

# Neighborhood Mitigation Plan: Esperanza HOA

This Neighborhood Mitigation Plan (NMP) is a cooperative effort between the Esperanza Homeowners Association (EHA), the City of Castle Pines, and South Metro Fire Rescue (SMFR). This NMP assesses the hazards and vulnerabilities of this neighborhood, identifies a path for the neighborhood to adapt to the potential for wildfires, improves safety for residents and emergency responders, reduces home-ignition risks from wildfires, and prioritizes projects to address those risks.

## Neighborhood Description

The EHA has 58 single-family homes west and south of Monarch Boulevard in the northwestern part of the City of Castle Pines. Homes have fire-resistant roofing and exterior siding, but not all decking is fire resistant. The homes themselves represent the most significant values at risk. Residents are a mix of ages. There are no livestock in this suburban neighborhood.

In terms of property governance, residents belong to EHA. Residents also are constituents of the City of Castle Pines and the Castle Pines North Metro District.

## Infrastructure

Infrastructure consists of the basic systems that support neighborhoods physically, socially, and economically. Infrastructure includes the following systems: water, roads, electricity, and natural gas.

### Water

- Homes in this neighborhood are connected to a water system operated by the Castle Pines North Metro District (CPNMD). The district's assets include wells, a water treatment plant, distribution system, hydrants, water rights, and 1,500 acre-feet of storage at Reuter-Hess Reservoir.
- The area served currently by CPNMD has fire hydrants that meet or exceed minimum flows for fire protection.

### Roads

- There are two routes into the neighborhood. Esperanza Drive intersects with Daniel's Gate Road on the northwest and Monarch Boulevard on the northeast.
- Roads in the neighborhood are paved and wide enough for fire apparatus. They are maintained by the City of Castle Pines.
- The neighborhood is gated. Both gates have Knox Box technology for emergency access, but access to the neighborhood may be compromised during a power outage.

### Electricity

- CORE Electric Cooperative (formerly known as IREA) provides electrical service to the neighborhood. Electrical lines are buried.

## Natural Gas

- Xcel provides natural gas service to the neighborhood

This infrastructure is vulnerable to interruption and damage from wildfires. Mitigation recommendations for individual buildings or sites are available from SMFR. Email [ReducingRisk@southmetro.org](mailto:ReducingRisk@southmetro.org) to set an appointment. General mitigation recommendations are listed later in this plan.

## **Emergency Response**

The first-due firefighting resources respond from SMFR Station 36 (421 E. Castle Pines Parkway) and Station 17 (9554 S University Blvd., Highlands Ranch). SMFR has earned an ISO (Insurance Services Office) Public Protection Classification (PPC) rating of 1 for its entire service area. The rating, which is rare in the United States, represents the best fire protection according to insurance industry criteria and may provide a discount on homeowner's insurance policies to district residents.

The City of Castle Pines contracts with the Douglas County Sheriff's Office, which is based in Castle Rock, for law enforcement.

Douglas County provides emergency management services.

## **Ecological Context**

Topography is one of the key factors that influences wildfire behavior, largely because fire typically burns faster uphill than downhill. Topography contributes to wildfire risk in this neighborhood because it is built above a draw to the south. Homes built above slopes with native vegetation face a higher risk from low-, moderate-, and high-intensity wildfires than other homes.

Additionally, Castle Pines is on a plateau between Lone Tree and Castle Rock. As a result, its weather can be more extreme than in those adjacent communities. Stronger winds and more frequent lightning strikes add to the intrinsic hazards for this area.

The vegetation in this neighborhood is a combination of native and exotic tree, shrub, flower, and ground cover species. Unfortunately, many of the plants chosen for landscaping around homes and along roads can ignite quickly and produce significant radiant and convective heat. For example, junipers are nicknamed "little green gas cans" by firefighters. Each should be replaced with a fire-resistant ground cover or shrub.

Other plant species that are poor choices for wildfire-prone ecosystems are piñon pine, Pfitzer, cedars, Mugho pine, Austrian pine, arborvitae, and Scotch pine. None of these species nor junipers should be within 30 feet of a structure.

Dense groves of Gambel oak growing above the neighborhood to the north are a volatile fuel throughout the year. Although this oak is above the homes, wind direction will dictate whether embers are blown toward or away from Esperanza.

## **Fire History**

The homes of EHA as well as the entire City of Castle Pines were built within a wildfire-prone ecosystem. Seven wildfires burned a total of nine tenths of an acre within the city boundaries between 2016 and 2020.

