Yavapai Communities Wildfire Protection Plan

Revision October 2018

A Collaborative Communities Effort
Directed and Monitored by

Yavapai County Office of Emergency Management

This Page Intentionally Left Blank

TABLE OF CONTENTS

Executive Summary

The original Yavapai Communities Wildfire Protection Plan (YCWPP) was developed in 2004. That plan formalized and expanded the coverage of the Prescott Area collaborative, wildfire fuel reduction, and citizen awareness programs that had been previously initiated and were underway. This original YCWPP was approved by the Arizona State Forester in December 2004. The boundaries for this original plan encompassed a horseshoe shaped area around the Prescott Basin and included 13 Fire Districts. Version 2 of this Plan was distributed in March 2005 with minor updates. The YCWPP Oversight Committee and Technical Support Committee were formed to administer the implementation of this Plan. Memberships of these committees were made up from the following agencies:

Arizona Public Service	AZ State Forestry	Board of Supervisors
Bureau of Land Management	Black Canyon Fire	Central Yavapai Fire
PAWUIC	Chino Valley Fire	Groom Creek Fire
Crown King Fire	Mayer Fire	Peeples Valley Fire
Prescott Fire Wildland Div.	Prescott National Forest	Skull Valley Fire
Southern Yavapai Fire	Southwest Forestry Inc	Verde Valley Fire
Walker Fire	Williamson Valley Fire	Yarnell Fire
Yavapai County Sherriff	Yavapai Indian Tribe	Yavapai County EM
Yavapai College		

Subsequently, requests from other Yavapai County Fire Districts to be included in the YCWPP, as well as recent grassland wildfires in the Southern California area, initiated a vote by the YCWPP Oversight Committee to expand the YCWPP boundaries to include the entire County. This revision of the YCWPP amends, expands, and replaces the original version of the YCWPP. All County communities are included herein for the purposes of wildfire awareness education programs. Now all 15 Arizona Communities at Risk are eligible to apply for grants under the provisions of the Healthy Forest Restoration Act of 2003. However, only Wildland Urban Interface (WUI) communities are eligible to apply for grants under the provisions of the Healthy Forest Restoration Act of 2003. This revision will address all of Yavapai County, not just the Prescott Basin. The YCWPP is a county plan developed by a collaboration of the Prescott Area Wildland/Urban Interface Commission (PAWUIC), Yavapai County, Arizona State Forestry, Prescott Fire Department and Prescott National Forest.

Background

In 1990, the Yavapai County Board of Supervisors, the Prescott Mayor, and City Council passed a joint resolution forming the Prescott Area Wildland/Urban Interface Commission (PAWUIC). This Commission is a collaborative group of volunteer citizens and cooperating agencies – USDA Forest Service, Arizona State Forestry Division, Yavapai County Office of Emergency Management, City of Prescott Fire Department, Central Yavapai County Fire District (now Central Arizona Fire and Medical Authority), Groom Creek Fire District, and Yavapai-Prescott Indian Tribe – with the mission of identifying, developing, and implementing wildland/urban interface defensible space and citizen fire safety awareness programs for "at risk" communities in the Prescott Area.

The original Interagency Fire and Emergency Management Group, (IFEMG) became Prescott Basin Ops and is now a subcommittee of the Yavapai Fire Chiefs Association (YFCA). The Basin Ops group is collaborates with PAWUIC. Members of this Group include representatives from Prescott National Forest Fire Management, Bureau of Land Management, Arizona State Forestry Division, Yavapai County Office of Emergency Management, PAWUIC, and five Fire Districts/Departments in the Prescott Area. Community Wildfire Protection Planning and Implementation has been actively in progress in the Prescott Basin through this Group.

The original IFEMG members defined the original YCWPP boundaries by analysis of the contiguous hazardous fuel, combustible vegetation conditions, and "at risk" communities surrounding the Prescott Basin. This Basin is located in Central Arizona, immediately south of the City of Prescott. (Map: 2).

Originally, seven Management Areas were identified within the Plan Boundaries. These Management Areas facilitated the risk assessments and prioritizing of "at risk" mitigation

projects. The Yavapai County Assessor provided demographic information and the County GIS Office has mapped each community/neighborhood/ and camp identified. Risk assessments for each of these areas were performed.

The revised County-wide boundaries add 11 additional Fire Districts and expand the designated Management Areas to 12 (See Appendix 2 and Map 3). PAWUIC continues to cover the more populated Central Area. The Verde Valley Fire Chiefs Association fire districts cover the eastern central Management Area, while Black Canyon City Fire District covers the south eastern Management Area. Crown King and Yarnell Fire separately cover the Southern Areas. The revised YCWPP boundaries (See Map 1) now include over 8125 square miles (5,200,000 acres), 11 incorporated jurisdictions and 16 major communities, with an assessed value of over $22 billion dollars. This revised Plan now includes all 15 Arizona Identified Communities at Risk (See Appendix 6).

Healthy Forest Restoration Act 2003 including revisions and updates.

The Healthy Forest Restoration Act of 2003 (Ref: 1) directed that community wildfire protection plans be developed for at-risk communities. As minimum requirements, these plans need to include:

- Collaboration – A CWPP must be developed "within the context of the collaborative agreements and the guidance established by the Wildland Fire Leadership Council and agreed to by the applicable local government, local fire department, and State agency responsible for forest management, in consultation with interested parties and the Federal land management agencies managing land in the vicinity;
- Prioritized Fuel Reduction – A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment on Federal and non-Federal land that will protect an at-risk community or its essential infrastructure;
- Structural Ignitability – A CWPP must recommend measures to reduce the ignitability of structures throughout the at-risk community.

This YCWPP addresses all of these requirements. Other CWPP's and guidelines (Ref: 2 and 3) were reviewed and used in the development of this Plan. This is an ongoing, continuously changing Plan with the formation of an YCWPP Administrative Oversight Committee to manage the implementation of the Plan, to revise it as accomplishments allow and new conditions dictate. The sponsoring organizations in the various Management Areas seek public and private funding, to assist member communities and Fire Districts to accomplish their priorities for wildfire risk reduction, citizen safety, and community wildfire awareness education.

International Wildland-Urban Interface Code 2012

This Code has been adopted by the City of Prescott.

The objective of this code is to establish minimum regulations consistent with nationally recognized good practices for the safeguarding of life and property. Regulations in this code are intended to mitigate the risk to life and structures from intrusion of fire from wildland fire exposures, fire exposures from adjacent structures, and to mitigate structure fires from spreading to wildland fuels. The extent of this regulation is intended to be tiered commensurate with the relative level of hazard present.

The unrestricted use of property in wildland-urban interface areas is a potential threat to life and property from fire and resulting erosion. Safeguards to prevent the occurrence of fires, and to provide adequate fire-protection facilities to control the spread of fire in wildland-urban interface areas shall be in accordance with this code.

This code shall supplement the jurisdiction's building and fire codes, if such codes have been adopted, to provide for special regulations to mitigate the fire- and life-safety hazards of the wildland-urban interface areas.

Yavapai County Development Services

Utilizes the local fire districts and departments to set policy for Wildland Urban Interface in unincorporated areas in the county.

Prescott Basin Cross Boundary Project (Prescott NF)

The Prescott Basin Cross Boundary Project is located in the central highlands of Arizona and is comprised of 141,156 acres. A combination of drought and the long-term effects of aggressive fire suppression have created an unnatural buildup of brush and tree densities, creating a volatile accumulation of fuel and unhealthy forest conditions. The likelihood of a catastrophic wildfire occurring near the city of Prescott is highly probable. During 2013, the Doce Fire required the evacuation of over 500 homes adjacent to Prescott city limits costing $7 million to suppress. The nearby Yarnell Hill Fire also saw the destruction of over 100 homes and the loss of 19 lives. The 2013 fire season served as an important reminder that the Prescott Basin area is in need of treatments that increase the resiliency of the landscape, reduce extreme fire risk, and improve forest health and diversity that sustains habitats necessary for a variety of wildlife species, including the Mexican spotted owl.
USFS - $650,000; NRCS - $99,000.

Partners: Highlands Center for Natural History; City of Prescott; AZ State Forestry; Prescott Area WUI Commission.

1. Introduction

1.1 Goals and Objectives

This Yavapai Communities Wildfire Protection Plan (YCWPP) has been developed within the guidelines of the Healthy Forest Restoration Act of 2003, as an on-going collaborative process to reduce the risk of wildfire from combustible vegetation that threatens the communities, wildlife, and natural resources. This plan will serve as an active management tool, as well as a consolidated guide to wildfire mitigation.

The goals and objectives of this Plan are to:

1. Establish a cohesive team of community citizens with Federal, State, County, municipal, and tribal representatives to prepare this Plan and provide the resources needed for the on-going monitoring of its implementation.

2. Identify the hazardous, at risk wildfire conditions of the communities and neighborhoods within the 12 Management Areas.

3. Conduct risk assessments and evaluations to prioritize the areas requiring highest hazardous fuel mitigation for the protection of potential losses to life, property, and natural resources from wildfire.

    a. Implement a process to monitor the changing conditions of wildfire risk and citizen action over time.

    b. Develop public awareness and community education programs at all levels on wildfire prevention and defensible space, including building materials.

    c. Define economic utilization and marketing programs to aid in the remediation of the at risk conditions.

    d. Assist in securing funding sources to support the recommended actions by the YCWPP.

1.2 History

Yavapai County, located in the Central Highlands, is the 3rd largest county in Arizona. The County has a wide variety of vegetation types and population densities ranging from grassland and chaparral stands with lower population densities in the west; to timber, chaparral, and juniper stands in the more populous Prescott Basin area; to the mixed hazardous fuel vegetation types in the moderately populated Verde Valley and Black Canyon City areas to the east. The County has many popular youth/adult camps and camping sites, which bring increased transient populations during the fire hazardous summer months.

The City of Prescott, located in the center of the YCWPP boundaries, became the first territorial capital of Arizona in 1864. Mining, ranching, and logging (primarily for use in building construction) were the main industries in this rural area. In 1900, a major fire destroyed most of the wood buildings surrounding the Courthouse Plaza. Prescott was rebuilt and along with the many communities within the Plan boundaries continued to grow and expand into the Wildland Urban Interface (WUI). Today, the population density is in the "tri-city" area of Prescott, Prescott Valley, and Chino Valley. Within the Plan's boundaries, Cherry, Prescott, Walker, Groom Creek and Crown King, Oak Creek and the Yavapai Prescott Tribe Reservation are all on the Federal list of "at risk" communities.

As residents expanded into the wildland/urban interfaces, protection of residents and businesses from catastrophic wildfire became a concern.

In 1990, the devastating "Dude" wildfire in the Payson area prompted the Yavapai County Board of Supervisors, and the Council and Mayor of the City of Prescott to issue a joint resolution that formed the Prescott Area Wildland/Urban Interface Commission (PAWUIC).

The members of the PAWUIC organization are volunteer citizens with the direct support of Federal, State, County, and Municipal Cooperating Agencies.

PAWUIC has been given the mission of identifying, prioritizing, and guiding the management of wildland/urban interface issues in the Prescott Basin area. This Commission is specifically directed to:

- Advise the Cooperating Agencies in matters related to the wildland/urban interface.
- Through public and agency participation identify, develop, prioritize, and address wildland/urban interface issues facing the citizens of the area.

- Promote the development of citizen awareness of wildland/urban interfaces and initiatives.
- Ensure that the public is aware of risks, emergency procedures and evacuation guidelines.
- Assist the public agencies by raising and distributing funds that said agencies will expend on equipment and activities that support Commission objectives.

PAWUIC has over 50 volunteer members with additional active representation from "agency members", Prescott National Forest, Arizona Department of Forestry and Fire Management, Bureau of Land Management, Yavapai County Office of Emergency Management, City of Prescott Fire Department, Central Arizona Fire and Medical Authority, Groom Creek Fire District, and Yavapai-Prescott Indian Tribe.

PAWUIC is a truly, community-oriented, collaborative organization that is focused on Wildland/Urban Interface and Community Wildfire Protection issues. Since the original Plans approval in 2004, PAWUIC has received over 7 million dollars in National Fire Plan matching grants to perform resident defensible space projects in the WUI areas. Both Prescott Fire Department and Central Arizona Fire and Medical Authority have participated in the matching programs. To date over 50% of the residents in the WUI areas have received defensible space treatments from this grant. PAWUIC's Public Education efforts are centered around an annual Wildfire Expo at Prescott's Courthouse Square, the distribution of brochures and other literature, news articles, videos aired on local cable TV and staffs public awareness booths at local events.

