes and businesses.
- 3. Develop and Use Advisory Base Flood Elevations (ABFEs) where Applicable. This is especially critical in canyon areas along the Front Range and along the South Platte River. FEMA or the State of Colorado or local communities may want to consider quickly determining and issuing ABFEs. Detailed flood maps will not be available for perhaps a year or longer, it is important that advisory data be provided to communities quickly so the information can be used in rebuilding. Communities should use ABFEs to guide new development because future flood insurance premiums will rely heavily on complying with new detailed flood elevations, and it also may be a condition of any mitigation funding that is provided. Using that data will help residents and businesses be more resilient to future storms while lowering their future flood insurance rates. In the short term,

home and business owners wishing to rebuild in canyon areas and the South Platte River should utilize high water marks from recent flooding as advisory minimum construction elevations.

4. Utilize planning and wise land use to reduce risk to people and property. Planning is an effective way to analyze hazards and land use, and to develop strategies to improve resiliency. Existing comprehensive land use plans, master plans and hazard mitigation plans (if separate) should be updated to reflect new hazard information, assess areas at risk, identify possible mitigation actions, and update community goals. Post-disaster redevelopment plans are useful for systematically determining the best path forward for reconstruction, and capital improvement plans should be updated to ensure future infrastructure will be resilient to hazards.

Improved land use tools are important to address natural hazards and risk to people/property: development setbacks, density limits, conservation zoning, and transfer of development rights (TDRs – which can be used as a mechanism to facilitate acquisition/relocation when states and communities are cash strapped). Prohibiting new buildings, reducing development density, or creating open space set asides and compatible uses in the highest flood hazard areas should be considered – these areas are 100% guaranteed to flood again. ASFPM reports that while it may be necessary to enact temporary moratoria to allow for the full review of data and transparent adoption of updated land use, courts recognize the authority and responsibility of local governments to oversee land use and rebuilding for public safety purposes. ASFPM further notes that communities are far more likely to be successfully sued for permitting redevelopment that results in future harm than they are for preventing it through adoption of new standards for public safety reasons and through a methodical and transparent process.

5. Adopt higher standards for reconstruction to improve resiliency to hazards. The standards of the National Flood Insurance Program (NFIP) are minimum nation-wide standards.

Colorado is to be commended for adopting higher statewide standards in 2011, and community implementation of those standards will make all Coloradoans and visitors to the state safer from and more resilient to future flooding. In fact, those standards undoubtedly helped during this event. For example in communities where new buildings in the floodplain had to meet the minimum 1 foot freeboard requirements, not only was the damage less severe (or maybe non-existent), but property owners received a discount on flood insurance rates leading up to this event. These discounts on flood insurance rates are especially important since the <u>Biggert-Waters Flood Insurance Reform and Modification Act of 2012</u> has been instated which means that flood insurance rates will generally be increasing across the board to accurately reflect the potential risk from flooding.

In the aftermath of this event, it would be wise to consider a higher freeboard standard. Based on the current premium rates for NFIP flood insurance, premiums can generally be reduced 50% or more if buildings use 2 feet of freeboard. Given the impact of high velocity flooding in mountainous areas and changing flood conditions, freeboard of 2-3 feet is not unreasonable. In addition, it would be beneficial to revisit the critical facilities regulations instituted by the State of Colorado and consider the standard of a 500-year flood risk reduction level or the flood of record, whichever is greater, for all critical facilities. Critical facilities are buildings and structures that contain essential facilities and services necessary for emergency response and recovery, or that pose a substantial risk to the community at large in the event of failure, disruption of function, or damage by flooding. Among others, this would include health care facilities, fire, rescue and police facilities, power generating and substation facilities, key communication facilities, and facilities containing hazardous materials. If federal funding is used for rebuilding critical facilities, this will be required because this standard is the same in Federal Executive Order 11988.

In addition to protection of critical facilities, careful design and planning for flood proofing can prevent or reduce losses in large buildings from urban flooding. Careful planning and design is necessary so that the vulnerability of existing buildings to structural damage is investigated and the impacts on the building use are considered. It is important to know what will happen if nothing is done and floodwater is allowed to infiltrate into building lower levels and into critical operational equipment such as electrical panels, heating and emergency power generating systems.