Additionally, this neighborhood was threatened by the Cherokee Ranch Fire in October 2003. That wildfire began to the west of the City of Castle Pines when high winds toppled a tree onto utility lines. The 1,000-acre wildfire burned eastward toward the city and stopped when a cold front brought lower temperatures and higher relative humidity to the region after sunset. Those conditions helped firefighters contain and extinguish the blaze.

## **Hazard Identification and Risk Reduction Recommendations**

Community risk reduction takes a village; it requires individual actions and collective action to be effective over a longer term. Wildfire hazard identification is based on the following fire behavior concepts:

1. A given fuel (structure or vegetation) can produce a flame length 1 ½ times its height. Thus, a bush that is 12 inches tall can produce a flame length 18 inches in length; a tree that stands 12 feet tall can produce a flame 18 feet long. Shorter fuels produce shorter flames and release less heat.
2. Firefighters are unable to engage directly any flame length greater than four feet because of safety concerns. A direct attack places firefighters along the head or front of a wildfire where they create a handline—a path down to mineral soil—in front of the flames to stop its growth. When flames are longer than four feet, firefighters can use indirect attack techniques such as spraying water from further away or building a handline a distance away and burning out unburned fuels between their line and the fire.

Flames between four and eight feet in length can be attacked directly with bulldozers and air resources such as air tankers and helicopters. Flames longer than eight feet can be attacked directly by air resources alone.

3. Before a fuel can burn, it must absorb enough heat to cause the remaining water in it to evaporate. The dry part of the fuel then absorbs more heat that causes the solid fuel to break apart into its gaseous state. It's the gaseous state that actually burns. Thus, denser, wetter fuels typically resist ignition longer than lighter, drier fuels.
4. Most deciduous trees and shrubs resist fire because they are full of water. Gambel oak is an exception. The resin inside oak makes it flammable for most of the year.
5. As noted previously, plants that contain flammable resins, saps, and oils are bad choices to have within 30 feet of homes. These “bad” plant species include Gambel oak, juniper, Pfitzer, cedar, arborvitae, Mugho pine, piñon pine, Austrian pine, and bristlecone pine, as well as decorative conifers such as Alberta or Norway spruce. They dry and vaporize quickly, which makes them vulnerable to igniting quickly. They also release significant heat.

6. Ponderosa pines are a fire-resistant tree species because they have thick bark and low sap content. They were prevalent when the area was developed because low-intensity wildfires limited other plants from competing for limited water, soil nutrients, sunlight, and space.
7. Most structures ignite from embers: burning chunks of fuels lofted above a fire by the rising column of heated air (a convective column). When those burning chunks of fuel, which can be pea- to grapefruit-sized, land on other flammable fuels such as dead needles, dead leaves, junipers, or combustible deck furniture, they can ignite spot fires. Embers typically find vulnerabilities in the nooks and crannies of buildings.
8. Structures also can ignite from heat radiating laterally from burning fuels such as junipers and other buildings.
9. Ladder fuels are low-hanging branches of trees. If they ignite, they allow flames to “climb” into tree canopies. By removing these ladder fuels, flames can stay on the ground where they typically are shorter and firefighters have an opportunity to extinguish them directly.

SMFR personnel conducted surveys of the neighborhood in March 2022 to determine recommendations for the neighborhood collectively as well as for individual property owners. These surveys were done from public roadways. Below are recommendations for property owners based on common hazards.

As recommendations, they will not be enforced by SMFR, but they will reduce the potential for ignitions and improve safety for both residents and firefighters. During a wildfire incident in which homes or other buildings are threatened, firefighters will prioritize structure protection based on what they deem defensible in light of current and expected fire behavior and weather conditions. Ideally, homeowners will conduct mitigation that allows their homes to withstand low- and moderate-intensity wildfires without firefighter intervention.

### **Private Property**

- Prune branches above roofing to create a six-foot tall window of clearance. Removing these branches will reduce the volume of leaves and needles that collect on roofing and in gutters, protect shingles from scraping, and protect the tree from any fire on the roof.
- Trim branches away from eaves and exterior walls. Trimming these branches will maintain the integrity of those structural components and prevent flames from having a direct route to your home.
- Eliminate fuels under decking.
- Remove dead pine needles and dead leaves from roofing, gutters, gutter screens, and along the base of walls. These piles of dead vegetation are easy fuel for embers.