Yavapai County brush crews have also participated in the matching grant programs, to keep evacuation routes and road shoulders throughout the interface free of easily ignitable brush. Most of the ignitions in the county occur on the shoulders of roads throughout the Basin.

The Basin Operations Group (formerly known as the IFEMG), has been a valuable partner from the beginning and remain in full support of PAWUIC. The Basin Operations Groups are now organized under a subcommittee within Yavapai Fire Chiefs Association (YFCA).

The Verde Valley Fire Chiefs Association is a non-profit organization comprised of Copper Canyon Fire and Medical Authority, Cottonwood Fire Department, Jerome Fire Department, Sedona Fire District and Verde Valley Fire District. The Yavapai Fire Chiefs Association, (YFCA), is a non-profit organization, modeled after the Verde Valley Fire Chiefs Association. YFCA is comprised of Mayer Fire District, Central Arizona Fire and Medical Authority, Prescott Fire Department, Yarnell Fire District, Williamson Valley Fire District and Crown King Fire District, Seligman Fire District,

Ash Fork Fire District, Wickenburg Fire District, Peeples Valley Fire District, Walker Fire Association, and Fire Team Four /Skull Valley.

The Prescott National Forest is a very active partner of PAWUIC, and the Verde and Western Yavapai Chiefs Association. These collaborative groups will spearhead the development of grant requests for "at risk" communities within Management Area 8 and have the capabilities needed to effectively and efficiently treat their areas. Their communities will, no doubt, achieve Firewise status as have the communities in the Prescott area. Daisy Mountain Fire District in Management Area 9 and the Mayer Fire District which is in Management Area 7 are also "at risk" areas.

1.3 Wildland-Urban Interface and Planning Area Boundaries.

The YCWPP core team, in collaboration with the various Fire Chiefs and Yavapai County GIS personnel, reviewed central and southern Yavapai County topography, Fire District borders, as well as fuel types to determine the outer boundaries for the original Plan. The originally defined area for this Plan was a contiguous U-shaped perimeter around the most densely populated (tri-city) area in this region (Map 2).

The revised outer boundary now encompasses the entire County of Yavapai (Map 1). In order to better control and facilitate the Plan's risk assessment process, remediation priorities, and mitigation implementation, the overall Plan area has been divided into 12 Management Areas. These Management Areas were developed based on change in fuel type and fires district borders. Within each Management Area, the wildland/urban interfaces are defined as communities (separate or standalone residential areas), neighborhoods (adjacent residential areas within a community), camps, tribal, and critical infrastructures (roads, overhead power, telecom sites, railroads, and water/gas utilities). There are over 27 identified cities, towns, and communities within the Plan Boundaries.

1.4 Fire Policies and Programs

- Healthy Forest Restoration Act of 2003
- National Fire Plan and 10-Year Comprehensive Strategy
- Federal Emergency Management Agency Disaster Mitigation Act
- Prescott National Forest Fire Management Plan developed and used by the USDA Prescott National Forest Service
- 2012 Wildland Urban Interface Code and 2006 International Fire Code with local amendments are used by the City of Prescott Fire and Planning Departments.

2. Planning Process

2.1 Methodology

The planning and preparation for developing the YCWPP has followed the "Preparing a Community Wildfire Protection Plan", March 2004 guidelines (Ref: 2) as well as information from the review of other Community Wildfire Protection Plans. This YCWPP uses these guides, but more important it is a work-in-progress action plan that has actually performed several community risk assessments and recommendations as part of the Plan's development. Additionally, this Plan has already had extensive County GIS and assessor maps developed. The following planning methodology constitutes the process:

1. Convene Decision Makers and Involve Agencies – The Yavapai County Office of Emergency Management organization has taken the lead in developing this revised YCWPP. A core team from the YCWPP Oversight Committee and Technical Support Team have been established and the YFCA is participating in the risk assessments, evaluations, and implementation of the revised Plan.

2. Engage Interested Parties – In determining the YCWPP boundaries and Management Areas, interested parties in all communities and fire districts were contacted to agree on the extent of the boundaries. Upon completion of community risk assessments, recommended actions will be communicated to each community and progress updates provided.

3. Establish a Community Base Map – The County GIS and Assessor's Office has developed extensive layers of maps from the overall Plan boundaries down to individual communities, neighborhoods, camps, tribal land, and critical infrastructures. These maps will be used as references for implementing the Plan's priorities and will be updated to show progress achieved.

4. It was determined that the standard definitions and Assessment Form (App: 3) set forth in the "Standard for Protection of Life and Property from Wildfire", 2013 Edition (NFPA 1144) (Ref: 4) would be used for conducting the area risk assessments.

5. Establish Community Priorities and Recommendations – Recommendations for each assessment form will be developed and used to determine recommended priorities within each Management Area.

6. Develop an Action Plan and Assessment Strategy – A mitigation plan and implementation action plan will be developed as well as an on-going monitoring and evaluation process.

7. Finalize Community Wildfire Protection Plan – Community feedback and action plans will be communicated to key community partners and organizations. An Administrative Oversight Team has been formed to monitor the progress of the Plan's implementation and to update the plan's accomplishments.

8. Plan Approval and Implementation – The Plan was reviewed and approved by the participating YFCA organizations. Support letters have been obtained from the government organizations. A citizen's review and awareness process will be provided. The Plan will be submitted to the State and Federal Fire Agencies for endorsement. Upon completion and approval, the Plan's Oversight monitoring and implementation process will commence.

2.2 Partners and Committees.

The core team responsible for coordinating the tasks and documenting this Plan include:

Brandon Van Horn, Yavapai County GIS
Hugh Vallely, Yavapai County Deputy Emergency Manager
Sharlett Smith, Yavapai County Assessor's Office
Ron Sauntman, Yavapai County Emergency Manager

The Yavapai County Office of Emergency Management organization is responsible for overseeing the development and completion of this Plan as well as to establish the on-going implementation and monitoring efforts. Members of this Group are complimented by additional partners to cover the larger YCWPP boundaries, including:

Central Arizona Fire and Medical Authority
Crown King Fire District
Daisy Mountain Fire District
Groom Creek Fire District
Ash Fork Fire District
Mayer Fire District
Peeples Valley Fire District
Prescott Fire Department
Southern Yavapai Fire Department
Wickenburg Fire Department
Walker Fire Association

Seligman Fire District
Cottonwood Fire Department
Copper Canyon Fire and Medical Authority
Sedona Fire District
Jerome Fire Department
Williamson Valley Fire District
Yarnell Fire District
Congress Fire District
University of Arizona Cooperative Extension
Arizona Public Service
Yavapai County Emergency Management
Arizona Department of Forestry and Fire Management
Bureau of Land Management
Coconino National Forest
Kaibab National Forest
Prescott National Forest
Tonto National Forest

2.3 Collaboration and Community Outreach

Based on the natural changes in the Yavapai County wildland topography and fuel types, the YCWPP boundaries were extended beyond the Prescott Basin. Fire Chiefs, Prescott National Forest Officials, BLM Fire Management, and Arizona Department of Forestry and Fire Management were asked to participate in the development and implementation of this revised Plan.

Through the collaboration with the Fire Chiefs, the community risk assessments are be performed, recommendations on wildfire risk and fuel hazard reduction are made to the communities, and actions for reducing hazardous wildfire conditions are implemented. Information about current events can be found at www.regionalinfo-alert.org. Before each fire season, many community events in the Prescott area stress the importance of being prepared and proactive where fire is concerned.

Informational materials are developed to provide other Fire Districts to hold community wildfire awareness meetings. Many neighborhood homeowners associations have presentations to their members by the local fire department or district, Yavapai County Sheriff's Office and Emergency Management

Members of each "at risk" community, within the Plan, are informed of the risk assessments and recommended actions to be taken to reduce wildfire risks in their community/neighborhood. Homeowner Questionnaires (App: 4) are distributed and responses compiled by Management Area.

Additional outreach programs for wildfire awareness and "Firewise" safety are being developed by PAWUIC for both adult and K-12 students.

2.4 County Mapping Assistance

Yavapai County Assessor's Office is assisting the plan project by mapping out the 12 Management Areas of the project and specific areas designated by the Plan boundaries under the direction of Emergency Management.

The Yavapai County GIS Office, working with the State of Arizona and Prescott National Forest GIS departments, has been generating and modifying custom GIS data layers for the YCWPP core team. This has included creating wall size maps for display, which has 3D or Terrain Analysis of the Plan area.

Maps have been generated to show the critical infrastructures within the Plan area, including wells, towers, power stations, pumping stations, and utility lines. Maps have also been developed to show the history of fire ignition points.

The GIS Office assisted in training volunteers to use a GIS computer with software to help create data layers and analysis of the demographic and topographic mapping of the Plan segments.

3. Community Identification and Description

3.1 Planning Area Demographics

The estimated population for Yavapai County/the YCWPP area is 228,168 – (July 2017 Source: U.S. Census Bureau) with the tri-city area of Prescott, Prescott Valley and Chino Valley combined as a major population hub located in the center of the YCWPP boundary. These three cities have an estimated combined population of 98,902 (July 2017 Source: U.S. Census Bureau).

Other larger cities within the YCWPP area include the Verde Valley area, with a population of over 30,000; Sedona with a population of over 12,000; Camp Verde over 11,000 and Cottonwood with a population of over 10,000.

Statistics for each of the Management Areas have been created by the Assessor's Office and are provided in Appendix 1 and 2. The data provided in the breakdown includes: total parcels, total structures, total acres, and total full cash value for each Management Area and other demographics.

The YCWPP boundary was expanded to match the County boundary and now includes all community fire districts. The Yavapai-Prescott Indian Tribe land, the Yavapai Apache Indian Tribe land, scores of Camps, hundreds of communities, and thousands of neighborhoods within communities are within the Plan boundaries. This Plan includes over 93,794 homes, 5507 commercial buildings and 166,523 parcels with an assessed value of over $18 billion. (YC Assessors office report)

Ownership of the land within the expanded YCWPP area is broadly distributed as follows: National Forest –38%, Private – 25%, State Trust –24%, Bureau of Land Management –12%, and the remaining - 1% comprising Tribal, County, and Municipal holdings. (YC Assessors Office).

The Arizona Department of Forestry and Fire Management has identified the following communities within Yavapai County as "at-risk" of wildfires: Black Canyon City, Camp Verde, Cherry, Congress, Cordes Junction, Cottonwood, Crown King, Dewey, Groom Creek, Jerome, Mayer, Mingus Mountain, Mount Union, Mountain Pine Acre, Prescott, Skull Valley, Walker, Wilhoit, Yarnell, and Yavapai-Prescott tribal lands.

The Prescott Basin area is identified by the *Ecological Restoration Institute* of Northern Arizona University as being in "grave danger of catastrophic fire". The area is considered one of the highest interface fire hazards in the Southwest. Cherry, Prescott, Walker, Groom Creek and Crown King, Oak Creek and the

Yavapai-Prescott Tribe Reservation is on the Federal Register of high fire hazard communities. The communities and camps within the Plan boundaries are within highly combustible vegetative conditions ranging from overly dense forests and woodlands to mature chaparral and dry grasslands.

During the fire season, the Prescott Basin population also includes an extraordinarily large number of campers, recreation users and tourists, which often exceeds the permanent population. The Forest Service has estimated that there are also over a thousand homeless that may occupy the WUI.

The established Youth Camps escalate the population at risk by 4,000 to 10,000 weekly. Many communities in the WUI have restricted or limited access roads. The Youth Camps create an added dimension of evacuation concern as the majority of them are without transportation.

The Prescott Basin area experienced a disaster during the 2002 fire season when the *Indian Fire* destroyed 1330 acres of forest and 7 structures.

The fire was largely the result of extreme drought conditions, hot temperatures, low humidity and high winds across extensive and continuous forest fuels.
(Fig. 1, Indian Fire)

In November 2007 the *August* Fire destroyed 640 acres. This fire was located only 10 miles to the south of Prescott and occurred months after the typical fire season.

Sedona and the Village of Oak Creek are other areas which experience increased tourism and recreation activity during the fire season. This area receives an estimated 4 million tourists each year participating in camping, offroad driving and tours, hiking, fishing and other activities.