6. Complete a post-disaster analysis of the flood event and track how the federal money is spent for this disaster. There is currently is no standardized post-rebuilding analysis of major disasters to determine what could have been done to prevent damage or reduce the deaths, suffering, and costs. Only by tracking what is done and what is effective or not effective can we improve the disaster relief and mitigation process. The federal taxpayers will likely pay billions for this disaster, just as we paid billions for other disasters. This analysis would be similar to what the National Transportation and Safety Board (NTSB) does

after each plane crash and would gather information such as:

- What were the actual damages by category of homes, businesses, and infrastructure? (Currently initial damage estimates are not updated with data on actual damages once reconstruction has been completed)
- How many lives were lost and how could that have been prevented?
- What was the total cost (damages, loss of business, debris removal and disposal, etc.) and who paid them?
- How did previous land use decisions add to or reduce the damages and costs?
- How did infrastructure decisions at local, state, and federal levels add or reduce costs?
- Was mitigation incorporated into every rebuilding decision, and if not, why not?
- What steps can the communities, citizens, and states take prevent this disaster in the future?
- 7. Perform an evaluation of the current local flood standards and inundation maps for needed adjustments to protect lives and property. The communities, state and FEMA should perform an analysis of the flood maps and damages in the area to determine if the current effective FEMA maps and standards for mapping and managing those areas are adequate or need to be changed. This analysis could inform:
 - Did the maps correctly reflect the calculated flood hazard?
 - Did the existing flood maps show properties not at risk that were destroyed or badly damaged?
 - Did those maps accurately reflect the 1% chance (100-year) flood??
 - Did those structures which were built to existing standards survive?
 - If not, do the standards need to be strengthened?
 - Did the development along the rivers expose public infrastructure to costly damages requiring a huge influx of tax dollars?

This analysis can inform needed adjustments for better maps and standards for stronger reconstruction.

- Review existing disaster policy to remove incentives for communities and citizens to build and live in high risk areas. The larger a disaster, the larger the cost share picked up by the federal taxpayers. Furthermore, there is no limit on the number of times the federal taxpayer bails out a community hit by a flood or other natural hazard.. Do such policies create perverse incentives that encourage at-risk development because the local community gains the property tax from development, but can externalize the costs and consequences of the disaster to the federal taxpayer? Should the cost share be less or declining for disasters in known high risk areas or where communities do little or nothing to reduce their risk? Should federal taxpayer assistance for predictable disasters be considered a "one-time-only" taxpayer bailout? This would shift the primary responsibility for building and living at-risk to those who benefit from occupying those high risk areas. Would that result in communities and property owners more carefully considering whether to rebuild (or build) in high risk areas, thus reducing the ever increasing long term taxpayer costs? In this vast nation of millions of acres of land, only 7% of our land is categorized as a floodplain. Is it necessary to occupy the majority of that high risk land to have a viable economy? If it is occupied, who should pay for the risk of that occupancy? The Federal Interagency Floodplain Management Task Force is the appropriate group to perform this review with input from State and local communities and can suggest recommendations to the President and Congress.
- 9. Communities should participate aggressively in FEMA's Community Rating System (CRS) program. The CRS rewards communities who have holistic and active floodplain management programs (those include actions participating communities take to earn their CRS credit, such as designation and protection of open space, buyouts, dealing with repetitive loss, community awareness, freeboard, etc.) with lower flood insurance costs, which can be up to a 45% discount in a community. Recent research findings conclude that communities participating in the CRS accrue significant benefits, including insurance savings and flood resiliency with reduced flood losses.

Mitigate Wherever Possible

Reconstruction in flood hazard areas must incorporate the tenets of natural hazards mitigation. All options for mitigation must be considered, including elevating or flood proofing the structure, or acquiring and relocating those in areas too hazardous for

habitation. In some cases it may be more economical to remove the structure and restore the naturally functioning system. The first priority is to decide where to and where not to rebuild, and seeking public support and public landholder compensation for those decisions. A naturally functioning system does provide "flood risk reduction".

