

Cedar Heights Saved during Waldo Canyon Fire

Colorado Springs, CO - In June 2012, the Waldo Canyon Fire burned more than 18,000 acres and destroyed 347 homes. Currently, it is the most costly fire in Colorado history, with estimated insured losses of \$454 million. While the effects were devastating to the Colorado Springs community as a whole, the losses avoided in some areas are a testament that wildfire mitigation works. Thanks in part to mitigation efforts in an adjacent park, the Cedar Heights neighborhood (valued at more than \$75M) was saved, allowing 250 families to return to their homes and their lives after the fire.

Wildfire mitigation history in Colorado Springs

Colorado Springs has long recognized the risk of wildfires to its residents. “In the 1990s, we got a new Fire Chief, Manual Navarro,” says Christina Randall, Colorado Springs Wildfire Mitigation Program Administrator. “Chief Navarro was a veteran of deadly wildfires in Oakland, California and immediately recognized our risk here. He told us that residents should never be able to tell us that they didn’t know about their wildfire risk. This charge became the cornerstone of our education and outreach program.”

More than 28,800 acres are in the Wildland Urban Interface (WUI), which includes twenty-four percent of the city’s population. In 2000, the Colorado Springs Fire Department hired a wildfire risk manager and began conducting risk assessments on more than 36,000 properties in the WUI. The city developed a wildfire hazard rating system that identifies low, moderate, high, very high, or extreme ratings for each resident at the lot level. Several factors are taken into account including topography, structural and vegetation density, construction materials, active protection measures, and fire behavior.

In 2001, the city published a wildfire mitigation plan that highlighted recommendations and priorities for the future, such as: a public outreach campaign, fuels reduction, and improved engineering and building construction.

Throughout the next decade, Colorado Springs rolled out various elements of its wildfire mitigation program, to include hiring full-time wildfire mitigation program staff, implementing the “Sharing the Responsibility” education and outreach campaign, managing a neighborhood chipping program, and developing a Class A fire-resistant roofing materials ordinance.

Open space fuels treatment projects

While the “Sharing the Responsibility” campaign successfully focused on working with residents to mitigate their properties, the Colorado Springs Fire Department also wanted to address fire hazards in adjacent open spaces and common-owned areas. Between 2005 and 2009, the city applied for and received four Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation (PDM) grants to complete fuels reduction projects. The projects focused on common-owned open spaces near residential neighborhoods, as well as critical infrastructure and cultural resources, including a communications tower, fire stations, the city zoo, a nursing center, and elementary schools.

For these projects, the city’s objectives were to: reduce fuel loading; remove dead standing material; create vertical separation (removing ladder fuels) by limbing trees and brush; create horizontal

separation by thinning understory trees and brush; and use the slash material on site by chipping and scattering the mulch.

“We identified and prioritized the projects as outlined in our Community Wildfire Protection Plan, targeting the neighborhoods with the highest risk,” says Randall, “The desire and ability for different neighborhoods to work with us to share the costs of the mitigation projects on common-owned areas also played a role in the prioritization.”

The 2007 PDM project was designed to protect several residential communities, including Cedar Heights. Cedar Heights covers approximately 300 acres and, in 2012, consisted of 250 homes. The neighborhood is just south of Solitude Park, a common-owned open space. At the time, dense Gambel Oak trees covered the park. Eighty percent of these trees were either dead or dying, a recipe for disaster. Thus, Cedar Heights fell into the high to extreme wildfire risk category (Figure 1). A portion of the 2007 project focused on mitigating 100 acres in Solitude Park just north of Cedar Heights.

In 2009, Colorado Springs once again applied for a PDM grant to build upon existing mitigation efforts. This project treated additional sections of open spaces across the community, including space on the Eastern edge of the Cedar Heights neighborhood.

All mitigation projects protecting the Cedar Heights community were completed in 2010.

The Waldo Canyon Fire and impact of the mitigation projects

On June 23, 2012, the Waldo Canyon Fire was reported in Pike National Forest northwest of Colorado Springs. The Cedar Heights neighborhood was issued a mandatory evacuation order. By the morning of June 24, the fire was a quarter of a mile away from structures in Cedar Heights. As the fire approached the neighborhood through Solitude Park, the fire lay down and allowed firefighters to create a dozer line and make a direct attack, saving the community.

Following the Waldo Canyon Fire, the U.S. Forest Service’s Fire Adapted Communities assembled a Mitigation Assessment Team and published lessons-learned findings. The team found “significant fuel treatment actions in Solitude Park... significantly assisted firefighters in their quest to save homes in this community.” It should be noted that other beneficial factors, such as changes in fire behavior, fire retardant drops, and firefighters anchored in a safe zone that put out spot fires also played a key role in reinforcing the treatment’s effectiveness and saving the community.

The overall cost of the 2007 and 2009 mitigation projects, which covered several treatment areas, was \$2.8 million, which included a \$2.1 million federal cost-share. The remainder was covered by Colorado Springs Fire Department time and labor, funds from homeowners associations, and individual donations. Within these projects, the mitigation work directly related to protecting the Cedar Heights neighborhood cost approximately \$300,000. If the fire had reached one home in Cedar Heights, it could have potentially continued to spread throughout the entire neighborhood. This \$300,000 spent therefore created a losses-avoided value of more than \$75 million, the cumulative values of the homes within Cedar Heights as well as water tanks in the community.

Additional Benefits

Along with the Cedar Heights community, other areas may have significantly benefited from mitigation projects during the Waldo Canyon Fire. The 2005 and 2006 fuels treatments PDM projects focused on protecting some high-value assets, including the Mount Saint Francis Nursing Center and Woodmen Valley Elementary School, together valued at more than \$34 million. “Both of these assets were in the Peregrine neighborhood directly threatened by the fire,” notes Randall, “no fire directly reached these structures or burned in the treated areas. However, since we had spotting up to ½ mile, we don’t know if there were embers or brands that did not carry past the treated areas due to lack of fuel.”

Post-Waldo Canyon Fire mitigation initiatives

In the aftermath of Waldo Canyon, the city found that 54 percent of all homes damaged by the fire were a result of fire brands and embers carried by the winds, not direct contact with the fire. These findings reinforced the importance of using ignition-resistant building materials in construction so those embers don’t turn into spot fires that ignite the entire home. Therefore, in 2013, Colorado Springs approved the Ignition Resistant Construction Ordinance and corresponding Hillside Wildfire Mitigation Design Manual. New requirements in the ordinance include the use of double-paned windows, attic vent screens, and non-combustible decking materials (i.e., composite or metal) instead of wood. Also, all homes in the identified hillside areas must have a 15’ clearance of trees and brush from the main structure (adding an extra 5’ clearance from the previous requirement).

“The Waldo Canyon Fire showed us areas that we need to focus on next in our wildfire planning. This includes further developing post-fire response plans and the re-entry process, and streamlining damage assessments and notification to residents on the status of their homes,” says Randall. “Also, as we continue outreach in the community, we are concentrating on engaging local businesses in how they can best prepare their organizations for wildfires.”

Related Resources & References

- [Fire Adapted Communities Mitigation Assessment Team Findings: Lessons Learned from Waldo Canyon](#)
- [Colorado Springs Fire Department Wildfire Mitigation Program](#)
- [Colorado Springs Waldo Canyon Fire Final After Action Report](#)
- [At Home in the Woods: Lessons Learned in the Wildland Urban Interface](#)
- [FEMA’s Pre-Disaster Mitigation Grant Program](#)



Before and after photos of the area



Cedar Heights fire lay down

