Jefferson County Community Wildfire Protection Plan



Jefferson County, Colorado

Prepared by: Jefferson Conservation District, in conjunction with Jefferson County Department of Emergency Management 800 Jefferson County Parkway Golden, CO 80401

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Introduction

This *Community Wildfire Protection Plan* (CWPP) was developed for the Jefferson County with guidance and support from Jefferson County Division of Emergency Management, Colorado State Forest Service and the United States Forest Service. The CWPP was developed according to the guidelines set forth by Healthy Forest Restoration Act (2003) and the Colorado State Forest Service - Minimum Standards for Community Wildfire Protection Plans (November, 2009). This CWPP supplements the Jefferson County Annual Operating Plan and the Jefferson County Fire Plan.

Wildfire Prevention and Fire Loss Mitigation

The Jefferson County Division of Emergency Management, the Jefferson County Fire Council, and the Colorado State Forest Service support and promote Firewise activities as outlined in the Jefferson County Fire Plan.

Protection Capability

Initial response to all fire, medical and associated emergencies is the responsibility of the Fire Protection Districts. Wildland fire responsibilities of local fire departments, Jefferson County, Colorado State Forest Service, United States Forest Service, Bureau of Land Management and the U.S. Fish and Wildlife Service are described in the current *Jefferson County Annual Operating Plan*. All mutual aid agreements, training, equipment, and response are the responsibility of the local fire department and the agencies listed above.

The following agencies have reviewed and agree to this Community Wildfire Protection Plan:

Allen Gallamore Colorado State Forest Service, Golden District

Ted Mink Jefferson County Sheriff

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LIST OF ACROYNMS AND ABBREVIATIONS

AFOP	Annual Fire Operating Plan
BLM	Bureau of Land Management
BTU	British Thermal Unit
CAPCD	Colorado Air Pollution Control Division
CDPHE	Colorado Department of Public Health and Environment
CSFS	Colorado State Forest Service
CWPP	Community Wildfire Protection Plans
ERC	Energy Release Component
FBFM	Fire Behavior Fuel Model
FEMA	Federal Emergency Management Agency
FPD	Fire Protection District
GIS	Geographical Information System
HFRA	Healthy Forests Restoration Act
HOA	Homeowners Association
ICT	Incident Command Team
IMT	Incident Management Team
JFDRS	Jefferson County Fire Danger Rating System
JEFFCO	Jefferson County
mph	miles per hour
NAIP	National Agricultural Imagery Program
NEPA	National Environmental Protection Act
NFDRS	National Fire Danger Rating System
NFPA	National Fire Protection Association
NWCG	National Wildfire Coordinating Group
RAWS	Remote Access Weather Station
USFS	US Forest Service
WFU	Wildland Fire Use
WUI	Wildland-Urban Interface

GLOSSARY OF FIRE BEHAVIOR TERMS

- Aerial Fuels All live and dead vegetation in the forest canopy or above surface fuels, including tree branches, twigs and cones, snags, moss, and high brush.
- Aspect Direction toward which a slope faces.
- **Direct Attack** A method of fire suppression where actions are taken directly along the fire's edge. In direct attack, burning fuel is treated directly, such as by wetting, smothering, or chemically quenching the fire or by physically separating burning from unburned fuel.
- **Chain** A unit of linear measurement equal to 66 feet.
- **Crown Fire** The movement of fire through the crowns of trees or shrubs more or less independently of the surface fire.
- **Dead Fuels** Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.
- **Defensible Space** An area around a structure, either natural or manmade, where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildland fire and the loss to life, property, or resources. In practice, "defensible space" is defined as an area at least 30 feet around a structure that is cleared of flammable brush or vegetation.
- **Fire Behavior** The manner in which a fire reacts to the influences of fuel, weather, and topography.
- **Fire Danger** The broad-scale condition of fuels as influenced by environmental factors.
- **Fire Front** The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified, the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering combustion.
- **Fire Hazard** The presence of ignitable fuel coupled with the influences of terrain and weather.
- **Fire Intensity** A general term relating to the heat energy released by a fire.

- Fire ReturnThe historic frequency that fire burns in a particular area or fuelIntervaltype, without human intervention.
- **Fire Regime** The characterization of fire's role in a particular ecosystem, usually characteristic of particular vegetation, elevation, and climate, and typically a combination of fire return interval and fire intensity (i.e., high frequency low intensity/low frequency high intensity).
- **Fire Risk** The probability that wildfire will start from natural or human-caused ignitions
- **Fire Weather** Weather conditions that influence fire ignition, behavior and suppression.
- **Flaming Front** The zone of a moving fire where combustion is primarily flaming. Behind this flaming zone combustion is primarily glowing. Light fuels typically have a shallow flaming front, whereas heavy fuels have a deeper front.
- **Fuel** Combustible material; includes, vegetation, such as grass, leaves, ground litter, plants, shrubs, and trees that feed a fire. Not all vegetation is acts as available fuel; deciduous vegetation such as aspen can serve as a barrier to fire spread, and many shrubs are only available as fuels when they are dead or drought-stressed.
- **Fuel Loading** The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area, usually as tons per acre.
- **Flame Length** The distance from the base to the tip of the flaming front. Flame length is directly correlated with fire intensity.
- **Fuel Model** Simulated fuel complex (or combination of vegetation types) for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.
- **Fuel Type** An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.
- **Ground Fuel** All combustible materials below the surface litter, including duff, tree or shrub roots, punchy wood, peat, and sawdust that normally support a glowing combustion without flame.