In June 2006, the *Brins Fire* started to the northeast of Sedona and burned through 4,317 acres of brush, grass, and pine forest. This fire threatened over 400 homes and business within the Sedona and Oak Creek area. The fire occurred within both Yavapai and Coconino counties. The fire started near Brins Mesa in Yavapai and worked its way into Oak Creek Canyon.

(Fig. 2 Brins Fire Sedona)

The Crown King area experienced the *Lane 2 Fire* in June and July of 2008 which consumed 9,629 acres of Ponderosa pine forest with a chaparral understory. This fire threatened the town and forced evacuations of its residents. There were 5 residences, 1 commercial building, and 12 outbuildings destroyed by this fire.

(Fig 3, Lane 2 Fire)

In June 2005, the *Cave Creek Complex Fire* burned 248,310 acres of mixed vegetation within parts of the Tonto, Prescott, and Coconino National Forests. This fire burned from Maricopa County north into Yavapai County and threatened Black Canyon City and the Cordes Lakes communities which are within the expanded YCWPP boundaries.

Interstate 17 is a major travel corridor between southern Arizona north to Flagstaff and passes through the eastern portion of the YCWPP area. Highway 89 is another major travel corridor, connecting to Interstate 40 at Ash Fork and traveling south through Prescott to Wickenburg. Highway 89A is another major travel corridor connecting from Sedona over Mingus Mountain to Prescott. There have been many fire ignitions along these corridors over the years and they will continue to be an ongoing source of high fire risk.

(Figure 4 Gladiator Fire 2012)

The *Gladiator Fire* started: 05/13/2012. The fire location was Crown King; AZ (34.2147N, 112.3336W) the total acres burned was 16,240. Six structures were destroyed. There were eight injuries and no fatalities. The evacuation of the communities of Crown King, Battle Flat, Pine Flat and Turkey Creek areas were ordered and managed by the Yavapai County's Sheriff's Office with the assistance of The American Red Cross and Animal Disaster Services. The *Gladiator Fire* was declared 100% contained on June 13th. More than 1,100 people were involved in fighting this fire. Aside from the six that were destroyed, 392 structures were threatened. Financial cost of this fire estimated at $14 million.


(Figure 5 Doce Fire 2013)

The *Doce Fire* was located approximately 8 miles northwest of Prescott, AZ near Granite Mountain Recreation Area. The *Doce Fire* Started on June 18, 2013, and was reported at 11:30 am that day. The cause was determined to be human and remains under investigation.

Tony Sciacca, the Type I incident commander was shocked at how fast the blaze ran down the northeast side of Granite Mountain toward homes. It grew to 5,000 acres in the first seven hours after it ignited.

Members of a new local Type III team already had built an incident action plan, and that really sped up the transition to the Type I team on the second day. Instead of taking 1-2 days for the transition, it took just 12 hours. It was essential to getting more resources mobilized quickly to save homes.

Evacuations were issued and carried out by the YCSO in the following locations, Granite Basin Homes, Sundown Acres, Old Stage Acres, south half of Mint Creek, and American Ranch. An evacuation center was established at Yavapai College for the evacuees and their pets. Livestock were taken to the Prescott Rodeo Grounds. In the 9,799-acre wilderness area, 6,767-acres were impacted. Firefighters with air support steered it away from homes in the Williamson Valley area after about 460 homes were evacuated there. About 20 homes in the Granite Basin area already were evacuated. Strong air support for hundreds of firefighters was a key element of success.

Structures clearly were in danger of burning when flames hit backyards, and that gave the Doce top priority for national resources because other major fires weren't in that situation at that moment. The Granite Mountain Hotshot crew saved a record-sized alligator juniper from the *Doce Fire* flames by clearing vegetation around it and cutting a fire line. The 14-foot-diameter tree is a co-champion on American Forests' Register of Big Trees for the largest alligator juniper in the country, alongside another juniper on the Prescott National Forest.

(Figure 6 Yarnell Hill Fire 2013)

The *Yarnell Hill Fire*, near the community of Yarnell, Arizona, was a wildfire ignited by lightning at 5:36 p.m. on June 28, 2013. The fire location was on Arizona State Forestry land. Strong winds in the area, reaching more than 22 mph, pushed the fire on June 30 from 300 acres to over 2,000 acres. On that day the fire overran and killed 19 of the Granite Mountain Hotshots. The communities of Peeples Valley and Yarnell were evacuated. The Yavapai County Sheriff's Office reported 127 buildings in Yarnell and two in Peeples Valley had been destroyed. By July 1 the fire had grown to over

8,300 acres. Peeples Valley residents were allowed to return to their homes on July 4 and Yarnell residents on July 8. The fire was declared 100 percent contained on July 10, 2013. The cost of fire suppression was over $5,447,983.00. Over 600 firefighters were engaged in this incident.

(Figure 7 Tenderfoot Fire-Yarnell 2016)

On June 8, 2016 at approximately 3:15 PM, the *Tenderfoot Fire* broke out east of Yarnell, Arizona. Impacting Arizona State Trust Lands, Bureau of Land Management (BLM), and private lands east of Yarnell and Peeples Valley, the fire originated from an unauthorized campfire on BLM land. The Southwest Area Type 2 Incident Management Team reported approximately 4,087 acres were affected and the total cost for the incident was $4,329,953.

After the devastation of the *Yarnell Hill Fire* in 2013, the Yarnell Fire Chief, Ben Palm, established a fuels mitigation team within his department. These fuel reduction efforts assisted firefighters in creating fire breaks saving a large number of homes from being destroyed by the *Tenderfoot Fire*. In 2017 the Arizona Department of Forestry and Fire awarded the Yarnell Fire Department with the 2017 Wildfire Mitigation Award for their "dedication and continual efforts to keep their communities safe" (State Forester Jeff Whitney. 2017).

(Figure 8 Goodwin Fire 2017)

The *Goodwin Fire* was discovered by Prescott National Forest Fire personnel near Pine Flats on June 24, 2017. On July 10th, 2017 it was reported as 100% contained with an estimated cost of $13,993,150. The fire burned a total of 28,518 acres and 5 structures. 7,500 people were evacuated as a result of the fire's threat to areas in Mayer, Spring Valley, and Dewey-Humboldt. Shelters were opened for both evacuees and their pets. A large animal shelter was opened at the Coors Event Center in Prescott Valley, AZ. The fire started locally and grew to require a Type 1 Incident Management Team to lead the suppression efforts.

Flooding later on impacted 122 homes due to the burn areas and loss of vegetation that usually would have lessened the amount of water runoff into Big Bug Creek.

3.2 Topography and Ecosystem Characteristics

The revised YCWPP boundary has been expanded to match the Yavapai County boundary. Within the expanded YCWPP area, the Management Areas are comprised of a wide variety of topography and fuel types which have various levels of hazard conditions. A wide range of vegetative types and geologic landforms are within the YCWPP area. Plant communities, climate, wildlife, geologic factors and recreation use exacerbate the risk to the growing interface population in this complex ecosystem.

At elevations greater than 6000' within the YCWPP area, forested stands are comprised of conifers and deciduous trees. Studies have identified the primary vegetation types in these forested areas as mixed conifer and Ponderosa pine with a chaparral understory. Other vegetation species of the forest include Gambel oak, white oak, Emory oak, Douglas fir, white fir, junipers, and aspen.

The mid-range elevations (4500' - 6500') within the YCWPP area consist of pinyon-juniper woodlands. Primary vegetation within these woodlands is Pinyon pine,

alligator juniper, and shaggy bark juniper. Grass is lightly stocked underneath the trees and moderately stocked in the openings between the trees.

The lower elevations (less than 5000') within the YCWPP area are moderately to heavily stock with chaparral. The chaparral vegetation type is made up of many shrub species including Scrub oak, manzanita, mountain mahogany, and catclaw acacia. Pinyon pine and juniper species may also be interspersed within this vegetation type.

3.3 Socio-Economic Trends

The most significant hazard however, would be to the YCWPP area economy. The Prescott area economies are driven by three major forces – tourism, recreation and retirement. A catastrophic fire in the wildland urban interface surrounding the Prescott Basin would significantly reduce tourism, recreation, and retail revenues.
Negative publicity on the fires would reduce or delay ingress of retirees and related businesses from coming to the area. Subsequently, the devaluation of properties affected or destroyed would affect the area's tax base. The Verde Valley and Black Canyon populations are more ranch and farm type conditions with rural economies.

The decades of injunctions and administrative processing delays that have prevented safer, healthier forest thinning or harvesting of hazardous fuels in the forests and woodlands have also virtually eliminated local wood products/biomass businesses. With all building construction materials and other wood and biomass products being imported into the YCWPP markets. While nearly all value added cut logs are being exported outside the area and all woody biomass is being burned at the roadside or transfer stations; the results are a negative economic cash flow for the forestry/wood products industries in the Plan boundaries

3.4 Growth projections

The County represents one of the fastest growing populations in Arizona. Between 1990 and 2000, the population grew by a remarkable 145.8%. In 2005, the County's population was 205,105. The cities and towns comprise the bulk of the population. All of the communities, incorporated and unincorporated are expected to continue to grow moderately, with Prescott, Prescott Valley, Cottonwood and Sedona projected to post especially high population gains in the coming decades. Based on some of the jurisdictions' past and most recent population data, the projected data may appear inaccurate. This discrepancy is due to higher than expected growth and the projection data source. The US Census Bureau's latest published survey is from the year 2000. Please see Fig. 7 Yavapai County Population Statistics below.

Yavapai County Population, 1990-2040

Jurisdiction	1990	2000	2005	2010	2020	2030	2040
Yavapai County	68,145	167,517	205,105	241,667	305,343	355,462	390,954
Camp Verde	6,243	9,451	10,730	11,407	14,068	16,318	17,884
Chino Valley	4,837	7,835	12,325	10,445	12,771	14,928	16,580
Clarkdale	2,144	3,422	3,680	3,932	4,786	5,531	6,067
Cottonwood	5,918	9,179	10,860	10,749	15,246	19,053	21,706
Dewey-Humboldt	3,640	6,295	4,030	N/A	N/A	N/A	N/A
Jerome	403	329	330	686	772	847	901
Prescott	26,592	33,938	40,770	42,272	49,863	56,472	61,222
Prescott Valley	8,858	23,535	30,575	35,776	46,365	56,427	64,307
Sedona (Coconino & Yavapai)	7,720	10,192	10,935	12,380	14,611	16,546	18,088
Yavapai Apache Reservation	N/A	773	N/A	N/A	N/A	N/A	N/A
Yavapai Prescott Reservation	143	182	N/A	N/A	N/A	N/A	N/A

Note: Figures for 1990, 2000, 2005 from Arizona Dept. of Commerce. Figures for 2010-2040 from AZ DES (projections date from 1997).
Source: Arizona Department of Commerce, May 2003; Arizona Department of Economic Security, February 1997.

(Fig. 9 Yavapai County Population Statistics)

Though most of this projected growth will be outside the immediate WUI within this Plan, there will be continued growth in all the communities in the Plan. The desirable climate, recreation opportunities, and woodlands will continue to draw retirees and second homeowners into the area.

4. Risk Assessment

4.1 Fire Regime and Condition Class

The YCWPP area is characterized by vegetation types evolved and maintained by fire (See Map: 6). Fire started by lightning and native peoples was an integral part of the ecosystems making up the YCWPP area. This ecological setting was likely diverse and productive with a built-in resistance to large scale, devastating fires. Fire regime and condition class are significant because of this history. Fire events are inevitable but their affect is manageable through prevention; namely, removal and modification of vegetation.

The particular effect fire has on vegetation types within the YCWPP area is highly variable and likewise complex. Ecological processes such as seral stage development,

nutrient cycling, fuel accumulation, and water availability are all influenced by fire. Vegetative characteristics such as fuel composition, plant health/vigor, age/size class distribution, and species composition are also influenced by fire.

Vegetation types may be classified by fire regime. The YCWPP area has several natural fire regimes because of the diversity in soil, elevation, aspect, precipitation, and vegetation type. The natural fire regime is the total pattern of fires within the vegetation type that is characteristic of that portion of the area. Factors that make up the natural fire regime include source of ignition, behavior and intensity, size, return interval, and effects. Fire regimes may be described by intensity, effect on vegetation, and frequency.

