

## **2013 Colorado Flooding - CRS Success Stories**

Compiled By: Marsha Hilmes-Robinson, CASFM CRS Committee Chair

The 2013 Flooding impacted numerous communities along the Front Range and Eastern Plains of Colorado. We have all seen and heard about the damaged and destroyed homes and businesses, the hundreds of miles of roads that were damaged or destroyed and the millions of dollars in public infrastructure that was damaged. This was a major event that will take years for recovery. However, what we may not hear so much about are the success stories. These are the floodplain regulations and stormwater mitigation projects implemented long before the floods happened. These successes are the result of decades-long work by stormwater and floodplain managers, community officials, and citizens to protect against future flood events. If not for these efforts, the damage could have been worse.

The Community Rating System provides a framework for communities looking to go above and beyond the minimum FEMA floodplain standards and credits communities for various activities ranging from public education, drainage system maintenance, higher regulatory standards, open space preservation, and flood warning. Members of the CASFM CRS Committee compiled the following success stories as examples of how the CRS promotes sound floodplain management and reduces the impact floods have on our communities.

### **City of Boulder –Toby Lane Development Not Damaged**

Submitted by: Katie Knapp, Engineering Project Manager, P.E., CFM

CRS Activities: 430 – Higher Regulatory Standards (Freeboard = 2 feet), 410- Additional Flood Data (New Study)

The Toby Lane Development was within the newly re-mapped floodplain of South Boulder Creek. The City of Boulder started regulating development in the remapped floodplain prior to approval by FEMA. Houses were required to meet the City's higher freeboard standard of 2 feet above 100-year flood elevation. Because the homes were elevated, they were not damaged in the flood.



**Photo 1.** Toby Lane Development in Boulder protected from flood damage in September 2013 because the homes were elevated two feet above the 100-year flood elevation.

## City of Fort Collins – Acquisition Projects and Open Space Preservation Minimizes Damage

Submitted by: Marsha Hilmes- Robinson, Floodplain Administrator, CFM  
 CRS Activities: 420 – Open Space Preservation, 520 – Acquisition

The flooding on the Poudre River was a 50-year event with a flow of approximately 10,400 cfs at the Mouth of the Canyon. There was very minor damage within city limits in large part due to the preservation of open space and acquisition of high risk structures. For several decades, the Fort Collins Natural Areas Program has proactively purchased property along the Poudre River Corridor, most of which is in the floodplain. In addition, the City’s Parks Department owns and maintains several parks. Table 1 compares the floodplain acreage in the City limits to the amount of open space preserved by the City of Fort Collins. Preserving this land as open space not only minimizes damages during a flood, but it also enhances the natural and beneficial functions of the floodplain including allowing floodwaters to spread out and slow down and providing beneficial habitat (Photo 2).

**Table 1.** Amount of Open Space preserved in the Poudre River 100-year floodplain in Fort Collins.

Parks in 100-year Floodplain (acres)	Natural Areas in 100-year Floodplain (acres)	Total Open Space Preserved (acres)	100-year Floodplain Inside City Limits (acres)	<b>This shows that 66% of the 100-year floodplain is preserved as open space.</b>
54.8	923.9	978.7	1484.6	



**Photo 2.** Open Space preserved in McMurry Natural Area and Legacy Park along the Poudre River in Fort Collins. Floodwaters in September 2013 were able to spread out and slow down and not cause any damages.

In addition to preserving large tracts of open space, the City’s Stormwater Department, in coordination with the Natural Areas Department, purchased several properties in the College

Ave. and Vine Dr. area as part of a Willing Seller –Willing Buyer program. There have been two commercial structures and one residential structure removed. At the time of the flood, a second residential structure had been purchased, but the building had not yet been demolished. That structure had 8-10 inches of water in the basement from the flood and is expected to be removed in the near future.

### **City of Lakewood – Bear Creek Lake Park Does Its Job and Now Begins Its Recovery**

Submitted by: Marty Wilson-Lloyd, Construction Document Technician and CRS Coordinator  
CRS Activity: 420 – Open Space Preservation

Bear Creek Lake is located at the confluence of Bear Creek and Turkey Creek and is part of the Tri-Lakes projects built by the Army Corps of Engineers to control flooding on the South Platte River through Denver. Completed in 1982, the dam and reservoir collect runoff from a tributary area of approximately 236 square miles in the mountains between Mount Evans and Bear Creek Lake Park. The dam can handle a rise in the water level to 109 feet above normal.

During the height of the fall floods, the park’s water level rose roughly 55 feet above normal. The park, more than 2500 acres in size, suffered substantial damage due to the high water level, but functioned as it should and protected many people and properties downstream. The water level climbed high enough to submerge picnic shelters, restrooms, docks and trails. The cottonwood trees near the reservoir show the high water level as the foliage below the water was destroyed, leaving the tops of the trees above the water untouched (Photos 3 and 4).



**Photo 3.** Bear Lake Park in Lakewood showing the 2013 high water line on the trees. The water level rose 55 feet during the September flooding.



**Photo 4.** Cottonwood trees in Bear Lake Park dramatically show the high water line from the September 2013 flooding. The leaves below the high water line were destroyed, leaving the tops of the trees untouched and still able to display their fall colors. Photo courtesy of Lakewood resident, Carole Kaune.

Repairs to the park are expected to cost more than \$300,000 and will include repairing damaged structures, rebuilding trails and removing flood debris. To help with the park's recovery, an outpouring of more than 150 community members, high school students, Boy Scout troops and others have volunteered their time. Numerous residents have also donated money to assist in the recovery costs.

#### **Town of Estes Park – Stream Setbacks and Elevation Show Their Value**

Submitted by: Will Birchfield, Chief Building Official, CFM

CRS Activities: 420 – Natural Shoreline Protection, 430 – Higher Regulatory Standards (Freeboard = 1 foot),

The Town of Estes Park has not yet joined the CRS. However, they have been looking into the program for a number of years. They already have proactive standards in place that helped provide protection during the 2013 flooding. In the Town's Land Use Code, there are stream setbacks that in most cases result in new construction being located outside the Special Flood Hazard Area. In the past 15 years, there have only been four permits issued for new structures in the 100-year floodplain. All of these buildings were permitted prior to the Town having adopted freeboard standards. However, building permit staff "highly encouraged" those property owners to elevate the new structures. That recommendation paid off because each elevated 2-3 feet above the 100-year flood level and none were damaged in the September floods (Photos 5 and 6). In fact, every building that sustained structural damage, including one that was completely destroyed, was outside the mapped floodplain. The town of Estes Park now has a required freeboard standard of one foot.



**Photo 5.** An Estes Park business owner next to his building that was not damaged in the 2013 flooding due to elevating the structure.



**Photo 6.** View behind the elevated structure looking at the Big Thompson River during the 2013 flooding.

### Summary

We all know that there will be flooding in the future. We just don't know when and where. However, by learning from the past, examining successful mitigation strategies and implementing sound floodplain management programs, such as those credited under FEMA's Community Rating System, we can build more resilient communities for the future.