- **Indirect attack** A method of fire suppression where actions are taken some distance from the active edge of the fire due to intensity, terrain, or other factors that make direct attack difficult or undesirable.
- **Intensity** The level of heat radiated from the active flaming front of a fire, measured in BTUs (British Thermal Units) per foot.
- **Ladder Fuels** Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.
- LANDFIRE Landscape Fire and Resource Management Planning Tools; an interagency vegetation, fire, and fuel characteristics mapping program, sponsored by the United States Department of the Interior (DOI) and the United States Department of Agriculture, Forest Service.
- Live Fuels Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.
- **No-Man's Land** Areas that lie outside fire protection district jurisdiction, and are under the jurisdiction of the County Sheriff's Office.

National FireA uniform fire danger rating system that focuses on theDanger Ratingenvironmental factors that control the moisture content of fuels.System (NFDRS)environmental factors that control the moisture content of fuels.

- **Prescribed Fire** Any fire ignited by management actions under certain, predetermined conditions to meet specific objectives related to hazardous fuels or habitat improvement. A written, approved prescribed fire plan must exist, and National Environmental Protection Act (NEPA) requirements must be met, prior to ignition.
- **Rate of Spread** The relative activity of a fire in extending its horizontal dimensions. It is expressed as a rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually it is expressed in chains or acres per hour for a specific period in the fire's history. Sometimes it is expressed as feet per minute; one chain per hour is equal to 1.1 feet per minute.
- **Risk** The probability that a fire will start from natural or human-caused ignition.

- **Surface Fuels** Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branchwood, downed logs, and stumps interspersed with or partially replacing the litter.
- **Topography** Also referred to as "terrain." The physical parameters of the "lay of the land" that influence fire behavior and spread. Key elements are slope (in percent), aspect (the direction a slope faces), elevation, and specific terrain features such as canyons, saddles, "chimneys," and chutes.
- **Wildland Fire** Any fire burning in wildland fuels, including prescribed fire, fire use, and wildfire.
- **Wildfire** A wildland fire that is unwanted and unplanned.

EXECUTIVE SUMMARY

The Community Wildfire Protection Plan (CWPP) is a strategic plan that identifies specific wildland fire risks facing communities and neighborhoods and provides prioritized mitigation recommendations designed to reduce those risks. Once the CWPP is finalized and adopted, it is the responsibility of the community or neighborhood to move forward and implement the action items. This may require further planning at the project level, acquisition of funds, or simply motivating individual homeowners.

This CWPP is not a legal document. There is no legal requirement to implement the recommendations herein. However, treatments on private land may require compliance with county land use codes, building codes, and local covenants. Treatments on public lands will be carried out by appropriate agencies and may be subject to federal, state, and county policies and procedures, such as adherence to the Healthy Forest Restoration Act (HFRA) and National Environmental Protection Act (NEPA).

The HFRA of 2003 provides the impetus for local communities to engage in comprehensive forest and wildfire management planning as well as incentive for public land management agencies to consider CWPP treatment recommendations as they develop their own strategic management plans. The HFRA provides communities with a flexible set of assessment procedures and guidelines that facilitate a collaborative, standardized approach to identify wildfire risks and prioritize mitigation actions. The CWPP addresses such factors as:

- Stakeholder collaboration and engagement
- Risk assessment fuels, historical ignitions, infrastructure, structure ignitability, local resources, and firefighting capability
- Community fire hazard mapping
- Hazard reduction recommendations
- Suggested project prioritization

This CWPP references wildfire hazard descriptions for neighborhoods and subdivisions identified as Wildland-Urban Interface (WUI) zones within Jefferson County. WUI is defined as the area where development abuts undeveloped areas. Intermix areas are more sparsely populated and scattered throughout undeveloped areas, but still form cohesive, homogenous communities. Due to highly dispersed housing density and location combined with limited infrastructure adjacent to large and remote wildland areas, there is high potential for loss of life and property from wildfire. WUI delineations within the County focus on somewhat homogeneous communities that represent a common emergency response area with similar assets, risks, and hazards. This CWPP builds upon existing plans completed for fire protection districts in recent years, and which provide specific hazard assessments and recommendations for individual neighborhoods within those smaller assessment areas. Areas not previously assessed in a fire protection district CWPP have been analyzed with a broad-based GIS analysis for this plan.