The Condition Class of a vegetation type for a particular area may be used to define its departure from the natural fire regime. The departure from historical fire frequencies and the level of change from the natural regime are considered along with the likelihood of losing key ecological components to determine the current Condition Class.

- Condition Class 1: Fire regimes are within an historical range and the risk of losing key ecosystem components is low.
- Condition Class 2: Fire regimes have been moderately altered from their historic range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals.
- Condition Class 3: Fire regimes have been significantly altered from their historic range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals.

During the last century natural fire return intervals have been interrupted across most of the YCWPP area. The current fire environment can be characterized by an overgrown complex fuel profile, moderate to steep terrain, poor ground access, increasing percentage of dead standing and downed beetle-killed trees, extended drought climate and a rapidly expanding wildland/urban interface.

Ponderosa Pine: This vegetation type is represented mostly in Management Areas 4, 5, 7, 8 and 12. Ponderosa pine (*Pinus ponderosa*) is the predominant tree species throughout. White fir *(Abies concolor*) and Douglas fir (*Pseudotsuga menziesi*) may be found in association at the higher elevations, while Gambel oak (*Quercus gambelii*), pinyon pine (*Pinus californiarum var. fallax*), shaggy bark juniper (*Juniperus osteosperma*), Alligator juniper (*Juniperus deppeana*) and chaparral species are intermixed to varying degrees. Many Ponderosa pine stands are currently stocked at

moderately high levels with an age class composition characterized as mostly immature with very little in the young and mature components.

The natural fire regime within this vegetation type was probably typical of other western Ponderosa pine forests. This regime can be described as having frequent light surface fires with return intervals of from one to twenty-five years (Covington, 1992; Dieterich, 1988). These fires maintained open and park-like conditions with a grass and forb understory. Burning released nutrients from accumulated woody debris and duff.

The suppression of fire, timber harvesting and historical grazing practices have disrupted this natural fire regime to the extent that current tree stocking is relatively high and associated forest fuels are more continuous. Understory grass and forb stocking is correspondingly low. Also, the absence of fire has allowed the conversion to shade-tolerant species at the higher elevations. These understory species have become ladder fuels, allowing fire to climb from the surface fuels up into the Ponderosa pine overstory. Much of the Ponderosa pine vegetation type is currently in Condition Class 3 which means that fire frequencies have departed from historical frequencies by multiple return intervals. Fire regimes have been significantly altered from the natural range and the risk of losing key ecosystem components is high.

Pinyon-Juniper: This woodland vegetation type is represented in each of the Management Areas to varying degrees. The species that make up this vegetation type include pinyon pine, and numerous junipers (*Juniperus deppeanna, J. monosperma, and J. osteosperma*). In some cases chaparral may be found intermixed and in others grass savannahs are interspersed through the vegetation type. Ponderosa pine and riparian vegetation may be found in some drainage bottoms as well. Pinyon-juniper and pure juniper stands are established at a range of stocking levels with an approximate age class composition as mostly immature and mature with little young component. These immature and mature woodland stands typically have little understory vegetation and ground cover. These stands can be characterized by extensive levels of sheet and gully erosion of the soils. Areas previously chained or sheared with no linked fire support high levels of regeneration.

The natural fire regime within this vegetation type was likely one characterized by infrequent and severe surface fires with return intervals of more than 25 years (Hollenshead, 2001). However, the natural range of this vegetation type was probably more confined than today with much of its current range having been grassland with a significantly different fire regime. The natural range was probably more limited to sites that were relatively protected from frequent fire, such as rock outcrops. When these stands burned under this fire regime there were likely sporadic and isolated crown fires that killed many trees but did not replace the stand (Hollenshead, 2001).

The suppression of fire combined with historical grazing practices has significantly disrupted the natural fire regime of historical grassland areas. Many of these historical grassland areas are now occupied by the pinyon-juniper vegetation type with correspondingly sparse to nonexistent understory vegetation and surface fuels. This current vegetation and fuels condition will not carry the frequent low-intensity surface fires that occurred naturally. The risk of losing key ecosystem components to a fire event is relatively low. The significant loss of the grassland component has already occurred long ago.

Chaparral: This vegetation type is represented in all 12 Management Areas. Predominant species include mountain mahogany (*Cercocarpus montanus*), manzanita (*Arctostaphylos pungens*), silk tassel (*Garrya wrightii*), scrub oak (*Q. turbinella*), emory oak (*Q. emoryi*), and Arizona white oak (*Q. arizonica*). The post-fire resprouting shrubs associated with this vegetation type may include Gambel oak, manzanita, and mountain mahogany, scrub oak and silk tassel. This vegetation type is arranged as large, continuous stands of chaparral interspersed with pine and juniper. A range of stocking levels is represented in this vegetation type with an approximate age class composition as mostly mature, some young, and very little immature. Mature chaparral stands tend to have little in the way of understory vegetation and associated ground cover. Extensive levels of sheet and gully erosion of the soils can occur in these stands.

The natural fire regime within this vegetation type was characterized as severe surface fires combined with crown fires. The return interval was approximately 35 to 40 years (Floyd-Hanna, 1997). These fires served as replacement events in mature stands of chaparral and probably maintained more of a mosaic of age classes across the landscape.

The suppression of fire has moderately altered the natural fire regime in the chaparral vegetation type. Relatively large and continuous stands with little age class or structural diversity now make up much of the chaparral. Most of this type has burned at least once in the last century, which represents a departure by at least one fire return interval. This places the chaparral in Condition Class 2. Fire regimes have been moderately altered from their historic range, and the risk of losing key ecosystem components is considered.

Grassland / Desert Shrub: The grassland vegetation type characterizes minimal portions of all Management Areas. The desert shrub vegetation type characterizes some of the lower elevations of Management Areas 3, 5, 9, and 10. Predominant shrub species include scrub oak, algerita (*Berberis fremontii*), catclaw (*Acacia greggii*), and

mesquite (*Prosopis* spp.) and are typically widely spaced. Predominant grass species can be found in a range of stocking conditions.

The natural fire regime within this vegetation type was characterized as low-intensity surface fires with a return interval of from one to twenty-five years (Hollenshead, 2001). The frequency and nature of these fires probably maintained the grass composition and prevented the establishment of woody vegetation.

The suppression of fire combined with historical grazing practices has significantly disrupted the natural fire regime on some historical grasslands. Many of these areas have evolved into woodlands with a completely different fire regime. Existing grasslands and desert shrub areas have probably not burned as frequently as in the past. However, fire events have occurred in these types and have helped to promote and maintain the grass component. Departure from the natural fire regime is difficult if not impossible to determine. The risk of losing key ecosystem components may be low.

The natural fire regime over much of the YCWPP area has been disrupted. With respect to the fire ecology across the vegetation types within this landscape, the longer the return interval of fire the more severe and larger the fire event. Also, the more acres burned by more numerous fires through time effects the movement towards restoration of the natural fire regime at the landscape level.

4.2 Fuel Hazards

Fuel hazards include combustible vegetation as well as combustible structures and related improvements. Areas of concern are continuous fuels across the landscape except where the wildfire hazard has been reduced due to previous events such as wildfire, prescribed burns, and vegetation modification through thinning and mowing.

Periodic drought can cause stress on the forest vegetation. For example, extended drought periods in 2002 and 2003 created conditions which led to a landscape-level bark beetle outbreak. Most of the trees killed in 2002 and 2003 were not salvaged and resulted in heavy fuel loads in areas affected by that bark beetle outbreak. Since then, bark beetle outbreaks have been limited to small areas of 5-10 trees. However, extended periods of drought are a natural occurrence in Arizona's Central Highlands and subsequent bark beetle outbreaks could occur in the future.

The YCWPP area has been delineated with respect to topographic position (lower slope) and vegetation type (woody versus grass). Essentially all of the vegetation within the area is combustible to varying degrees. Specific characteristics which further define combustibility include: horizontal continuity of the primary fuel layer; vertical continuity between the secondary and primary fuel layers; percent dead

component; amount and distribution of surface fuels; and the amount and distribution of ground fuels. The overall area can be characterized as having excess combustible vegetation arranged in a relatively continuous fashion.

The combustibility of structures is exaggerated primarily by topographic position, architectural design, and construction materials. In general, structure position is a function of lot location and not with respect to proximity of steep slopes or topographic features such as canyons or ridge tops. Similarly, architectural design has not incorporated fire resistive features and often includes numerous ember catch points, exposed decks, open crawl spaces under the floor system, and accommodations for existing vegetation such as trees through the deck and eaves. Construction materials are typically combustible and include non-rated roofing assembly as well as wood siding and decking material. Also, the close proximity and similar condition of numerous outbuildings is common.

A wildland fire risk and hazard severity assessment has been or soon will be completed for each identified community, neighborhood, and camp within the YCWPP area. This assessment methodology has been adopted from the NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2002 Edition (Ref: 4). The methodology is appropriate throughout all vegetation types and is efficiently incorporated with existing techniques and findings. In particular this assessment includes ratings for: means of access; vegetation (fuel models); topography within 300 feet of structures; additional rating factors (topographical features, fire occurrence history, severe fire weather, and separation of adjacent structures); roofing assembly; building construction; available fire protection; and the placement of gas and electric utilities.

4.3 Risk of Ignition and Wildfire Occurrence

The risk of ignition comes from a combination of human-caused and lightning starts. The USFS portion of the YCWPP area alone has averaged approximately 90 fires annually with more than half being started by lightning. Almost 30,000 acres have burned on the Prescott National Forest between the mid 1980's and the mid 1990's. The number of human-caused starts will likely continue to increase as more people are concentrated throughout the YCWPP area.

Concentrations of fire ignition points are often related to human activity such as private property and roadways. These ignitions along with lightning show at least three general areas of concentration within the YCWPP area: west and south of the Prescott area; the Crown King area; and the west slope of Mingus Mountain in Management Area 7 (See Map 3). These areas of highest ignition levels correlate directly to the dense forested lands around Prescott. This summary does not include numerous abandoned campfires subsequently extinguished by fire prevention personnel.

The historical occurrence of wildfires throughout the YCWPP area can be characterized as common as well as increasing in number, size, and severity. The 2002 Indian Fire is one of the more memorable but certainly not unique to the area.

A Rare Event Risk Assessment was conducted for the Prescott National Forest in 2003. The following are excerpts from the fire behavior narrative of this report.

"An extreme fire behavior potential condition exists within your forest. The potential for a wildfire to impact the community of Prescott is matched to our interface problem in Southern California. The current and projected fuel and weather conditions for your 2003 fire season pose a critical threat for fire suppression. The magnitude of your fuel conditions alone are an extreme concern. The mortality of your Manzanita and Ponderosa Pine from Drought is significant."

"A fire growth map (FGM) has been developed to show a fire potential if established to the South of Prescott. Historical weather data has been utilized in conjunction with burning index, spread components, energy release components and projected fuel conditions. The FGM shows the fires potential under very high to extreme fire danger indices."

"The fire growth map displays a fire that will be of high complexity and control. The weather and fuels data utilized are at the low end of the rare and significant event weather window. The FGM also can relate the fire potential on a non-significant rare event day. This is representative to a day with very high to extreme indices. This is validated with the rates of spread and growth potential as in the Indian Fire May 15, 2002."

4.4 Community Values at Risk

Extensive development on private and leased property has evolved into a complex wildland/urban interface throughout the YCWPP area. Community values at risk of a general nature include public safety, aesthetics, and economic viability. At-risk ecological components valued by the communities include soil, water, air, and wildlife habitat.

At-risk private property is delineated throughout the YCWPP area as communities, neighborhoods, and camps. The assessed full cash value of the property making up these categories is approximately $18 billion dollars.

Critical infrastructure is also delineated throughout the YCWPP area and includes specific roadways, railroads, overhead utility transmission lines, water and gas distribution systems, and telecommunications sites.

4.5 Infrastructure Protection Capabilities and Community Preparedness

Infrastructure Protection and Community Preparedness are obviously high priority issues. There are several aspects to capabilities and preparedness.