- Add 1/8-inch mesh to vents to prevent embers from entering ductwork, attics, and eaves. Embers may still enter those vents, but they shouldn't hold enough heat to threaten the home.
- Wood fencing can act like a fuse and lead flames to homes. Most wood fences in this neighborhood have metal gates between homes that break the horizontal fuel continuity. Minimize vegetation growing along wood fencing that connect to homes. Consider replacing wood posts and slats adjacent to homes with composite materials that resist ignition.
- Prune vegetation around utility boxes and fire hydrants to create at least a three-foot radius clear of fuel and obstructions.
- Replace junipers and other flammable shrubs and groundcover within 30 feet of buildings with native wildfire-resistant species including the following options:

<b>Fire-Resistant Groundcovers</b>		
<b>Common Name</b>	<b>Watering</b>	<b>Lighting</b>
Creeping grape holly	Low	Shade
Kinnikinnick	Medium	Either
Mat penstemon	Low	Sun
Mouse ear chickweed	Medium	Partly Shaded
Northern bedstraw	Medium	Shade
Rosy pussytoes	Medium	Partly Shaded
Small-leaf pussytoes	Medium	Partly Shaded

<b>Fire-Resistant Low Shrubs</b>		
<b>Common Name</b>	<b>Watering</b>	<b>Lighting</b>
Adam's needle	Medium	Partly Shaded
Antelope bitterbrush	Low	Sun
Apache Plume	Low	Sun
Banana/broad-leaf yucca	Very Low	Partly Shaded
Bog birch	High	Partly Shaded
Buckbrush/Mtn. Lilac	Medium	Sun
Golden currant	Low	Filtered
Little-leaf mockorange	Medium	Sun
Little-leaf mtn. mahogany	Very Low	Sun
Mountain ninebark	Low	Sun
Native wild rose	Medium	Partly Shaded
Ocean spray/rock spirea	Low	Partly Shaded
Rabbitbrush	Very Low	Sun
Redtwig dogwood	High	Either
Shrubby cinquefoil	Medium	Partly Shaded

Spanish bayonet	Very Low	Partly Shaded
True mtn. mahogany	Low	Sun
Wax flower	Medium	Either
Western sand cherry	Low	Sun

<b>Fire-Resistant Large Shrubs and Trees</b>		
<b>Common Name</b>	<b>Watering</b>	<b>Lighting</b>
American wild plum	Medium	Partly Shaded
Aspen	Medium	Sun
Boulder raspberry, thimbleberry	Medium	Partly Shaded
Filbert, beaked hazelnut	High	Partly Shaded
Hawthorn	Medium	Sun
Mountain mahogany	Low	Sun
Peachleaf willow	High	Partly Shaded
Pin/fire/wild/red cherry	Medium	Partly Shaded
Ponderosa pine	Low	Sun
River birch	High	Partly Shaded
Rocky Mountain maple	Medium	Partly Shaded
Saskatoon alder-leaf serviceberry	Medium	Partly Shaded
Silver buffaloberry	Medium	Partly Shaded
Tall ninebark	Medium	Partly Shaded
Thinleaf alder	High	Partly Shaded
Utah serviceberry	Low	Sun
Wasatch maple	Medium	Partly Shaded
Western chokecherry	Medium	Partly Shaded
Western mountain ash	Medium	Partly Shaded

Residents can request a personalized free home wildfire risk assessment of their properties by emailing [ReducingRisk@southmetro.org](mailto:ReducingRisk@southmetro.org). These assessments typically last 20-30 minutes.

### **Open Space/Parks**

Properties adjacent to open space face additional risks from the proximity of vegetation managed less often than that on adjacent private property. Reducing risk from these hazards will be easier when adjacent property owners collaborate and share responsibility. The impact of open space mitigation is leveraged with backyard mitigation and vice versa.

The City & County of Denver owns 261 acres of open space southwest of the neighborhood, but the open space adjacent to Esperanza is owned by the Castle Pines North Metro District. Open space owned by CPNMD will be addressed in a separate mitigation plan.

<b>Priority</b>	<b>Legal Name</b>	<b>Size in Acres</b>
<b>1</b>	Tract AA Castle Pines North #27	10.14
<b>2</b>	Tract E Castle Pines North #27	18.06
<b>3</b>	Tract DD Castle Pines North #27	5.22
	<b>Total Acreage</b>	<b>33.42</b>

These tracts present a significant risk to the neighborhood.

- Tract AA is upwind of the neighborhood; winds typically are from the southwest and west. It also slopes upward to homes. Fire typically burns faster uphill than downhill because it dries and heats fuels above the main fire.
- Tract E features horizontally and vertically dense groves of Gambel oak, which is volatile throughout the year. Low- and moderate-intensity wildfires in the grass ecosystem here could climb easily into the oak canopy and transform into a high-intensity wildfire. Once the oak canopy ignites, it can generate significant embers capable of landing within Esperanza as well as within other neighborhoods downwind of the wildfire.
- Tract DD also is below the neighborhood. Wildfires here could burn toward the neighborhood's eastern egress route and potentially block Monarch Boulevard.

