

KEN-CARYL RANCH COMMUNITY WILDFIRE MITIGATION PLAN



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1. INTRODUCTION

This Community Wildfire Mitigation Plan (Plan) has been prepared for the Ken-Caryl Ranch communities located west of C-470 and the Dakota Hogback geologic formation. The “North Ranch” and “Valley” communities of Ken-Caryl Ranch are located between the Dakota Hogback on the east, and the foothills of the Front Range to the west. These areas are considered part of the “wildland-urban interface” (WUI) in Jefferson County. The “Plains” community and the Industrial District of Ken-Caryl Ranch, located east of C-470, are not addressed in this Plan, as the character and exposure, wildfire hazards, and mitigation needs are greatly different and more like an “urban” setting.



This Plan replaces the “Open Space Fuels Management Plan” developed in 2008 by Walsh Environmental under contract to Ken-Caryl Ranch Open Space. That plan included: many activities that were not specifically under the control of Ken-Caryl Ranch Open Space; did not provide for additional or new activities to be identified and implemented; and did not address planning and mitigation that would involve the entire community. The specific wildfire mitigation activities (specifically fuels treatments) on Ken-Caryl Ranch Open Space (KCROS) lands have been included in the most recent revision (2015) of the KCROS Forest Management Plan (FMP). This Community Wildfire Mitigation Plan will include the relevant concepts and information in the 2008 Fuels Management Plan that apply to, as well as current information and proposals to protect, the entire community.

This Community Wildfire Mitigation Plan should be reviewed and updated annually by the Ken-Caryl Ranch Community, to determine progress on addressing wildfire hazards and new issues or opportunities that have become known since the last plan update.

2. ENVIRONMENTAL CONDITIONS

The elevation of the community in this Plan is approximately 6,000 to 6,700 feet. Soils are moderately deep to deep, with textures from sandy to clay loam, and generally have moderate erosion potential. The climate is semi-arid with dry summers and mild winters, averaging 15 inches of precipitation annually. The average annual snowfall is 60 inches, with the most typically occurring in March (averaging 15 inches). The average daily high temperature in January is 30 F degrees, while the average daily high in July is 86 F degrees.

Natural vegetation within the area covered by this Plan is predominantly native grasslands, with shrubs and trees occurring along drainages, streams, and slopes of the Dakota hogback formation. Grasses includes species such as smooth broome (a non-native), crested wheatgrass, orchard grass, wildrye, Timothy grass, and Kentucky bluegrass. Shrubs include Gambel oak, skunkbush, mountain mahogany, rabbitbrush, and several types of willow along streams.



Cottonwood (plains and some narrowleaf) and willow trees occur along streams and ponds. Russian olive (a non-native, invasive species) is found in some areas of otherwise native vegetation, and probably is present to the current extent due to escape from residential landscaping. Ponderosa pine and Rocky Mountain juniper are found occasionally, especially in the areas along the Dakota Hogback. KCROS lands are found as various parks and greenbelts that help divide community's various neighborhoods, and surrounding the community's boundary on all sides. Most of the community does not directly adjoin native vegetation, except where houses or community buildings lie next to the parks, green belts or greater areas of open space.

Around the community infrastructure and resources (both private residences and Ken-Caryl facilities), there are various amounts of landscaping typical of urban areas. Irrigated grass lawns are common, with varying amounts of both evergreen and deciduous shrubs and trees both in the lawns and in designed planting areas. Planting areas have a range of ground cover and weed control, including potentially flammable materials of wood chips and bark mulch. Trees and shrubs are maintained in various conditions by the homeowners. Firewood storage occurs in and around various residences, as determined by residents' preferences.

3. OTHER COMMUNITY PLANS

In September 2006, a Community Wildfire Protection Plan (CWPP) was completed by the Jefferson County Sheriff's Office for the portion of the West Metro Fire Protection District located west of C-470. This CWPP covered seven communities, including Ken-Caryl Ranch. The CWPP was developed to evaluate community wildfire risk, and to recommend activities to reduce risk through hazardous fuels management and other mitigation actions. The West Metro CWPP found that Ken-Caryl's North Ranch and Valley communities were a moderate risk for wildfires, primarily because of grass and shrubs fuels near to structures. General recommendations for wildfire mitigation activities were included within the CWPP, particularly the creation of "defensible space" around private homes and community fuelbreaks. Implementation of the CWPP's recommendations is voluntary, and normally occurs when a community takes on the responsibility for accomplishing the needed activities.