1. Annually, prior to our high-risk season, both subjects are thoroughly discussed, reviewed, planned for and exercised. The Prescott Basin Operation Plan (Ref: 6) is reviewed and/or updated annually by the Prescott Basin Ops group. This plan streamlines the response to multiple ignition scenarios and specifically defines each agency's responsibilities, lists frequencies and evacuation protocols for maximum response efficiency. Exercises are a key element to protection and preparedness. One such drill was held 12 days prior to the Indian Fire, proved invaluable. The April, 2012 Basin Ops Exercise made working together on the Gladiator Fire in May 2012 a lot easier because lessons learned in the exercise and relationships enhanced during the exercise where essential to the fire response.

2. On the Community Preparedness side, the PAWUIC members host events though out their communities that features wildfire protection information. These events feature wildfire protection information from a multitude of sources, including landscapers, building materials suppliers, insurance companies, first responders and PAWUIC. Over 4000 interface residents attend these events. PAWUIC uses a multi-media approach to the meeting, utilizing radio, newspaper flyers, theatre ads and newspaper articles. These serve to announce the meeting and provide a warning about the ever-present danger, precautions and evacuation information. Brochures, mailers, displays and theatre ads are used year round. Firewise communities are required to hold at least one Firewise Day in order to maintain NFPA Firewise program.

    a. There are twenty six fire agencies operating in the interface. The alliance and interdependence among these agencies is extraordinary as is the techniques used to keep ignitions from becoming catastrophic. Lead by the Prescott National Forest Fire Management Team, very ingenious and innovative techniques have been developed and implemented. Nearly all of the 62 average annual ignitions are held to one-quarter acre or less. Offense, can be the best defense - mitigation activities by the Prescott National Forest, State Forestry, BLM, PAWUIC, Citizens, Homeowner Associations

and a very pro-active electric utility (APS) contribute significantly in protecting against the risk of a catastrophic wildfire.

5. Emergency Management

The Yavapai County Office of Emergency Management (YCOEM) is responsible for Preparedness, Response, Recovery and Mitigation of all emergencies and disasters throughout the County, including wildfire.

(Fig. 10, Public Works Crew- Hazardous Tree Removal)

Emergency Management contacts are maintained for the 33 cities, towns, significant communities and fire districts in the county. Two organizations have been commissioned to specifically address the severe wildfire potential. These organizations are the Yavapai Fire Chiefs Association, (YFCA) and the Verde Valley Fire Chiefs Association (VVFCA). YFCA organizational composition includes members (see complete listing below) from response agencies within the defined interface, Emergency Management and the Prescott Area Wildland Urban Interface Commission. The VVFCA is comprised of the Chiefs of all Fire agencies in the Verde Valley, State Forestry and Emergency Management. The Fire agencies include Black Canyon City Fire Dept. Camp Verde Fire District, Clarkdale Fire District, Cottonwood Fire Dept., Jerome Fire Dept., Mayer Fire District, Sedona Fire District, and Verde Valley Fire District.

These groups collaborate to discuss wildfire issues, determine treatment priorities, apply for grants and conduct drills and exercises. The YFCA also produces an annual "Prescott Basin Wildfire Operations and Evacuation Plan" (Ref: 6). This plan spells out all authorities, responsibilities, communications and procedures that would be associated with the response during a major wildfire. The plan is designed to streamline

operations from initial attack to mop up and evacuations through re-entry, by eliminating "turf wars", politics and any other potential obstruction to the efficient, effective response to a wildfire. An annual copy of the plan will be contained in The Yavapai County Emergency Operations Plan as the Wildfire Annex.

Through the YFCA & VVFCA, Yavapai County maintains partnerships and coordination among the fire, emergency management, land management, and planning professions needed to prepare for and respond to any disaster.

YCOEM writes and updates the Yavapai County Emergency Operations Plan and 24 local Emergency Plans. The plans provide a strong baseline of information to make rapid decisions and connections to fire professionals and strengthen emergency management procedures related to wildfire and protection of citizens, public and private property.

Cooperating Members:

Animal Disaster Services (ADS)
ARES/RACES (Amateur Radio)
Arizona Department of Forestry and Fire Management
Central Arizona Fire & Medical Authority
Chino Valley Police
City of Prescott Police
Town of Prescott Valley Police
Crown King Fire District
Groom Creek Fire District
AMR/Lifeline Ambulance
National Weather Service - Flagstaff
Prescott Area Wildland/Urban Interface Commission
Prescott Fire Department
Prescott Police Department
Prescott National Forest
Yavapai County Office of Emergency Management
Yavapai County Sheriff's Office
Yavapai County Sheriff's Jeep Posse

Verde Valley Fire Chiefs Association Members:

Arizona Department of Forestry and Fire Management
Copper Canyon Fire District
Cottonwood Fire Department
Jerome Fire Department
Sedona Fire District
USFS – Coconino National Forest

USFS - Prescott National Forest
Verde Valley Ambulance
Verde Valley Fire District
Yavapai College
Yavapai County Office of Emergency Management

Yavapai Fire Chiefs Association Members
Prescott Fire Department
Central Arizona Fire & Medical Authority
Seligman Fire District
Ash Fork Fire District
Juniper Woods Fire Department
Mayer Fire District
Crown King Fire District
Groom Creek Fire District
Walker Fire Association
Peeples Valley Fire District
Yarnell Fire District
Congress Fire District
Prescott National Forest
Arizona Department of Forestry and Fire Management
Copper Canyon Fire District
Cottonwood Fire Department
Jerome Fire Department
Sedona Fire District
Verde Valley Ambulance
Verde Valley Fire District
Yavapai County Office of Emergency Management

5.1 YFCA & VVFCA Goals

- To assist in the maintenance of relationships between responding agencies, to achieve a unified, efficient and effective initial attack and response capability.

- To maintain communications and coordinative capabilities to ensure safe, rapid, organized evacuations and re-entries.

- To develop and distribute an annual operations and evacuation plan, prior to each fire season that specifically delineates authorities, responsibilities, communication, notifications, policies and procedures to avoid conflicts, questions, confusion and/or other obstacles that would prevent or diminish agencies from providing the best possible response effort for the citizenry.

5.2 Programs, Projects, and Activities

5.2.1 Disaster Mitigation Act of 2000 (DMA2000)

The Disaster Mitigation Act of 2000 (DMA 2000) (P.L. 106-390), established a new requirement for Local Mitigation Plans and with it opportunities for funding to be able to accomplish projects specified in the plan.

This Community Wildfire Protection Plan, as well as the stand-alone management tool, is a significant annex in the Mitigation Plan. The mitigation plan has undergone a major revision and update in 2017.

5.2.2 Emergency Operations Plan

The County Emergency Operations Plan was implemented in 2015, replacing the Disaster Response Plan. It is available only to authorized personnel. The plan can be reviewed by the public on appointment.

5.2.3 National Incident Management System (NIMS)

The National Interagency Incident Management System (NIIMS) provides a total systems approach for response to all emergencies/ disasters, including fires, floods, earthquakes, hurricanes, tornados, riots, hazardous materials incidents, major power outages, fuel shortages winter storms, and other natural or human-caused incidents. NIIMS includes five major subsystems, which together provide a comprehensive approach to incident management.

Timely compliance with NIMS requirements will be a condition for federal assistance in the form of “grants, contracts and other activities. On the local level, NIMS compliance will consist essentially of employing the Incident Command System (ICS) on emergencies or disasters.

In Yavapai County, insuring that all agencies are familiar with and are implementing the ICS during incidents is not an issue. Standardization is. There are a number of

Incident Command Systems. They all work and are organizationally alike. YCOEM chaired an ICS committee in the past, in an attempt to standardize on one system. The committee met to determine objections and eventually focused on standardization of ICS terminology rather than conversion. This approach was successful and agreed upon by all responding agencies within the county. This solution has also been adopted by NIMS.

5.3 Emergency Notification System

The Sheriff's Office and Prescott Regional Response Center each have an operational Emergency Notification System. These systems enable agencies to send out emergency or warning messages to the entire county, or to specific populations.

The value of this system is that information can be categorized by area and by need. (e.g., citizens in particular location or people with special needs listed in the disaster registry can be targeted.) These systems have a wide range of functions, including phone, tty, tdd, fax, email, pagers, a program call list, can be pre-set for specific zones such as floodplain areas or for specific groups.

The Yavapai County Sheriff's Office has an Emergency Notification System where individuals can register their home phones, cell phones and email addresses on the YCSO website.to receive alerts in the event of an emergency in their areas.

5.4 Access and Functional Needs

County Emergency Management has developed an Access and Functional Needs program. The Program is now managed by the Public Health Department. Access and Functional Needs include elderly, handicapped, disabled, injured, latchkey kids, or anyone without transportation. Each year the data is updated through a media ad campaign. This data is used to identify individuals who may not be able to evacuate or need assistance doing so, or to provide help during extended power outages, etc. Special transportation issues are addressed as well as need for special medications and/or equipment. Information is kept strictly confidential and treated with the utmost sensitivity and is disseminated on a need-to-know basis and only during actual emergencies.

5.5 Grants

PAWUIC and partnering fire districts and departments administer State Fire Assistance Grants (SFA), and Wildland Fire Hazardous Fuel Grants (WFHF). Quarterly reports

and reimbursement submissions, annual and final reports, documentation and coordination efforts are required to sustain the grants.

Homeland Security Grants – YCOEM has applied for, has been awarded and is currently administering 3 Homeland Security grants. The total funding available for these grants is approximately $2.5 million. The purposes of the grants are to provide first responders with communications, detection and personal protection equipment.

State Fire Assistance Grant – PAWUIC applies for and administers this USDA National Fire Plan Grant. The application is made through the Prescott Area Wildland Urban Interface Commission (PAWUIC). 2013 represents the twelfth consecutive application. The applications have been designated top 3 priorities in the state for all twelve years.

Community Emergency Response Team (CERT) – Grants provides funding for the free training of citizens and development of neighborhood emergency response teams. This training enables the neighborhood to provide for itself until professional first responder help becomes available during widespread disaster. The training focuses on Fire Suppression, Disaster First Aid, Light Search and Rescue and Disaster Psychology. The county has appointed a County CERT Coordinator to manage the CERT Programs in Yavapai County

Emergency Response Fund – This is a state grant to Local Emergency Planning Committees (LEPC) to purchase HAZMAT specific equipment for local HAZMAT teams. The County is fortunate to have two fully staffed Class "A" entry teams. The County LEPC applies for this grant to assist the HAZMAT response with supplies and equipment.

Hazard Material Emergency Preparedness – This is a USDOT grant to LEPC's, (which are HAZMAT steering committees within a designated local jurisdiction) to assist with the costs of HAZMAT planning initiatives. Funding has been awarded to the county to develop and update (plans must be updated/reviewed annually) its plans.

Emergency Management Performance – This is a grant that supplements the cost of local emergency management programs. The program has provided over $520,000 in program funding over the last 8 years.

Fuel Reduction and Community Development – This grant was completed with the development of a plan to implement private industry into the fuel reduction equation. Treating property for defensible space is only half of the issue. Finding a use for the

biomass removed from the interface is equally challenging. The grants that have been used to achieve the progress made to date will not last forever. This plan identifies new and existing private industry that can utilize and provide a continuing need for the biomass product, which will also provide the motivation to continue and maintain defensible space treatment without the need to use public funding. This will, of course, benefit the community financially as well.

5.6 Exercises

YCOEM, in cooperation with responding agencies throughout the County, conducts exercises throughout the year. This year's, (2018), exercise's focus is on response and mass casualty issues. The predominant limiting factor to disaster response in the county is medical capacity. The exercises, which are full-scale, are designed for command, field units and EOC's to coordinate and familiarize themselves on procedures for handling an overwhelming number of fatalities and injuries. The decision-making process includes maximum efficient use of local resources combined with requests for mutual aid and outside assistance up to and including activation of state and/or federal resources (Metropolitan Medical Response System (MMRS) and/or Disaster Medical Assistance Team).

Prior to 2002, exercises concentrated on wildfire. On May 3, 2002, a full-scale evacuation exercise was conducted. This exercise proved to be valuable a short time later. On May 15, 2002, the Indian Fire prompted evacuations, including evacuation of some of the areas that were involved in the exercise. 3000 citizens were evacuated without incident. 2003, 2004, 2005, 2006, 2008, 2012, 2013, 2016, and 2017 saw additional wildfires with evacuations. Wildfire/evacuation exercises were deemed unnecessary during those years prior to 2002. Since then we have engaged in the real world application of those plans, often multiple times a year.