Jefferson County encompasses a large portion of the western greater Denver metropolitan area, in the Front Range Foothills of Colorado. It covers approximately 774 square miles, 79 percent of which is covered by wildland fuels. The Clear Creek and Upper South Platte Watersheds are located here, providing the majority of Denver's water supply. Known as "The Gateway to the Rockies", Jefferson County is rich in natural resources, which draw visitors for its exceptional hiking, camping, rock climbing, hunting, and fishing. Expansive viewsheds and open space provide a feel of rural mountain living close to Denver, which is highly valued by the residents here, and has led to rapid development and expansion of the wildland-urban interface here.

Decades of absence of fire and other natural disturbances coupled with years of persistent drought have resulted in dense and weakened timber stands in some areas. This has also negatively affected other vegetation types besides timber that are present within the district. Shrublands have grown dense and resulted in the accumulation of significant amounts of available hazardous surface fuels. In addition, woody species have encroached on areas that were historically characterized by more grass species, altering natural ecosystems. In some areas these ecosystems have gone undisturbed by fire for more than a century. The net result is significant hazardous fuels across various vegetation types within the district and potential for above average fire intensity.

Although extensive fire hazard and fuels mitigation work has been completed throughout the assessment area on public and private lands, there are still ample opportunities for individual landowners to extend and improve upon existing treatment areas and collaborate with local land management agencies for planned projects in the future.

Synthesis of detailed CWPPs that have already been completed, in addition to collaboration with a variety of stakeholders were utilized for data collection, hazard assessments, and formation of treatment recommendations. Jefferson County Division of Emergency Management provides access to the full CWPP report for the public.

Public education, wildfire awareness, and community involvement are important components of any CWPP. Public input was gathered in the form of an online survey, posted for a period of one year. Additionally, information about the CWPP was presented at numerous community events. Safety pamphlets and brochures explaining defensible space, shaded fuelbreaks, proper home construction, and landscaping practices designed to reduce the risk of wildfire loss were also distributed.

Public meetings and community events provide the means to share information about the assessment process and facilitate communication between the core team, non-governmental stakeholders, and other interested parties. Public meetings also provide a collaborative forum through which hazards can be identified, discussed and prioritized. General receptiveness to mitigation recommendations may also be gauged. The community is encouraged to use these opportunities to pursue mitigation projects.

In addition to the larger-scale treatments identified in this report, the most effective wildfire hazard reduction depends largely on the efforts of individual landowners making common sense modifications to their own homes and property. The creation of effective defensible space and the utilization of fire resistant construction materials will significantly reduce the threat to life and property loss in the event of a wildfire. When these common sense practices become the predominant model in a neighborhood the entire community benefits.

The predominant wildfire fuels in Jefferson County are timber understory fuel models. In neighborhood margins that interface with these fuel types, effective hazardous fuel reduction can be as straight forward as establishing and maintaining a defensible space around the home in order to reduce home ignitability. Other priority action items should include:

- Replacing wood shake roofs;
- Utilizing fire resistant building materials for remodels or new construction;
- Implement neighborhood improvement oversight committees; and,
- Fire prevention education.

Familiarization and coordination with the Jefferson County Annual Operating Plan is also recommended. This provides important information concerning county and regional fire operations, policies and procedure definitions. Information may be available through the through the Jefferson County Office of Emergency Management web site: http://jeffco.us/sheriff/sheriff_T62_R191.htm.

The CWPP development process facilitates collaboration among community-based organizations, fire protection authorities, local governments, public land management agencies, and private landowners to identify and prioritize measures to reduce wildfire risk. Maintaining the momentum created by this process is critical to successful implementation and ongoing community wildfire hazard reduction. Responsibility lies with each community, neighborhood, and homeowner association identified in the CWPP to carry the momentum forward.

The following Table ES-2 summarizes the proposed mitigation project schedule for implementing the CWPP.

Year	Project	Actions
		 Contact and organize homeowners
	Annual spring outreach	 Hold educational meeting about defensible space
		Clean roofs and gutters
2011		•Trim limbs and shrubs within 3 to 5 feet of home
	Annual spring/summer	
	mitigation	•Rake and mow yard
		•Assist neighbors
		Organize debris disposal
	Annual spring outreach	Contact and organize homeowners
		 Clean roofs and gutters
2012	Annual spring/summer	-Baka and maw yord
2012	Innigation	•Organize debris disposal
		•Contact and organize nomeowners
0040		 Identify needed improvements to construction
2013	Annual spring outreach	
		•Where possible, coordinate projects between
	mitigation	nomeowner groups who have created detensible
	migaion	Repeat vard maintenance & debris disposal
		Contact and organize homeowners
		•Follow up with landowners who have not completed
	Annual spring outreach	defensible space, offer assistance
		 Complete any outstanding projects from previous
2014		years
	Annual spring/summer	Begin long-term maintenance (as needed, re-trim
	mitigation	shrubs, remove small trees, etc)
		 Initiate construction feature improvements

Table ES-1. Proposed Wildfire Mitigation Project Schedule