Ken-Caryl Ranch Open Space has a Forest Management Plan (FMP) for its lands located west of the North Ranch and Valley communities. The FMP was originally prepared by the Colorado State Forest Service in 2006, and contained recommendations for fuelbreaks and forest management activities within the northwest portion of the Open Space lands. KCROS implemented several of these recommended activities over the past 9 years, but did not complete all the originally

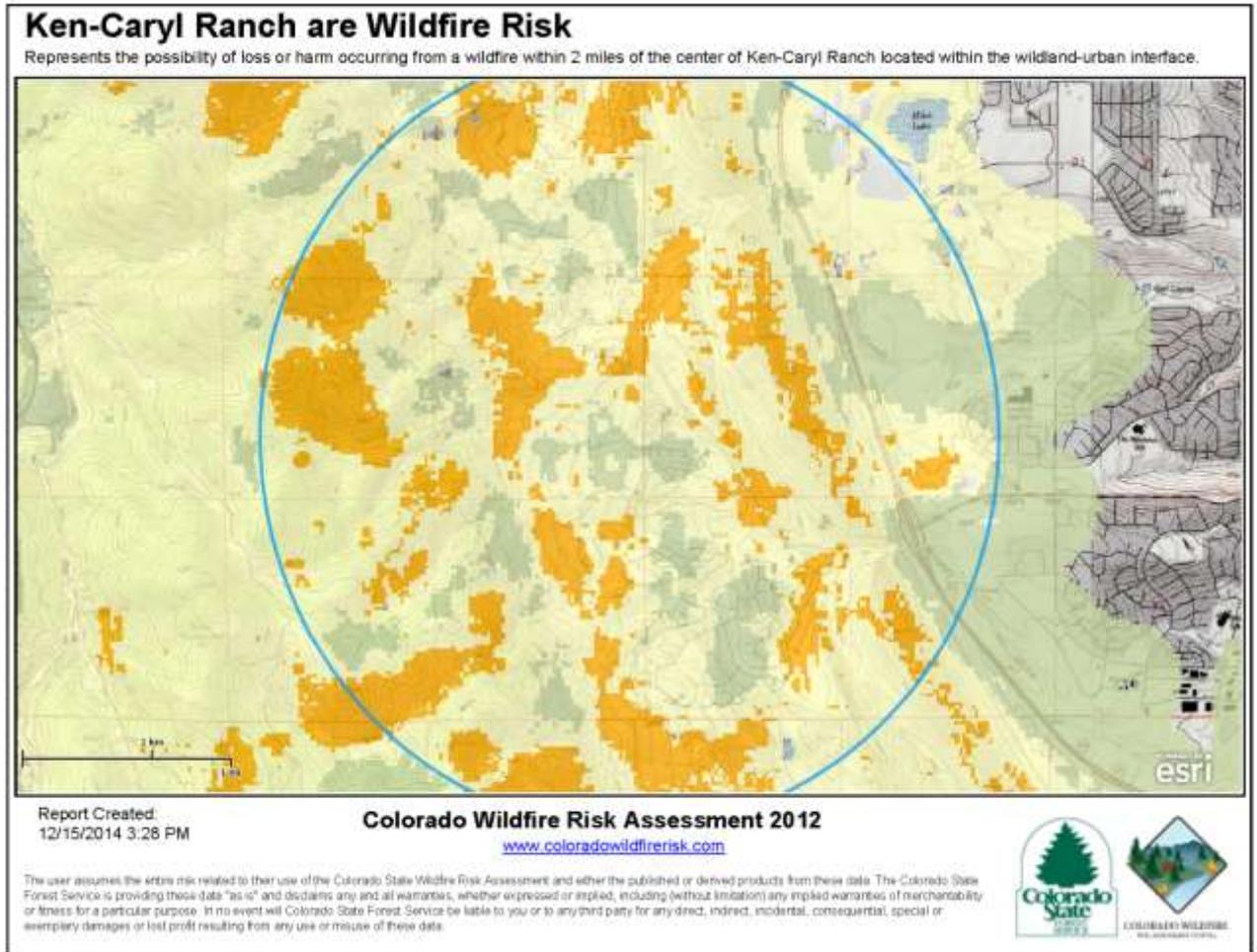


planned areas. The FMP was revised in 2015 to update the vegetation conditions, progress of the previous management activities, and to develop an updated set of recommended projects. Included in the updated list of recommended projects are: maintenance and expansion of fuelbreaks in the northwest portion of the Open Space; continued maintenance of currently mown fuelbreaks along trails and roads on Open Space lands around the North Ranch and Valley communities; and removal of other native fuels within greenbelts as needed during routine maintenance activities.

4. WILDFIRE RISK ASSESSMENTS

The West Metro CWPP found that Ken-Caryl's North Ranch and Valley communities were at moderate risk for wildfires, primarily because of grass and shrubs fuels near to structures. This analysis was very broad, and used the best available data at that time (2006). The 2006 and 2015

Forest Management Plans for KCROS also analyzed wildfire hazard, but focused primarily on Open Space lands located west of the North Ranch and Valley community areas. Wildfire hazard adjacent to these communities was generally low to moderate, based upon the primary fuels of native grasses and shallow slopes leading downhill to the community.



Increased awareness of wildfire hazards and the need for active mitigation has led to advanced means of analyzing these hazards relative to the communities and homes within the wildland-urban interface. The Colorado Wildfire Risk Analysis Program (CO-WRAP) provides communities and land managers with opportunities to examine the wildfire hazards specific to their areas, as well as likely