5.7 Action Items

YCOEM's main goal is to enhance the existing level of cooperation, communication and mutual aid among jurisdictions and agencies within the county. This has been the "secret" of our successful response to the more than 65 wildfire ignitions experienced annually. YCOEM has been the "common ground" required for the resolution of disputes and/or disagreements. Exercise's and wildfire incidents, which demonstrate the necessity for continued cooperation, are the catalyst to achieving this goal.

Second, YCOEM has established major mitigation goals and will continue the pursuit of grants to achieve them, whether through the Western States Fire Assistance Program, Community Wildfire Protection Program, Homeland Security or other source. Community development, however, is the future. The resolution of defensible space

and biomass removal issues is part of a permanent solution. This is an extremely critical element. The Prescott area economy hinges on tourism and recreation. A blackened forest south of Prescott would result in an economic disaster many times worse than a major catastrophic wildfire.

(Fig. 11 Grinders and Chippers are the mainstay of the areas healthy forest initiatives through grants under ACCA and SFA administered by PAWUIC)

Thirdly, YCOEM is aware that the only true, permanent, effective means of ensuring a fully defensible interface, which would include landscape and building material issues, is through legislation. Just as cities have been protected for over 100 years by the enactment into law of fire and construction codes, sprinkler system requirements, fire hydrants and fire departments; so too, will Wildland Urban Interface fire legislation be necessary to achieve an overall "Firewise" condition, that will enable communities to be truly defensible. While fire will always be a natural component of the interface, this legislation and its impact is the only way to protect against a catastrophic event.

6. Mitigation Plan

6.1 Administrative Oversight

An Administrative Oversight Committee was formed in 2004 to monitor the implementation of this Plan and to assist in seeking funding to support the Plan's recommendations.

This Committee has become PAWUIC under the guidance of its Board of Directors and consists of a collaborative, cross-section of community representatives with Federal, State, and County advisors. The PAWUIC Board works Yavapai County Office of Emergency Management, community leaders, fire district chiefs, homeowner

groups, as well as Forest Service, BLM, State Forestry, and County agencies to evaluate the progress of this Plan's implementation.

An annual review of the Plan's progress updates the Plan and indicates further recommendations for action.

6.2 Strategy for Fuel Hazard Reduction

The YCWPP strategy to reduce fuel hazard is adaptive in design. This process may be described as establishing targets, taking action, measuring results, establishing targets, and continuing to take action. The following strategic components are used in this adaptive management process.

- Implement collaborative projects that accomplish a reduction and modification of combustible vegetation. These projects are characterized as having high fire hazard and high values at risk. Establishing the on-the-ground capability to physically remove and dispose of excess combustible vegetation is an early step in promoting this activity to private land owners. An example of how this strategy was implemented is cooperative efforts of U.S Prescott National Forest, Arizona State Forestry, PAWUIC, and other fuels mitigation crews work with adjacent private land owners. The crew started on the ASFD side of the property boundary and continued their work into the neighborhood at the request of individual property owners. The State and key private citizens used leadership by example to reduce fuel hazard

. (Fig. 12 Private Property Hazard Fuel Reduction)

- Obtain permission from the owner or manager of the vegetation. On federal land this process may be a formal Categorical Exclusion or Environmental Assessment conducted by the USFS. On Arizona State Land the programs are coordinated with the State and District Forestry. On private property this process may be a formal written agreement between the land owner and the Prescott Fire Department. Without permission work cannot be accomplished.

- Support the hierarchical relationship among agencies that accomplish a reduction and modification of combustible vegetation. For example, the USFS will continue to emphasize work activities at the landscape level amongst at risk neighborhoods and communities. An example is the Bradshaw Vegetation Project area south of Prescott. The Groom Creek Fire District has jurisdictional authority within this forested area and will continue to work on private property including the structure and adjacent combustible vegetation.

- Enable private land owners to remove and dispose of excess combustible vegetation. The disincentive for reducing combustibility is often not having the means or the place to take the material. This is often the case even when the private land owner is willing to grant permission. An example of this strategy is providing chipping and disposal service to residents of at risk communities. Yavapai County, and the City of Prescott have chippers and grinders that may facilitate this process. Yavapai County opens it solid waste transfer stations to allow free disposal of slash material each spring. This action compliments the local resources and provides a real time incentive to others.

- Establish and maintain an accomplishment presence in at risk communities and neighborhoods. Private land owners will choose to act for different reasons and at different times. Often local results will demonstrate a desired outcome and serve to influence change. Incremental accomplishments can be made by being highly accessible and capable of doing the necessary work. The former Prescott Basin Fuels Crews worked in approximately forty neighborhoods within the jurisdictional boundaries of Central Arizona Fire and Medical Authority and Prescott Fire Department. Currently the use of contract crews is the main source of work being completed.

6.3 Fuel Reduction and Fire Loss Mitigation

Preventative measures will be applied to combustible vegetation and structures in order to reduce fuel and mitigate the losses from fire. On federal and State lands these measures may be presented as a silvicultural prescription and on private property as a set of recommendations to the land owner.

- Combustible vegetation will be retained so that the primary fuel layer is discontinuous and so that vertical continuity from ladder fuel arrangements is uncommon and isolated. Species variety will be represented by healthy trees, bushes, and cacti. Accumulated surface fuels will be light and grass ground fuels will be moderate.

- In many situations a majority of the woody vegetation will need to be removed in order to reduce fuel loading and modify fuel composition to grass ground fuels. Mechanical approaches include the use of chainsaws and thinning and mowing machines. Disposal options include piling and burning on site, chip and broadcast on site, and removal from site. Maintenance options may include prescribed broadcast burning in the ponderosa pine and grazing goats in the chaparral.

- Establishing and maintaining fire safe access/egress routes is fundamental to life safety and fire protection capabilities. The condition of combustible vegetation within close proximity to these routes may determine their utility in an emergency event. Dead standing trees often pose a hazard as well.

- The area surrounding the structure may be described as "defensible space" or the "home ignition zone" and extends at least one hundred feet in all directions. Adjacent houses and out buildings may be within this area as well as varying amounts and types of native vegetation. This area may be subdivided into zones.

    - Zone 1. 0-15 feet from the edge of the structure. The goal is to reduce a creeping ground fire. Minimize the amount of flammable vegetation and do not allow ladder fuel arrangements. Maintain non-combustible ground material adjacent to the structure such as pathways, planter beds and rock belts. Maintain the area free of accumulated surface fuels such as needles and leaves. Native woody plants should be occasional and only partially within this zone. Limbs of trees should not touch or hang over the structure. Living plants should be free of dead wood and arranged irregularly so that fuel arrangement is discontinuous.

    - Zone 2. 15-50 feet from the structure. The goal is to reduce radiant heat and short-range spotting. Maintain low combustible ground cover and accumulated surface fuels at less than one inch in depth. Minimize and isolate ladder fuel arrangements. Native plants should be free of dead wood, lightly stocked, and irregularly arranged. Space between plants

or groups of plants should be clear of woody vegetation and typically greater than fifteen to twenty feet.

- Zone 3. 50-100 feet from the structure. The goal is to reduce radiant heat and mid-range spotting as well as minimize crown fire. Retain native trees and bushes at combined densities from twenty to seventy per acre. Minimize and isolate ladder fuel arrangements. Maintain accumulated surface fuels at less than one inch in depth.

The combustibility of the structure may be reduced by using fire resistive construction materials for the roof, siding, and deck. Architectural design modifications may include enclosing crawl ways, decks, and eaves.

The proper maintenance of combustibles around the structure may include covered storage of wood piles and maintained out buildings. Utilities should be located underground. Fire safe areas around above ground LPG tanks and overhead power lines should be maintained.

6.4 Education and Community Outreach

An integral part of the YCWPP is the education and community outreach program. Wildfire awareness and residential defensible space are on-going programs by the Prescott National Forest, Prescott Fire Department, Fire Districts, and PAWUIC. These programs include:

Annual Wildfire Expo. Each spring, before the start of fire season, PAWUIC conducts a fire awareness Expo for all residents of the communities. This Expo includes demonstrations/displays by local government agencies and private organizations involved with healthy forest and "Firewise" programs, Forest Service Fire Management representatives, and local community fire management personnel. The purpose for this Expo is to promote community awareness for the fire season and to communicate citizen defensible space and "Firewise" programs available to the community.

County Fair and Community Events. PAWUIC and the Forest Service host booths at the County Fair and special community events throughout the year. These booths provide displays and handout material on wildfire awareness and prevention. The Fire Department/Districts within the YCWPP boundaries conduct similar wildfire awareness programs.

Homeowner Defensible Space Assessments. The Prescott Fire Department and Central Arizona Fire and Medical Authority offer residential defensible space assessments and

remediation programs to homeowners in their jurisdictions. Through a National Fire Plan grant to PAWUIC, these fire organizations offer a variety of defensible space opportunities for homeowners ranging from conducting property assessments to reimbursing homeowners who conduct their own clean up to performing defensible space projects for individual residents. Groom Creek and other Fire Districts within the YCWPP boundaries conduct similar programs.

Homeowner Education Programs. PAWUIC, Forest Service, BLM, and Fire organizations, at the request of local communities and homeowner associations, conduct public wildfire awareness, defensible space, and healthy forest education programs to the local citizens.

Firewise Landscaping. The University of Arizona Cooperative Extension and the Highland Center for Natural History located in Prescott provide publications and courses on "Firewise" Plants and Landscaping.

K-12 Grade Wildfire Education. PAWUIC is developing in cooperation with the local school districts a wildfire awareness program for school children. This program is being directed toward training 5th and 6th grade teachers on protecting homes from wildfires. This uses Learning Tree methods to give students take home materials to share with their parents. A Forest Health and Wildfire Hazard prevention education program is being prepared to distribute to all of the Fire Districts in the county.

Forest Health and Wildfire Prevention Education Program. This education program is being developed as an outreach to the smaller, rural communities in the County. Wildfire awareness and prevention education activities throughout the County will help to reduce the wildfire risk factors and encourage community participation with their Fire Districts.

7. Implementation and Monitoring

7.1 Community Mitigation Priorities

Getting work done where you can provides the practical basis for mitigating fire hazard throughout the YCWPP area. This preventative work requires at least two things: permission; and resources. A high priority is improving the awareness and education of the private property owner. The combustibility of their property is their responsibility. Improved understanding will encourage the property owner to give permission to act. This priority must be supported by the means to get the work done.

The Prescott Basin Fuels Crew is an example of this necessary and integrated capability.

Thousands of private property owners have been provided site-specific recommendations on reducing combustibility. The completed Fire Risk and Hazard Severity Assessment provides the basis for neighborhood and community wide recommendations. This level of assessment focuses on the predominant characteristics within the community, neighborhood, or camp. These recommendations include necessary changes to and maintenance of the structure, removal of excess combustible vegetation, and possible ways to accomplish these tasks. The particular fire service organization in that area provides site-specific mitigation services at the individual lot or group of lots level.

A high priority is establishing and maintaining fire safe critical infrastructure. Particular roads may provide access/egress in emergency events to thousands of individuals. This capability will be influenced by the combustible vegetation along side it. Water and gas distribution systems should not be vulnerable during a fire event. Specific telecommunications sites supporting broadband frequencies function as points of connection along a more extensive system that could be state-wide or regional in extent. High voltage overhead transmission lines may be a more apparent example of a mitigation responsibility that extends past the YCWPP boundary

A high priority is promoting life safety. Those areas of the YCWPP plan area that support residents and visitors are of great importance. Seasonal residents and camp attendees are coincident with the typical fire season. At the community and neighborhood levels relative population densities can be determined from structure densities. The population density of a camp will be reflected at capacity. An example of how this priority can be accomplished is on USFS land currently leased for camp use. Agency administered lands adjacent and in close proximity to private property are also opportunities for promoting life safety.

A high priority is continuing to accomplish work in high fuel and fire hazard areas. Fuel hazard is a relative measure and can be based on standardized vegetation fuel models, condition class, and risk ratings. The typical association of chaparral plants along with overstory oak, juniper, pinyon, and ponderosa pine should be assumed within the woodland and conifer forest vegetation types. These associations may not be reflected in standardized fuel models. The following general relationships will be assumed for undeveloped land as well as for native vegetation within developed communities, neighborhoods, and camps.