Structures that can be repaired must be carefully cleaned and dried to eliminate moisture and mold. While mitigating the structures against flooding, also modify them to protect against other natural hazards. The bottom line is that for any complex flooding problem, multiple mitigation solutions must be used. Here are some suggested actions:

- 1. Focus on repetitively damaged structures. A number of the State's repetitively damaged structures (those with repeated losses or flood insurance claims) are likely in the areas hit by this flooding. Now is the time to mitigate those structures. Many property owners will have problems finding the resources to rebuild, let alone mitigate their structures. The 2012 NFIP Reform Act provides authority for added funding in the flood insurance policy to help property owners mitigate repetitive loss structures through a variety of generally non-structural means, including voluntary buyouts and relocations, elevation of buildings, and flood proofing. Appropriately implementing these provisions will help reduce this drain on the Flood Insurance Fund over time. While repetitive loss properties constitute only 1.3% of the policies in the NFIP, they represent about 25% of the claims. This matter should be of concern to everyone in or near a flood zone. Repetitive claims and large numbers of claims will drive up the cost of flood insurance for everyone.
- 2. Speed the 404 mitigation grant process and better coordinate these mitigation programs and repair assistance. When people are out of their home or business for extended periods of time, they will start to do repairs to their buildings just so they can get back to feeling normal. If they had flood insurance, that claim payment comes quickly, and they may use it to make some repairs to their building. However, a little later, the community may offer to assist them with a mitigation project primarily under the Hazard Mitigation Grant Program (HMGP) such as elevation or relocation using post disaster mitigation funding.

The money spent up front may have been for naught, and could be used by the owners to match federal monies or complete or enhance the mitigation. It is important to identify potential projects in County and Community Hazard Mitigation Plans that can be funded by HMGP funds, before homeowners with Flood Insurance start to rebuild their structures. A building moratorium supports time for project identification. The current Stafford Act (disaster relief act) allows the HMGP mitigation grant program to be delegated to qualified states (Sec 404(c)). FEMA has not implemented that provision, which could shorten the time for mitigation grants being implemented by 6-12 months, and still allow oversight by FEMA.

3. Use Public Assistance (PA) funding to mitigate damaged infrastructure to the maximum extent possible. After a Federal disaster declaration, mitigation assistance is available for infrastructure. This program, called 406 Mitigation, is available under FEMA's Public Assistance program. Every piece of infrastructure that has been damaged should be evaluated for mitigation opportunities, and it should be a goal of a community, the state's mitigation strategy, and the Federal Coordinating Officers to incorporate 406 Mitigation into every Public Assistance Project Worksheet. This should include support for relocating public infrastructure to less flood prone places, allowing the community to use the money in a safer location to allow development there. FEMA should consider reducing the cost share for PA projects that do not include adequate mitigation.

Another available mitigation assistance program is through the Small Business Administration (SBA) as part of their Disaster Loan Program. SBA guidelines allow for individuals who are granted loans to have an extra amount approved to include mitigation activities. This is a private loan, so the taxpayer is not primarily responsible for the loan.

4. Mitigate critical facilities. Federally declared disasters are special opportunities to mitigate critical facilities. Many critical facilities are publically owned, such as water or wastewater treatment plants, fire and police stations, major roads and bridges, etc. Additional information can be found in the ASFPM Critical Facilities White Paper. Under the Disaster Relief Act, mitigation monies are provided by FEMA to incorporate mitigation into the reconstruction of critical facilities. Communities should evaluate each critical facility that was damaged to determine how mitigation can be incorporated. Some critical facilities, such as hospitals, nursing homes etc, may not be public, but it is essential they are operable and accessible during extreme events such as the 2013 Colorado Floods. This means they should be protected to and operable and accessible during the 500 year event or flood of record, whichever is greater.

- 5. Mitigation is cost effective! FEMA/DHS has completed an independent analysis on the benefits of mitigation, requested by Congress. That report demonstrates that every dollar invested in flood mitigation saves \$5 for the taxpayers, which reinforces the cost-effectiveness of federal, state, local, and private investment in mitigation. See the report from the Multi-hazard Mitigation Council here.
- State technical assistance is available to provide expert assistance on mapping, safer rebuilding standards and mitigation funding assistance. Every state has a Coordinator for the National Flood Insurance Program (SFM) and a State Hazard Mitigation Officer (SHMO). See the SFM List and the SHMO List. The Colorado Association of State Floodplain Managers (<u>CASFM</u>), a non-profit organization of technical and professional experts, is also uniquely positioned to provide direct assistance to communities and individuals in need.

