Neighborhood Mitigation Plan:

Buffalo Ridge HOA

This Neighborhood Mitigation Plan (NMP) is a cooperative effort between the Buffalo Ridge Homeowners Association, 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**

Buffalo Ridge is a small four-home neighborhood at the northwest corner of West Castle Pines Parkway and Buffalo Trail. The homes are on a total of 10 acres immediately east of a Denver Mountain Parks property.

Homes have fire-resistant roofing and exterior siding, but multiple materials for decking: some are ignition-resistant, some are not.

In terms of property governance, residents belong to their informal HOA, 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 municipal water system operated by the Castle Pines North Metro District (CPNMD). CPNMD’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

* Roads in the neighborhood are paved and wide enough for fire apparatus. They are maintained by the City of Castle Pines.
* Ingress and egress are possible both north and south on Buffalo Trail.

Electricity

* CORE provides electrical service to the neighborhood. Electrical lines are buried in the neighborhood.

Natural Gas

* Xcel Energy 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 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 39 (475 W. Happy Canyon Rd). 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. 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.

Topography contributes directly to wildfire risk for these homeowners because they are atop a slope covered in Gambel oak. These homes face higher risk from low-, moderate-, and high-intensity wildfires than other homes because of the impact of slope on wildfire.

Properties have a combination of native and exotic tree, shrub, flower, and ground cover species. Unfortunately, many of the plants chosen for landscaping around homes, along roads, and surrounding other buildings 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.

**Fire History**

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. Only one of the four homes was present then and fire burned Gambel oak south, west, and north of the home.

**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 reluctant to use direct attack tactics against 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 because of the intense heat release and related safety concerns.

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. Structures also can ignite from heat radiating laterally from burning fuels such as junipers and other buildings.
7. 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 a survey of the neighborhood in May 2022 to determine recommendations for the neighborhood collectively and individual property owners. 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 the 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.
* Minimize vegetation growing along wood fences that connect to homes. Wood fencing can act like a fuse and lead flames to homes.
* Replace junipers and other flammable shrubs and groundcover within 30 feet of buildings with native wildfire-resistant species including the following options:

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| **Fire-Resistant Groundcovers** |  |   |
| **Common Name** | **Watering** | **Lighting** |
| 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 |

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| **Fire-Resistant Low Shrubs** |   |   |
| **Common Name** | **Watering** | **Lighting** |
| 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 |

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| **Fire-Resistant Large Shrubs and Trees** |   |   |
| **Common Name** | **Watering** | **Lighting** |
| American wild plum | Medium | Partly Shaded |
| 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. 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.

**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://www.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 receive inquiries from other family members.

**Risk Reduction Priorities**

Based on this analysis, SMFR offers the following recommendations for Castle Pines North II HOA:

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| **Priority** | **General Project** | **Timeline** | **Guidance** |
| 1 | Conduct mitigation on private property based on recommendations above.  | 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 Einar.Jensen@southmetro.org to schedule an assessment. |
| 2 | Conduct an evacuation drill | 2022 | Collaborate with SMFR and DCSO to practice evacuating the neighborhood. |
| 3 | Provide multiple educational opportunities for large and small groups of residents. |  | See below |

Additionally, SMFR recommends that these HOAs host 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 Colorado State Forest Service may have cost-reimbursement or similar programs to offset part of your expenses for mitigation. The Franktown District Office covers our area. Contact its knowledgeable personnel at CSFS\_Franktown@mail.colostate.edu or 303-660-9625.
* 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.