mitigation actions that may help protect their values at risk. The complete CO-WRAP report for the Ken-Caryl Ranch community is included in Appendix 5 of the 2015 FMP. A summary of this report's findings indicates that: wildfire risk (threat) is greatest around the structures in the community; fire rates of spread are significant over most of the area due to fuel types and slopes; fire intensity is higher with shrub and forest vegetation types; and most fire activity will be ground or passive canopy fires.

Wildfire Risk



5. WILDFIRE MITIGATION – FUELS MANAGEMENT

Defensible space and Firewise landscaping around private residences and community buildings are the primary fuels management practice that needs to be implemented within the North Ranch and Valley communities of Ken-Caryl Ranch. Defensible space is the creation of an area in which firefighters have the opportunity to safely defend (protect) the structures. Defensible space involves the evaluation and treatment of the existing vegetation around the structure, and reducing the connectivity (and flammability) of the vegetation that can allow a wildfire to reach or impact the structure. Defensible space breaks up fuel continuity, and reduces the overall wildfire hazard, within a community. Defensible space should be created following the current CSFS guidelines found within the publication “Quick Guide Fire 2012-1, Protecting Your Home from Wildfire: Creating Wildfire-Defensible Zones”. This publication is found within the information in Appendix 1 of this plan.

Defensible space reduces vegetation connectivity in both the vertical and horizontal directions. Removing vertical connectivity helps prevent a wildfire from “climbing” the “ladder” fuels from the ground into the tops of shrubs and trees. Fire behavior becomes enhanced as entire shrubs and trees are on fire, and becomes difficult for firefighters to defend without specialized resources like aircraft and heavy equipment. Removing the horizontal connectivity helps slow or prevent the spread of wildfire across the landscape and through the fuels towards the structure.