SUMMARY

The September 2013 flooding across northeast Colorado is a tragic regional disaster that has changed and disrupted lives and livelihoods. As an organization of professionals, the Colorado Assn. of Stormwater and Floodplain Managers (CASFM) and the Association of State Floodplain Manager (ASFPM) members understand that the state of Colorado can and will rebuild from this effort so that all parties can attempt to return to a sense of normalcy. This basic human need, this fundamental desire to get back to some state of normalcy, is paramount to our long-term survival as a community of neighbors, friends, colleagues and family members. In Colorado's time of need there is nothing more crucial than taking a moment to stop, to think, and to envision a future condition that is better than the present. The only way we can secure that vision is to build back smarter and stronger, and to assure that future generations in Colorado and all states across the nation do not have to repeat the life-changing events of September 2013 in the next major floods.

"Experiencing a disaster has the strongest effect among all factors to motivate people to prepare for future disasters... the strong effect of experiencing an actual disaster on motivating survivor preparedness declines as time from the event passes because perceptions of safety re-emerge and rise to pre-disaster levels typically within an approximate two-year period after the event."

- excerpt from the Gilbert F. White National Flood Policy Forum, 2010 Assembly.

As floodplain managers, stormwater managers, scientists, engineers, planners, and agents of the greater good, it is incumbent upon <u>CASFM</u> members and their colleagues at <u>ASFPM</u> to work tirelessly to help our neighbors, friends, families and visitors get back on their feet. It is also incumbent upon all floodplain professionals to provide those generations with a more resilient future than the recent past or the present could provide against floods that will visit Colorado and other states again.

Further information about flooding and flood mitigation issues can be found on the CASFM website at www.cafsm.org, or by contacting the CASFM Chair Brian Varrella at casfmmedia@gmail.com, or 970-416-2217. The Colorado Association of Stormwater and Floodplain Managers is a non-profit organization of 700 members working in and around Colorado's watersheds and floodplains, and our cadre of experts are available to assist communities as needed.

Another resource is the national ASFPM website www.floods.org, or ASFPM Executive Director Chad Berginnis at cberginnis@floods.org, 608-828-3000. The Association of State Floodplain Managers is a national non-profit organization of 15,000 professionals involved in floodplain and flood risk management, flood hazard mitigation, the National Flood Insurance Program, and flood preparedness, warning, and recovery.







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2013 Annual Conference Recap



By Shea Thomas, PE, CASFM Conference Program Chair

The 2013 CASFM Conference in Steamboat Springs will certainly stick in everyone's minds as a rare event. I'd like to think that's because of the fantastic program, but I know it will be remembered for other reasons. On the first full day of the conference Colorado was experiencing some of the heaviest rainfall it had ever seen, while 250 of the state's stormwater and floodplain managers sat comfortably dry in a conference room in Steamboat Springs. The result of that rainfall, of course, was some of the most intense and disastrous flooding the northeast part of our state has experienced in decades. As attendees who serve as emergency responders and flooding experts for their communities peeled away from the conference and headed back to offer whatever assistance they could provide, it left a noticeably somber condition on the remaining attendees at the end of the week.

Though it's difficult to separate the two and put the storm aside, the conference was eventful and successful. The venue was the beautiful Sheraton Steamboat Resort, which has the honor of hosting more CASFM conferences than any other location. Both the Permanent Water Quality BMP Inspection and Maintenance and the NFIP Reform workshops were well-attended this year, though we hoped for a better turnout. We'd love to increase attendance to these workshops in the future, so your feedback on what topics you would like to see offered in the future would be greatly appreciated. The Modification of Stream Restoration Techniques for Arid and Semi-Arid Environments workshop unfortunately had to compete with the flood of attendees leaving early to deal with the flooding back home, but those who did attend praised

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CASFM Outreach and Training Committee SOCIAL MEDIA GUIDELINES



Policy Purpose: Establish guidelines of conduct for the organizational use of social media by

and for members of CASFM.