The following recommendations from SMFR, which are available in the 2022 Neighborhood Mitigation Planning Guide, apply to these open space areas.

- Cut back Gambel oak along the fence and property lines. The oak-less width between remaining oak trees/shrubs and fence lines should be at least 1 ½ times the remaining oaks' height.
- Within the remaining oak groves throughout that open space, which slopes upward to homes on both side of a gully, thin at least 20% of stems and trunks and remove ladder fuels (low-hanging branches) within six feet of the ground.
- Mow grasses along backyard property lines. A mow strip at least six feet wide (the width of a typical commercial mower deck) will provide a speed bump as wildfires burn from taller grasses into mowed grasses, lowering flame intensity and reducing speed of spread.
- Remove ladder fuels from coniferous trees to protect tree canopies from wildfire. Trim branches within six feet of the ground on mature pines and within three feet of the ground for mature spruces.

There are several options for treating Gambel oak including outright removal, top-kill with mastication and follow-up mowing/trimming new growth, removing ladder fuels, thinning a percentage of stems from groves, restricting the height of oak, and clumping oak into groves. This work can be performed mechanically, chemically, manually, or with goats.

## Infrastructure

- Maintain three feet of clearance around fire hydrants. Mow grasses during the growing season, trim or remove larger vegetation, and clear snow when necessary.
- Mitigation around utility infrastructure should emulate that of residential buildings or fire hydrants.

## Evacuations

It's essential that residents of this neighborhood prepare for evacuations generated by wildfires or other emergencies. The goal of an evacuation is to move civilians safely and quickly out of the way of impending hazards, but poor preparation can result in confusion, injuries, and deaths.

SMFR utilizes messaging and materials from the national Ready, Set, Go campaign to empower residents of its fire district to evacuate safely. The complete guide is available at no cost at [www.southmetro.org](http://www.southmetro.org) and [www.wildlandfirersg.org](http://www.wildlandfirersg.org). SMFR also can provide presentations on evacuation preparedness.

Residents should register for Douglas County's reverse emergency notification system called Code Red to receive emergency information such as pre-evacuation and evacuation notices. Register land lines and cell phones by following the links to the system at [dcsheriff.net](http://dcsheriff.net).

One way to prepare for an evacuation is to practice. Families should give themselves 30 minutes to assemble a go-kit and load their vehicle(s). They also should practice driving to their designated family meeting place, preferably in a different zip code. Families also can use that evacuation drill to practice their communications plan of notifying a family member or friend in a different zip code or region of their status and asking that person to contact other family members.

## Risk Reduction Priorities

Based on this analysis, SMFR offers the following recommendations for EHA:

Priority	General Project	Timeline	Guidance
1	Conduct mitigation on private property based on recommendations above. Open space mitigation is more effective with private property mitigation.	2022	Residents are encouraged to contact SMFR for a free, in-person home wildfire risk assessment to create a written plan as required by local and state regulations. Email <a href="mailto:Einar.Jensen@southmetro.org">Einar.Jensen@southmetro.org</a> to schedule an assessment.

2	Open Space Mitigation	2022	See above
3	Conduct an evacuation drill	2022	Collaborate with SMFR and DCSO to practice evacuating the neighborhood.
4	Provide multiple educational opportunities for large and small groups of residents.		See below

Additionally, SMFR recommends that EHA hosts opportunities (in-person and/or virtual) to educate residents about wildfire risk and preparedness utilizing resources such as those from the Ready, Set, Go project and personnel from SMFR, Colorado State Forest Service, Douglas County, and/or other entities. These subject matter experts can attend meetings and community events, contribute to newsletters and websites, and conduct property risk assessments when requested by residents.

### **Risk Reduction Resources**

SMFR recognizes that wildfire mitigation can be expensive. The following programs may assist homeowners or the HOAs with some of those costs:

- As individuals conduct wildfire mitigation on personal property, a percentage of expenses may be subtracted from state taxable income. The details are outlined in §39-22-104(4)(n), Colorado Revised Statutes and [www.taxcolorado.com](http://www.taxcolorado.com), but the quick version is that the mitigation applies to vegetation rather than structural changes. The total amount of the subtraction may not exceed \$2,500.
- The Douglas County Soil Conservation District may have grants or cost-sharing programs for mitigation projects. Check this website for information: <https://douglasconserves.org/grants/>
- The City of Castle Pines is an essential partner. In the future, it may have funding to assist with grant matching, resources for cost-sharing, and personnel who can write letters of support for projects.
- SMFR personnel are available to write letters of support for projects and provide prescriptions for open space mitigation.

SMFR recommends that this neighborhood mitigation plan be updated regularly to track achievements and adjust priorities.