Changing the flammability of vegetation is typically done by replacing existing plants or ground cover with less hazardous species. This is known as Firewise landscaping, and can be easily accomplished by considering the recommended lists of plants and grass seed mixes for Colorado. Another means of reducing flammability of vegetation is to reduce or eliminate the life stages or

conditions of plants that are more hazardous – such as the dead or dormant conditions of plants. This means cutting and removing dead stems and branches of shrubs and trees, and mowing and removing (or mulching) dormant or standing dead grass. In the case of irrigated landscaping, maintaining a regular series of appropriate watering will be useful in keeping vegetation from becoming overly dry during the growing season. In general, deciduous trees and shrubs are considered less flammable than evergreen (conifer) trees, shrubs, and ground cover plants. A non-native and invasive grass, cheatgrass, is common in many parts of the western United States – and is extremely hazardous when it has finished growing each summer. If this plant occurs on private or Open Space lands, it should be immediately controlled to reduce wildfire hazard and prevent its competition with native plants.

One other aspect of Firewise landscaping is the removal or replacement of flammable ground covers such as bark mulch. Alternative types of ground cover, such as decorative rock, can be substituted around plants. In all cases, decorative rock should be used as a border around the walls, decks, or other exposures of structures that may be affected by fire spreading along the ground or by cinders falling in advance of a wildfire. Current information concerning Firewise plant materials and landscaping can be found in the information within Appendix 1. Landowners who implement wildfire mitigation measures in wildland-urban interface areas may also qualify for a subtraction under Colorado taxes. Current information is included within Appendix 1.



Under the CSFS guidelines found in Appendix 1, defensible space is created by looking at three zones around the structure. Since many Ken-Caryl Ranch private properties are not large enough, not all three zones may apply. Zone 1 is found within 30 feet of the structure, and is the area where maximum fuels reduction is needed. It is preferable that no flammable fuels, such as non-irrigated landscaping, be found within this zone. No trees, especially conifers, should have branches overhanging or within 10 feet of the structure. Isolated conifer trees can be located within this zone, if they do not connect to the structure or other conifer trees (by at least a 10 foot gap). No flammable plant materials should be growing underneath trees or large shrubs, and lower branches of conifer trees need to be pruned up to 10 feet or 1/3 the height of the tree (whichever is less). Landscaping needs to be maintained to avoid having vegetation connecting to the structure, and to remove all dead or decadent plant

material seasonally or annually.

Zone 2 is found from 30-100 feet of the structure, and the distance should be extended downhill more than 100 feet on steep slopes and in heavy vegetation. Again, on many Ken-Caryl Ranch private properties the distance of this zone will be limited by the property line with adjacent private property or open space. In this zone, conifer trees can occur as single trees or small groups within the landscaping with a preferred distance of 10 feet between the crowns. Ladder fuels are still controlled by pruning of lower conifer branches and avoiding having plants growing under large shrubs and trees. Mulches should not be of flammable materials, but may utilize non-rock materials if the plants that occur within them are not conifers, or the landscape areas do not directly affect Zone 1.



Zone 3 is generally considered the remainder of a property beyond the 100+ foot distance of Zone 2. The recommendations for this Zone are to continue the fuel treatments (thinning and ladder fuels removal) from Zone 2 outward as possible for the landowner. Distances between tree crowns can be somewhat decreased, and pruning of lower branches reduced to 6-8 feet height. In the case of the Ken-Caryl Ranch community, this will probably only apply to defensible space being created around community structures that have sufficient open space lands to work with. The needed distances and fuel treatments will need to be assessed

based upon each structure's location, area to work in, and available funding and resources.

Ken-Caryl Ranch has a policy allowing private landowners to treat the natural fuels immediately adjacent to their properties. This policy allows these landowners to mow native grasses on Open Space to a width of 4 (four) feet along their property line. This amount of fuels modification is adequate for the expected fire behavior in the grasses and vegetation found on Open Space lands, especially if the private landowners have implemented defensible space and Firewise landscaping activities on their



own properties. Private landowners who want to implement this policy need to contact the KCROS Ranger staff for approval. Landowners who feel that additional fuels treatments on Open Space land adjoining their property need to request a wildfire hazard assessment through the KCROS Ranger staff. This assessment will determine if the mowed buffer should be expanded or any additional mitigation work may be appropriate on Open Space land.