Last Update: April 25, 2013 (edits January 9, 2014)

Board Approval: January 16, 2014

GENERAL:

The Colorado Association of Stormwater and Floodplain Managers (CASFM) is a non-profit organization of professionals whose members are involved in floodplain management, flood hazard mitigation, stormwater management, the National Flood Insurance Program, and flood preparedness, warning, and recovery. CASFM has grown to be a respected voice in floodplain management practice and policy in Colorado. CASFM represent the interests of flood hazard specialists from local and state government, consulting engineers, the research community, the insurance industry, and the fields of engineering, hydrologic forecasting, emergency response, water resources, planning, and others.

PURPOSE AND NEED:

Communication between professionals in Colorado has evolved in the past decade. A growing population is engaged in specific activities that cross professional and personal boundaries. CASFM members are utilizing new methods and emerging technologies to communicate and network with clients, colleagues, the public, and other stakeholders and decision-makers within our respective fields of practice.

The messages transmitted through these methods and technologies, herein referred to as social media, are widely relevant to the organization's core objectives. Social media can include (but is not necessarily limited to) established technologies such as LinkedIn, Twitter, Facebook, YouTube, chat rooms, video, wiki postings or other forms of online journals, diaries or newsletters affiliated with CASFM and its members.

Fourteen (14) policy statements are currently identified for the organization and its members on the CASFM website at the following location; http://www.casfm.org/about.htm. These social media guidelines are intended to supplement the core policy statements to accommodate new and emerging communication technologies. It is not intended to replace or otherwise supplant existing policies established by the CASFM Board of Directors.

GUIDELINES:

The following guidelines of conduct, commensurate with organizational bylaws and purposes and objectives identified therein, or as modified by the Board of Directors, shall apply to all CASFM-sponsored and maintained social network activities.

The goal of social networking and associated media for organizational purposes is to become a part of the industry conversation and promote web-based sharing of ideas and exchange of information among members and those they serve on a professional basis. Social media can be used to convey information about CASFM positions, policies, and services; promote and raise awareness of stormwater and floodplain management issues and best practices; communicate

CASFM Outreach and Training Committee SOCIAL MEDIA GUIDELINES



with members and their clients and customers, to brainstorm; and explore evolving trends in respective industries amongst the membership identified in the preceding General section herein.

Examples of social media sites, platforms or technologies that could be used for CASFM purposes include the CASFM LinkedIn Group, the CASFM Twitter feed and the CASFM channel on YouTube. The current website at www.casfm.org shall remain the primary media outlet for the organization in perpetuity, and shall be used as historically for posting help wanted information, committee activities, calendar appointments, contact information, bylaws and articles of incorporation, and other historically-established uses. New social media sites and technologies may be utilized in the future as proposed by the Outreach and Training Committee Chairs and members, and as adopted by the Board of Directors during official business conducted at any general membership meeting. When utilizing social media for CASFM purposes, members are expected to ensure the use maintains membership identity, integrity and reputation.

Direct e-mail communications to the entire membership shall not be considered social media. All e-mail content shall be preauthorized by the Chair, Vice Chair, Secretary or Treasurer, or by the Outreach and Training Committee co-chairs, or by the Website Administrator before distribution to the membership. E-mail messages to the entire membership shall refrain from endorsing, advertising or otherwise promoting interests outside the collective interests of the general membership of CASFM established in organization bylaws and the fourteen (14) policy statements on the website at http://www.casfm.org/about.htm.

CASFM members are discouraged from disclosing proprietary and nonpublic information to which members have professional or privileged access. All information posted to CASFM social media networks shall be the property of CASFM. Material on social networks open to members and non-members, such as LinkedIn may be subject to review, modification and/or removal by the Outreach and Training Committee or Officers. Members who identify themselves as affiliated with CASFM are expected to conduct themselves in a professional and respectful manner at all times when utilizing CASFM social media platforms.

Social media sites and platforms established, monitored, or otherwise maintained by CASFM shall not be used to harass, threaten, discriminate or disparage any member, their clients or customers, stakeholders, or the general public. Photos, videos, professional papers, presentations, and other digital material posted or otherwise attached to CASFM social media shall become the collective property of the organization and its members for free use, reference and redistribution. This shall include but may not be limited to professional materials submitted for the Annual Conference, training events, field trips, during general membership meetings, web seminars, and any other CASFM-sponsored event. All members are expected to duly recognize the work of other professionals who contribute materials to CASFM through social media when referencing such materials in their own professional work.