	NFDRS		
Vegetation Description	Fuel Model	Condition Class	Fuel Hazard Rating
Grassland	A		Moderate
Desert Shrub	A		Low
Chaparral	B	2	High
Woodland	F		Moderate
Conifer Forest	G	3	High

Fire hazard incorporates associated fire behavior and resistance to control characteristics often times determined topographic features such as steepness of slope and aspect. Historical fire ignitions may be significant depending on the scale of interpretation and the distinction between lightning and human caused. The fire hazard rating for developed property is provided by the standardized assessment methodology.

A methodology is being developed to understand and interpret these combined priorities. An integral component of this methodology is the Geographic Information System (GIS) managed by Yavapai County. This system will support the analysis, evaluation, and reporting of mitigation measures. Each shape file will be georeferenced and described as to its ownership as well as size in acres. Also, specific attribute layers will be used to distinguish land areas within the YCWPP and may be weighted as to their importance. These attributes include critical infrastructure, life safety, permission, and fire hazard.

Combinations of these attribute layers may focus priority areas as well as provide an idea of the scope of work to be accomplished through time.

7.2 Roles and Responsibilities of Stakeholders

To successfully implement this Plan, requires the approval/endorsement of the US Forest Service, BLM, ASFD, Yavapai County, community and fire department/district leaders. Designated representatives from Yavapai County and each Fire District must:

- conduct the risk assessments and establish priorities,
- develop mitigation plans,
- seek funding for implementing reduction of combustible vegetation in the "at risk" WUI areas,
- prepare and conduct community "Firewise" education and awareness programs,
- direct local economic development programs, and
- monitor the on-going maintenance and revisions to the Plan.

Local businesses and citizens must develop "mindsets" to recognize the severity of the wildfire conditions within the boundary area and to support the remediation efforts as set forth within the Plan.

7.3 Plan Reviews and Adoption

The revised YCWPP will be reviewed by each of the participating community Fire Districts as well as Federal, State, and County agencies. Citizens can review the Plan through the regionalinfo-alert.org web site. The Yavapai County Board of Supervisors should adopt the Plan. Each of the participating Fire Districts should sign the Plan. Also, the Forest Service, BLM, and State Forestry Division representatives should submit formal letters of support, acknowledging their on-going participation. Endorsement of this Plan will highlight the collaborative process between community "at risk" fire districts, local government, community-based organizations, and public agencies.

7.4 Funding Needs and Timelines

7.4.1 Challenges

The scope of work that has been identified within this plan obviously represents significant funding requirements for the Prescott National Forest, BLM, ASFD, Yavapai County and PAWUIC. The defined interface of over 8,125 square miles defies logical funding or timeline estimates. The dynamics of change within such a large area, combined with drought, infestations, growth and expansion factors, would render helpless even sophisticated computer technology.

The equation does not get any easier when considering that areas treated today will require treatment again in seven years or less.

7.4.2 Meeting the Challenges

In spite of the seemingly impossible magnitude of the challenges, PAWUIC and its partners are making headway and will continue until the entire goal is met, one project at a time.

Over 7 million dollars in grants have been awarded since the original Plan was approved in 2004, which has resulted in the completion of treatment of more than 50% of the homes in the original interface. This significant achievement will continue to be a motivation to complete and maintain the results achieved.

The Prescott National Forest continues to obtain results on their "Bradshaw Vegetation Project". This ten year project will treat approximately 34,000 acres directly south of the most inhabited area of the interface. This project ties directly into priority treatments

Neither of these conditions is acceptable. Neither is the continued expectancy of grant funding. To overcome these obstacles, this YCWPP conceives of a two prong approach:

A "Fuel Reduction and Community Economic Development" plan was written and put into action. This plan prescribes the development of private enterprise that will use the products available in the forest. The profit derived by harvesting the excess bio-mass produced within the interface annually, will be the motivation to complete our initial goals and sustain them.

The County of Yavapai Supervisors recognize the responsibility of homeowners in the solution to the challenges. Yavapai County Office of Emergency Management and local Fire Districts will continue to use its public education assets, including the public participation aspect of this plan to encourage homeowners to accept that responsibility.

This is not an unreasonable expectation, fire departments, fire hydrants and sprinkler systems are but a few of the fire reduction systems that are in place as a result of legislation. Interface legislation is the next necessary step that our elected leaders must soon take.

7.4.3 The "Bottom Line"

It doesn't take an extraordinary imagination to arrive at the juncture that says it will take a lot of money, forever. In reality, however, that is exactly what it will take to establish and maintain the goals subscribed herein.

The solution is multifaceted and continuous. It literally will be a "living" project, accomplished with grant funds, private industry, litigation, citizen and agency cooperation for the life of the forest.

7.5 Implementation Process

Conceptually, the process is rational, logical and relatively simple. The Process steps are: Assessment, prioritization, funding and completion.

The first step to accomplish the implementation process is to complete the risk assessments. The assessments will be completed for open forest, critical infrastructure, communities, neighborhoods and camps included within the boundaries. These assessments are compiled, and grouped by Management Area and Fire Department/District.

The second step, the prioritization process can be complex and can take on several differing characteristics, based on who has jurisdiction within the Management Area and/or Community being evaluated.

Generally, Prescott National Forest (PNF), areas considered for treatment will be made by their Fire Management Officer. The PNF also has initiated their "Bradshaw Vegetation Project" (See 7.4.2, 4th paragraph).

The Prescott Basin Cross Boundary Project is comprised of 141,156 acres. A combination of drought and the long-term effects of aggressive fire suppression have created an unnatural buildup of brush and tree densities, creating a volatile accumulation of fuel and unhealthy forest conditions. The likelihood of a catastrophic wildfire occurring near the city of Prescott is highly probable. During 2013, the Doce Fire required the evacuation of over 500 homes adjacent to Prescott city limits costing $7 million to suppress. The nearby Yarnell Hill Fire also saw the destruction of over 100 homes and the loss of 19 lives. The 2013 fire season served as an important reminder that the Prescott Basin area is in need of treatments that increase the resiliency of the landscape, reduce extreme fire risk, and improve forest health and diversity that sustains habitats necessary for a variety of wildlife species including the Mexican spotted owl.
FY 2015 funding: USFS - $650,000; NRCS

Residential areas and Critical Infrastructure will be prioritized by the presiding fire agency and/or utility and then coordinated with other agencies to derive where the specific priority ranks within the entire scope of the interface.

Home Owner Associations and/or the Citizenry will also have input into the prioritization process. Assessments are presented to residents of the various assessed locations via the Fire District, homeowner association, or in some cases mail. In addition to assessments, levels of homeowner interest for mitigation are determined.

Fiscal constraints. Once the priorities and levels of opportunity have been established, the next step to performing mitigation planning is determining the funding necessary to accomplish the community wildfire protection tasks. The funding sources and amounts, will ultimately determine the mitigation tasks that will be performed.

Political factors are always the "wild card" in any such process. These elements, instead of being allowed to upend the process, will be expected and included for consideration.

Throughout the implementation efforts, the Administrative Oversight Committee will be documenting the progress and reporting the results. As mitigation efforts are completed in specific areas the risk assessments for these areas will be revised.

7.6 Monitoring and Evaluation

The Oversight Committee will use monitoring to track implementation of activities and to evaluate how well the goals and objectives of the YCWPP are being met over time.

Monitoring is the collection and analysis of information to assist with decision making, to ensure accountability, and to provide the basis for evaluation and learning. It is a continuing function that uses methodical collection of data to provide management and the main stakeholders of an ongoing project or program with early indications of progress and achievement of objectives. Monitoring will also be used to ensure compliance with Federal and State statues.

Each major element of the YCWPP will have monitoring tasks for recommended follow up actions. A summary of these monitoring tasks is as follows:

Evaluation of ongoing YCWPP activities, increased public awareness, and collaboration between partners will strengthen the value and impact of this Plan. The monitoring tasks within the YCWPP specifically address evaluation. The Oversight Committee will administer annual evaluations of the fire planning process and integrate questions about awareness and action into the annual survey administered by the YCWPP Technical Support Committee. The survey findings from these evaluations will be shared with participating communities and fire districts as well as posted on the County web site.

7.7 Change Management – Plan and Priority Updates

Upon formal implementation of this Plan, the Administrative Oversight Committees with develop progress reporting procedures. Quarterly reviews of these progress reports and updates of risk assessments will be performed. Revised mitigation priorities and implementation plans will be prepared. Every year the Oversight Committee will publish YCWPP updates and revisions to the stakeholders and community leaders.

7.8 Summary of Accomplishments to Date

Since the approval of the original YCWPP in 2004, many activities have been accomplished within the YCWPP boundaries. These include:

State Fire Assistance Grants within Prescott Basin-Matching SFA and WFHF grants, totaling greater than 6 million dollars, have been awarded to PAWUIC for their fuel reduction and fire safety efforts. Yavapai County Board of Supervisors also distributes Title III grants to communities when funds are available. It was $170K in 2014

Over 50% of the homes in the interface area have had defensible space work completed. Over 14,000 hazardous trees have been removed and over 250,000 cubic yards of woody biomass has been removed through the efforts of the Prescott Fire Department, Central Arizona Fire and Medical Authority, Arizona State Forestry Wildland Fire Crews, private foresters, County brush crews and tree removal contractors.

The County also contributes to the overall effort through maintenance of the county grinder which is used throughout the county. The maintenance includes parts, supplies, fuel and labor.

Firewise Communities Established-The national Firewise Communities program is a multi-agency effort designed to reach beyond the fire service by involving homeowners, community leaders, planners, developers, and others in the effort to protect people, property, and natural resources from the risk of wildland fire - before a fire starts.

The Firewise Communities approach emphasizes community responsibility for planning in the design of a safe community as well as effective emergency response, and individual responsibility for safer home construction and design, landscaping, and maintenance.

Thirty one plus communities within the YCWPP have achieved “Firewise” status.

Camp Fuel Reduction Efforts-There are approximately 27 youth camps in the Prescott Basin forests. During the summer wildfire season these camps are fully attended. Many of the camps have limited access roads with dense forests surrounding them. In 2005 through the coordination of PAWUIC the camps started offering room and board to the Arizona State Wildland Fire Crews in exchange of their fuel reduction services. The camp directors have been highly satisfied with the services performed and to date 18 camps have been treated.

Prescott Basin Coordinated Agency Wildfire Exercises-Annually all fire and emergency management agencies in the Prescott Basin hold a wildfire exercise. This effort involves coordination and collaboration between all response agencies. In addition, all of the agencies have designated qualified personnel in assembling a local Type 3 team.

Annual Wildfire Education-PAWUIC annually coordinates and sponsors the Wildfire Education in the County as funding is available. This Education is held throughout the year to provide the community with wildfire awareness, education, defensible space, evacuation and safety information. The Firewise communities have annual meetings that lots of the information is conveyed.

Other Community Fuel Reduction Efforts within the YCWPP-All Firewise Communities have participated in their own fuel reduction activities, which protects the flanks of the Basin.

Prescott National Forest Projects-The Bradshaw Vegetation Project is a collaborative operation with the SFA/WFHF grant operations. As SFA/WFHF funded crews treat the priority areas on the private side of the interface, Prescott National Forest personnel are treating land on their side of the interface.

- Hassayampa NEPA Project proposal is complete the project proposal is for 243,630 total acres a large percentage of that total will address wildfire mitigation.

- The Bradshaw Vegetation Management Project will occur within approximately 55,660 acres in an area surrounding the city of Prescott, Arizona to the northwest, west, southwest, south, southeast, and east.

- Agua Fria Grasslands Project Proposed Action: This project is intended to maintain or improve watershed function, vegetation conditions, and natural fire regime to improve wildlife habitat for pronghorn antelope, threatened or endangered fish species, yellow billed cuckoo, and migratory birds. The treatments, which will consist primarily of juniper and shrub thinning and prescribed burning. 89,059 acres

- The Prescott Basin Cross Boundary Project is comprised of 141,156 acres. A combination of drought and the long-term effects of aggressive fire suppression have created an unnatural buildup of brush and tree densities, creating a volatile accumulation of fuel and unhealthy forest conditions.

FY 2015 funding: USFS - $650,000; NRCS

Economic Fuel Reduction Opportunities-Some of the recommendations of the Prescott Basin Fuel Reduction and Economic Development Plan of 2004 were "Develop materials harvesting, chipping, and transportation operations…." and "Promote how to effectively use the small diameter trees and woody biomass taken from fuels reduction and healthy forest projects."