6. WILDFIRE MITIGATION – STRUCTURE IGNITABILITY

Reducing structural ignitability is the other primary wildfire mitigation activity that needs to be implemented within the North Ranch and Valley communities of Ken-Caryl Ranch. Many of these activities should occur at the same time and in the same locations as the defensible space treatments outlined in the previous section. In fact, addressing structural ignitability is considered a component of the current CSFS guidelines found in the publication, Quick Guide 2012-1, Creating Wildfire Defensible Space (Appendix 1). There are many basic and routine maintenance activities that can significantly reduce the risk of structural ignitability, before most costly and extensive activities to change the materials or design of current buildings should be considered.



Maintenance activities to remove flammable fuels from on and around structures is a high priority. Cleaning out gutters annually, or seasonally, will prevent dead leaves or conifer needles from accumulating and becoming a fire hazard from embers falling in advance or a wildfire. Likewise, regularly removing dead leaves and especially conifer needles from roofs will also reduce this risk. Leaves, needles, and other dead plant materials should be cleaned out from under decks and around the walls of structures. Firewood for use in private residences or community buildings should be stored away from the structures, at

least 30 feet in distance if possible and preferably within an enclosed structure that will prevent embers or direct flame contact. Building materials should be stored away from structures in a similar fashion as firewood. Furniture (especially with seat cushions) and other flammable items should be kept off decks and away from structures, at least during periods of higher fire danger.

Modifications of structures' building materials and design is best accomplished during initial construction or when significant remodeling or additions are planned. However, minor modifications or changes to structures can be made easily. Information concerning Firewise construction details and materials are available from a number of sources, including within the current CSFS publications found in Appendix 1. Areas of concern for structural ignitability include: enclosing building eaves and proper screens for vents; screening or enclosing under decks; design and fire resistant materials for decks; and removal of any non Class A roofing materials (particularly wood shakes).

Jefferson County land use regulations (LDRs) address the creation of defensible space for new homes or additions of greater than 400 square feet in the "Wildland Hazard Overlay Zone", and for certain types of structure construction like roofing materials. These LDRs can be useful as guidelines to ensure that Ken-Caryl Ranch community standards (codes, covenants, etc) adequately address wildfire hazard in the North Ranch and Valley areas. The Ken-Caryl Ranch Master Association should review the LDRs and community standards or requirements, and update the community standards periodically to meet or exceed the current county (and recommended) standards for structures.

7. WILDFIRE MITIGATION – COMMUNITY OUTREACH AND EDUCATION



Homes burn in the Mountain Shadows neighborhood during the Waldo Canyon fire on June 26, 2012. Photo credit: AP/Wide World

Participation of private landowners in a community mitigation program is essential for a complete treatment of fuels. There are examples of wildland-urban interface fires in dense, "urban" communities, where significant loss of residences occurred from the combination of natural vegetation, man-made fuels, and structural ignitions. A recent and relevant example of this occurred in June, 2012 during the Waldo Canyon fire in the western edge of Colorado Springs. Wildfire spread from natural vegetation into subdivisions, and then spread from house to house as both vegetation and structures ignited. Mitigation measures can help reduce the initial ignition and potential spread within dense communities – the Colorado Springs Fire Department estimated that on 40 of the 1,400 homes in the Mountain Shadows neighborhood had mitigation activities completed at the time of this fire.

Homeowners should be encouraged to create defensible space around their residences, and work with their neighbors on common fuel issues. Homeowners need to be educated about wildfire mitigation activities occurring on Open Space lands, and how they can mitigate along their property lines. The community should receive information concerning Firewise landscaping and structural design and materials. The community needs to be educated about the historical role of fire in western grasslands and forests, and that Ken-Caryl Ranch is located in a fire-prone ecosystem.

Outreach and education efforts for Ken-Caryl Ranch could occur through various methods, including:

- Information distributed through homeowner association mailings
- Articles in Ken-Caryl community publications
- Posting information and articles on the Ken-Caryl Ranch Open Space and Master Association websites
- Having Firewise and CSFS literature available at various community locations
- Presentations at community meetings and events
- Participation in nationally promoted events, like the annual National Wildfire Preparedness Day usually held in early May



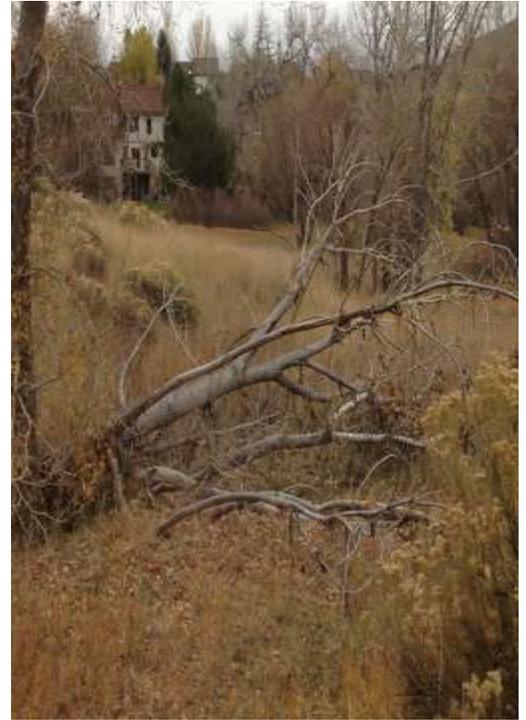
As part of its outreach and education efforts, Ken-Caryl Ranch should consider applying for designation as a Firewise Community. This national designation recognizes those communities that have taken measures to address wildfire hazard in a comprehensive manner, and raises awareness within the community of the need to continue working on wildfire mitigation. In Colorado in 2014, only 100 communities (ranging from neighborhoods to incorporated towns) had achieved this recognition. To receive Firewise designation, a community must complete the following standards:

- Complete a community assessment and create a plan
- Form a Firewise Board
- Hold an annual Firewise Day event
- Invest a minimum of \$2 per capita in local wildfire mitigation projects (volunteer hours, equipment use, time contributed by agency/community staff, and grant funding can be included)
- Submit an application, and renew it annually

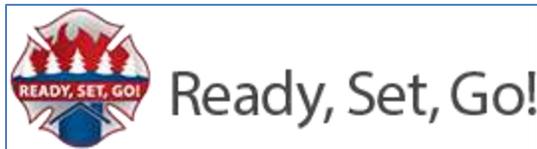
8. WILDFIRE MITIGATION – COMMUNITY ACTIVITIES

As a result of successful outreach and education, Ken-Caryl Ranch could consider developing community activities to implement and support wildfire mitigation. Possible activities that may be applicable could include:

- Community clean-up days, where residents bring hazardous fuels from their properties to a central location for removal or conversion to a usable product (like mulch, biomass, etc).
- Community volunteer days to assist KCROS staff in wildfire mitigation work on Open Space lands, or with natural resource management needs like noxious weed control (especially cheatgrass).
- Engaging the community in development of possible grant proposals and applications for funding to support wildfire mitigation activities. Grants may be available from a variety of sources, to support fuels reduction, educational activities and information distribution, and improving protection of structures.
- Invite the community to be involved with the updates of the West Metro Community Wildfire Protection Plan (CWPP) and other long-term planning efforts affecting Ken-Caryl Ranch, especially through participation on a Firewise Board or other types of workgroups formed for these purposes.



9. WILDFIRE MITIGATION – EMERGENCY PLANNING AND PREPARATION



Ken-Caryl Ranch needs to work with West Metro Fire Rescue in the implementation of the national “Ready, Set, Go” (RSG!) program for the North Ranch and Valley communities. This national program develops awareness and readiness for

residents to be able to respond appropriately to developing wildfires in and around their communities. The RSG! Program tenets help communities be **Ready** with preparedness understanding, be **Set** with situational awareness when fire threatens, and to **Go**, acting early when a fire starts.

When **Ready**, the public is Firewise and take personal responsibility and prepare long before the threat of a wildland fire so their home is ready in case of a fire. Homeowners create defensible space by clearing brush away from the home, use fire-resistant landscaping, and harden their home with fire-safe construction measures. Residents assemble emergency supplies and belongings in a safe place and plan escape routes (personal action plan) and make sure all those residing within the home know the plan of action.