8. Conclusion

Many Community Wildfire fuel reduction and wildfire education efforts have occurred since the original YCWPP was initiated. However, there is still much to be done throughout the entirety of Yavapai County. The many different vegetation types are all prone to wildfire. Either forested terrain or grasslands can burn out of control if fuel reduction precautions are not taken. This revised YCWPP covers the entire county and broadens the scope of efforts to include all communities and fire districts. Through County-wide public awareness programs and grants, increased wildland/urban fuel reduction interfaces can be achieved.

However, as grant dollars diminish or disappear, there will be a need for higher level action. To reiterate the solution, below is a quote from Section 5 of this plan:

> "… the only true, permanent, effective means of ensuring a fully defensible interface, which would include landscape and building material issues, **is through legislation**. Just as cities have been protected for over 100 years by the enactment into law of fire and construction codes, sprinkler system requirements, fire hydrants and fire departments; so too, will Wildland Urban Interface fire legislation be necessary to achieve an overall "Firewise" condition that will enable communities to be truly defensible."

This legislation must be initiated at the state level. The passive, but still effective, Oregon law is a nearly ideal model. Similar legislation needs to be adopted by Arizona as soon as possible.

9. Glossary of Terms

Aerial Fuels. The fuel layer comprised of the crowns of trees arranged through the air.

Aspect. The direction the slope is facing or the ridge is running. North – NO; Northeast – NE; East – EA; Southeast – SE; South – SO; Southwest – SW; West – WE; Northwest – NW.

Basal Area. The area of the cross-section of a tree stem near its base, generally at breast height (4.5' above ground line) and inclusive of bark. Stand basal area is generally expressed as the total basal area in square feet per acre of land.

Black Jack. An immature ponderosa pine tree with characteristic black bark.

Bole. The trunk of the tree.

Broadcast Burning. The controlled application of fire to a land area in order to improve forest health and reduce wildfire hazard.

Critical Fire Weather Days. Those days rated as "high" or "extreme" by the National Fire Danger Rating System (NFDRS).

Cultural Resources. Artifacts of indigenous people.

Designated Landing. The area specifically identified for the purposes of merchandising forest products and slash disposal.

Desired Future Condition. The future condition of the property (vegetation), which is desired by the property owner. The result of implementing the Forest Stewardship Plan.

Diameter at Breast Height (DBH). Diameter at breast height (measured at 4.5 feet above ground level on the trunk of the tree).

Dominants. Generally, an individual or species of the upper layers of the canopy. Ponderosa pine trees of the greatest heights of good form and vigor.

Dripline. The downward vertical extension of the outermost edge of the crown. Where precipitation theoretically drips off the crown of the tree.

Duff. A soil layer consisting of litter and decomposing vegetation.

Fire-Safe Potential. A condition of forest fuels across a specific land area, that given an ignition event, existing suppression resources can be brought to bear on the fire event with limited resultant damage to the forest resources.

Forest Fuels. Flammable materials such as plants and forest litter.

Forest Health. A condition of forest plant communities which are comprised of individual specimens of relatively good vigor, and taken collectively, are resilient to natural disturbance regimes and events.

Forest Stand. A community of trees possessing similar uniformity of composition, arrangement, constitution, or age.

Forest Stewardship. Acting upon the land and natural resources to physically influence their condition and function so as to meet the goals and objectives of the steward – the land owner.

Ground Fires. A fire event which typically consumes fuel on the ground and moves under the tree canopy.

Ground Fuels. Forest fuels which are connected to the ground through their root system; typically understory plants such as grasses, forbs, and brush.

Habitat Generalists. Wildlife species (mammalian and avian) which are relatively common throughout the surrounding forested area and which are not obligated to the property.

Intermediate Thin. The selective removal of mid-story trees.

Jackpots. Concentrations of large accumulated surface fuels such as large fallen limbs and fallen trees.

Ladder Fuels. Forest fuels which connect ground and surface fuels with aerial fuels. In the unmanaged ponderosa pine forest, these fuels are typically lower live and dead limbs as well as sapling and pole-sized trees arranged in close proximity to mid and over-story trees.

Mechanized Whole Tree Harvesting Operation. A forest stewardship tool which utilizes machinery to fall and bunch designated trees as well as skid bunches of trees to a designated landing.

National Fire Danger Rating System (NFDRS). Used by the federal, state, and local fire suppression agencies. Ratings are based on weather related factors including air temperature, relative humidity, fuel stick moisture content, and wind velocity. All of these factors contribute to the relative danger of fire starts and fire intensity.

Native. Indigenous to a specific geographical area.

Natural. Without the influences of non-indigenous human beings.

Noxious Weeds. Invasive weed species which are very harmful or poisonous.

Nutrient Cycling. The circulation of chemical elements and compounds, such as nitrogen and carbon, in specific pathways from the non-living parts of the ecosystem into the organic substances of the living parts of the ecosystem, and then back again to the non-living parts of the ecosystem.

Overstory Canopy. A roughly horizontal layer of vegetation comprised of tree crowns at the upper most canopy layer.

Pole-Sized Trees. A descriptive term used for a ponderosa pine tree which is roughly between 4" DBH and 10" DBH.

Prescription. The written instructions for the preparation and implementation of vegetation modifying activities. The prescription is the result of integrating the biophysical condition of the property with the objectives of the property owner.

Pruning. The removal of live or dead branches from standing trees.

Regeneration. The established seedlings of a tree crop.

Relics. Remains from the past ponderosa pine forest identified as stumps, snags, and live old-age trees.

Residual Tree. A tree remaining after other vegetation has been removed. Taken collectively, the forest component of the desired future condition.

Sapling. A descriptive term used for a ponderosa pine tree which is roughly between 1" DBH and 4" DBH. The size class between seedling and a pole.

Savannah. A more or less open woodland with a predominant undergrowth of mostly grasses. The natural ponderosa pine savannah was characterized by tree densities of from five to twenty five per acre with a luxuriant grass understory.

Semi arid. Having very little rainfall.

Silviculture. The art and science of controlling the establishment, composition, constitution, and growth of forests.

Silvicultural Prescription. The means to accomplish forest management objectives by utilizing silvicultural practices.

Site Index. A species specific measure of actual or potential forest productivity which is expressed in terms of average heights of trees at a specified age. Site index curves used were developed by Dr. C.O. Minor for ponderosa pine in the United States southwest.

Size Classes. Seedlings < 1" DBH; Saplings 1" to 4" DBH; Poles 4" to 10" DBH.

Skidding. The movement of cut trees to a designated landing. In a mechanized operation, cut trees are bunched and oriented towards the skid trail; the grapple skidder (hydraulic pinchers) grabs the entire bunch of cut trees, lifts the butts off the ground, and drags the bunch or turn of trees to the landing. This technique effectively drags only the tops of the trees. This skidding function is also used to remove heavy fuels such as large limbs and the tops of large cut trees.

Skid Trails. Designated paths to be used for the skidding function.

Slash. All parts of cut trees which are not merchantable as solid wood products. In a mechanized operation, essentially all of the tree which is cut is removed to a designated landing where merchantable products are manufactured and removed and all residual material is concentrated. Treatment alternatives for the remaining slash include chipping, grinding, or piling for future disposal burn.

Slope Position. A relative term used to describe the location on a slope: RT – Ridge Top; US – Upper Slope; MS – Mid Slope; LS – Lower Slope; DB – Drainage Bottom.

Snag. A dead standing tree.

Stocked. An indication of growing space, occupancy relevant to a pre-established standard.

Stumps. The woody base of a tree, as left in the ground after felling or natural causes.

Sublimation. Conversion of a solid substance by heat into vapor.

Suppression. (1) The process whereby specific trees weaken from competition with neighboring trees; (2) Work activities associated with fire extinguishing operations.

Surface Fuels. Forest fuels which are on the surface; typically needles, leaves, twigs, branches, and cones.

Thin From Below. The selective removal of small, immature, or suppressed trees.

Thinning. The selective removal of trees in a stand to improve the health and accelerate the growth of residual trees.

Threatened and Endangered Species. Those species (mammalian and avian) that are listed by the U.S. Fish and Wildlife Service. The Mexican spotted owl is a federally listed species.

Tree Canopy. The more or less continuous cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth.

Tree Crown. The upper part of a tree carrying the main branch system and foliage.

Tree Seedlings. A descriptive term used for a ponderosa pine tree that has become established and that is less than 4.5' in height or has a DBH less than 1".

Trees Per Acre (tpa). A unit of measure that quantifies the stocking condition of a forest.

Understory. Any plants growing under a forest canopy, particularly trees, brush, grasses, and forbs.

Underutilized Condition. Understory plants showing no or little sign of use by ungulates (domestic or wild).

Urban Interface Zone. That land area associated with an urban setting which is forested throughout the interface between developed and non-developed property.

Wildfire Hazard. A measure of that part of the fire danger contributed by the fuels available for burning.

Wildfire Risk. The danger arising from an existing or probable incendiary agent, person, or activity which may cause ignition of a wildfire.

Wildland Urban Interface (WUI). WUI includes those areas of resident populations at imminent risk from wildfire, and human developments having special significance. These

areas may include critical communications sites, municipal watersheds, high voltage transmission lines, observatories, church camps, scout camps, research facilities, and other structures that if destroyed by fire, would result in hardship to communities. These areas encompass not only the sites themselves, but also the continuous slopes and fuels that lead directly to the sites, regardless of the distance involved. (Forest Service Manual 5100, Chapter 5140 – FIRE USE R3 SUPPLEMENT 5100-2000-2)

10. Definitions and Abbreviations

BLM – Bureau of Land Management
CERT - Community Emergency Response Team
CWPP – Community Wildfire Protection Plan
DMA2000 - Disaster Mitigation Act of 2000
FEMA – Federal Emergency Management Agency
FMO - Fire Management Officer
GIS – Geographic Information System
HFEDT – Healthy Forest Economic Development Team, a committee within PAWUIC
HFRA – Healthy Forests Restoration Act
YFCA – Formerly the Interagency Fire and Emergency Management Group, The Basin Ops Group is a Committee of the Yavapai Fire Chiefs Association which contains all the initial fire departments and districts instrumental in the formation of PAWUIC
LEPC - Local Emergency Planning Committee
NIIMS - National Interagency Incident Management System
NFP – National Fire Plan
PAWUIC – Prescott Area Wildland/Urban Interface Commission
PNF - Prescott National Forest
WUI – Wildland Urban Interface
YCWPP – Yavapai Communities Wildfire Protection Plan
YCOEM - Yavapai County Office of Emergency Management

11. Maps

Map 1: YCWPP Boundary within the State of Arizona

Map 2: Original YCWPP Boundary

Map 3: Revised YCWPP by Management Areas
- Individual Maps 1-12

Map 4: Fire Districts within Revised YCWPP Boundary

Map 5: Revised YCWPP boundary Land Ownership

Map 6: Revised YCWPP Vegetation Types

Map 7: Fire Ignition Point within Revised YCWPP Boundary

12. Appendices

Appendix 1: YCWPP Boundary Acreage Totals by Values

Appendix 2: YCWPP Management Areas by values

Appendix 3: Wildland Fire Risk and Hazard Severity Assessment Form

Appendix 4: YCWPP Homeowner Questionnaire

Appendix 5: Management Area Ownership Distribution

Appendix 6: Yavapai Communities at Risk

13. References

Ref: 1 – Healthy Forest Restoration Act of 2003 – HR 1904

Ref: 2 – "Preparing a Community Wildfire Protection Plan" A Handbook for Wildland-Urban Interface Communities, March 2004

Ref: 3 – "Wildland/Urban Interface Fire Hazard Assessment Methodology" Developed by National Wildland/Urban Interface Fire Protection Program

Ref: 4 – NFPA 1144, Standard for Protection of Life and Property from Wildfire, 2013 Edition, National Fire Protection Association

Ref: 5 – "Tri-City Regional Economic Diversity Steering Committee Report, July 2004, prepared by Yavapai College Office of Workforce & Economic Development

Ref: 6 –Incident Management in the Prescott Basin – Prescott Basin Operations Plan (EOP Wildfire Annex)

Ref: 7 – "Prescott Basin Fuel Reduction and Economic Development Plan" May 2004, prepared by Prescott Area Wildland/Urban Interface Commission

14. Illustrations