When **Set**, the public has “situational awareness” of the wildfire risk and monitor for wildfires in their areas. Residents pack emergency items and stay aware of the latest news and information on the wildfire from local media, the local fire department and public safety.

And when implementing **Go**, the public acts early! Residents follow their personal wildland fire action plan to support their safety, but to also allow firefighters to best maneuver resources to combat the fire.

Emergency Route planning, and the establishment of “shelter-in-place” sites for Ken-Caryl Ranch should be done in concert with West Metro Fire Rescue and the Jefferson County Sheriff’s Office. This information then needs to be communicated to the communities and residents through the Outreach and Education programs identified in this plan. Identifying these critical emergency measure may also lead to needed fuels treatments on private or Open Space properties, which can then be incorporated into this plan as appropriate and to prioritize needed wildfire mitigation activities.

10. WILDFIRE MITIGATION – CWPP AND LONG-TERM PLANNING

The West Metro CWPP needs to be updated to reflect the current and ongoing wildfire mitigation activities that occur within Ken-Caryl Ranch. KCROS staff, an organized Firewise Board, and Ken-Caryl Ranch community representatives from the North Ranch and Valley community areas, should work with CSFS. These parties can develop updated information to be given to West Metro Fire Rescue and the Jefferson County Sheriff’s Office for updating the portions of the CWPP that apply to Ken-Caryl Ranch. Many of the recommendations and action items within this Community Wildfire Mitigation Plan will be appropriate updates to the CWPP.

Ken-Caryl Ranch should update its Master Association Plan and Open Space Comprehensive Management Plan to reflect the most current wildfire hazard information and the mitigation activities planned for the community.



Long-term, Ken-Caryl should begin the process of becoming a nationally recognized “Fire Adapted Community”. This designation comes from the activities and accomplishments of the community, starting with the Firewise Communities program, the Ready, Set, Go! Program, and using the West Metro Community Wildfire Protection Plan. A Fire Adapted Community (FAC) is located in a wildfire prone area and learning to be fully prepared for wildland fire. As stated in FAC literature, “A fire adapted community incorporates people, buildings, businesses, infrastructure, cultural resources, and natural areas into the effort to prepare for the effects of wildland fire. Community leaders and residents accept responsibility for living in an area with wildfire hazards. They have the knowledge and skills and have adopted tools and behaviors to prepare in advance for their community’s resilience in a wildfire prone environment”. Participating in the FAC network is a means for the community to obtain additional information, access new trends in wildfire mitigation, and learn from other successful communities.



Graphic credit: USDA Forest Service

11. WILDFIRE MITIGATION – ADDITIONAL RESOURCES

Important websites:

Firewise Communities/USA: <http://www.firewise.org>

Fire Adapted Communities: <http://www.fireadapted.org>

Ready, Set, Go! Program: <http://www.wildlandfirersq.org>

Colorado State Forest Service: <http://csfs.colostate.edu>

APPENDIX 1: CSFS AND FIREWISE PUBLICATIONS

Protecting Your Home from Wildfire: Creating Wildfire-Defensible Zones, Quick Guide Fire 2012-1, October 2012.

Fire-Resistant Landscaping, Colorado State University Cooperative Extension, Service In Action sheet 6.303, October 2004.

Firewise Plant Materials, Colorado State University Cooperative Extension, Service In Action sheet 6.305, November, 2003.

Grass Seed Mixes to Reduce Wildfire Hazard, Colorado State University Cooperative Extension, Service In Action sheet 6.306, November, 2001.

Cheatgrass and Wildfire, Colorado State University Cooperative Extension, Service In Action sheet 6.310, May, 2007.

FireWise Construction: Site Design & Building Materials (*based on the 2009 International Wildland-Urban Interface Code*), Colorado State Forest Service, December, 2012.

FYI-Income 65: Wildfire Mitigation Measures Subtraction, Colorado Department of Revenue – Taxpayer Service Division, December, 2013.