

# Town of Poncha Springs Community Wildfire Protection Plan

July, 2009

## I. Introduction

The Town of Poncha Springs Community Wildfire Protection Plan (CWPP) was developed through a series of public meetings held at the Poncha Springs Town Hall. The meetings included citizens, Planning Commissioners, Board of Trustees, town staff, and Fire officials and professionals such as Damon Lange of the CSFS, Angie Jenson owner and operator of Fire Ready, Jim Wingert, Chaffee County Fire Chief, Mark Thomas, Chaffee County Fire Protection District Mitigation Coordinator, and Kent Maxwell of Chaffee County Fire Department.

The Poncha Springs CWPP was initiated by Angie Jenson and Damon Lange to assist the town in addressing the fire hazard conditions in the Poncha Springs South Park area. South Park sits at the base of Poncha Mountain and Poncha Pass and receives strong winds coming down the pass into town. The park had overgrowth including, dead and down trees, hazardous trees, dried grasses, overgrown shrubs and hanging limbs all of which created large amounts of fire fuels. The park has a Frisbee golf course, picnic areas with open fire pits, and is frequented daily by the community and tourists. The combination of the fire fuel load, open fire pits, and wind make the park a high fire risk, and put the homes that sit below it at risk as well.

Angie Jenson prepared the Poncha Springs South Park CWPP in order to attain grant funding for fire mitigation in the park. The Board of Trustees reviewed the CWPP, April 27, 2009 and agreed to move forward with the project, and it became part of the County wide CWPP in May, 2009. The Colorado State Forest Service approved grant funding in June of 2009 for the area. Two request for Proposals (RFP) went out, one at the end of June for a consultant to sight the hazardous trees, and oversee Bureau of Prison crews while they, create a fire break, remove fuels and assist with the overall fire mitigation. A second RFP was prepared in July to hire a sawyer crew to remove the hazardous trees that were sighted.

In order to meet grant deadlines this portion of the Poncha Springs South Park fire mitigation is scheduled for completion September 1, 2009. However, the overall South Park fire mitigation is an on going project that will require continual effort to reduce on-site fuels, maintain the fire break, and provide a safe recreational area.

June 15, 2009 the Town Board of Trustees sent the CWPP back to the Planning Commission for revision to include a fire mitigation plan for the entire town. The Town sent out a public notice to the community to talk about fire mitigation and fire safety on private property at the July 6<sup>th</sup> Planning Commission meeting. Damon Lange, Mark Thomas and Kent Maxwell met with citizens and the Planning Commissioners to encourage revision of the CWPP to include the entire town due to the severity of Poncha Springs fire conditions, and to make the town and citizens aware of grant funding availability.

## II. Poncha Springs Community

### Location

The Town of Poncha Springs is located in the southern portion of Chaffee County, Colorado in Section 10, Township 49 North, Range 8 East of the Sixth Principal Meridian, at an elevation of 7465 feet above sea level. Situated at the northern base of Poncha Pass, Poncha Springs is in the heart of the Upper Arkansas Valley, framed by the Sawatch Range to the west and the Mosquito Range to the east. The South Arkansas River and a smaller tributary, Poncha Creek, flows through the town.

### Climate

Poncha Springs is known for its mild and breezy climate, with low humidity, low precipitation, abundant sunshine, and mild temperatures. Average precipitation in Poncha springs is less than ten inches per year, and growing season averages 112 days. Average daily high temperatures are in the 80's during the summer months and in the 40's during the winter.

### Vegetation

A broad range of plant types is found within Poncha Springs, with mature plantings along True Avenue and older neighborhoods east of US 285. The mature trees include cottonwoods, willows, crabapples, scotch pine, piñon pine, spruce, aspen, and cherry. Shrubs found in residential areas include viburnum, dwarf Alberta spruce, lilac, willow, dogwood, and juniper. Due to the dry climate, xeriscaping is found throughout the developed portions of town consisting of rock cover and /or drought tolerant plants, such as spreading juniper.

**Pinyon/juniper or ponderosa pine/Douglas fir** associations cover most of the sloping land south of town. Patches of **Aspen, alpine shrub or spruce/fir** associations are found at the highest elevations. **Wetland/riparian** vegetation and **Irrigated meadows** are found along the South Arkansas and north of the river within the drainages and low-lying portions of the three-mile area around the town. **Dryland crops** and **Sagebrush rangeland** occupy a large portion of the valley floor north of the river. The dominant vegetation on the ridgeline north of US 50 is pinyon/juniper.

### Community Neighborhood Areas and mitigation needs:

**Area 1 - South Park and the neighborhood that sits between South Park and the Little Arkansas River** – This section of town has riparian areas along the Little Arkansas river and Poncha Creek, it is bordered by the Poncha Hot Springs land owned by Salida, US 285, the Little Arkansas river, Little River Ranch Subdivision and National Forest land. South Park is about 60 acres, and the neighborhood bordering the Little Arkansas consists of approximately 20 privately owned lots ranging in size from 1 to 20 acres. The area is densely forested with vegetation ranging from Pinyon/juniper to Wetland/riparian.

Mitigation needs: The town received a CSFS grant in June of 2009 to remove hazardous trees, dead and down trees, and the over growth of ladder fuels, and to create a fire break between the park and the neighborhood to the north. This created mitigation addressed the Disc Golf Course, the picnic area and the fire break. Further mitigation is needed to remove remaining ladder fuels and dead and down trees. This is an on-going project. The private property lot owners were invited to attend a community

meeting on fire mitigation. One of the large land owners responded and is working with the Colorado State Forest Service (CSFS) and the Town to get a grant written for their property. Another land owner has done a lot of fire mitigation on his own and CSFS is meeting with him to look at remaining needs. The Bender lot has the majority of vegetation and CSFS will be doing a site visit for that property. The remaining lot owners with overgrowth will be contacted to encourage participation in the grant program.

**Property Ownerships within Area 1 – Poncha Mountain Partnership, Eugenia Farrow, Rebecca Massey, and Paradiso Partners.**

Mitigation need: – Access to property for emergency responders

Recommendation:– Install knock boxes at the gates. Contact Chief James Wingert from the Chaffee County Fire Protection District. Phone 719-395-6545 e-mail- [jwingert@chaffeecountyfire.org](mailto:jwingert@chaffeecountyfire.org). for knock box information.

Mitigation need: The lack of familiarization of the fire fighters about the property with regard to water sources road system, and gates.

Recommendation – Have Mrs. Massey talk with Fire Chief Wingert to see if the fire department has maps of the area and schedule a training night when the volunteers and Chief Wingert could tour the property.

Mitigation need: The Massey's are installing a pond for irrigation and is willing to make it available for wildland fire suppression activities. The concern is design of the pond with the proper specification so it can be utilized as a helicopter dip site.

Recommendation: Contact John Markalunas Assistant Fire Management Officer with the USFS Mountain Zone to get recommendations on specifications and guidance for establishment of an agreement between the Massey's and the USFS that will allow the USFS to use the pond in an emergency. John Markalunas contact information – phone 530-2155, e-mail [jmarkalunas@fs.fed.us](mailto:jmarkalunas@fs.fed.us).

Mitigation need: How to improve the wildfire defensible space around structures?

Recommendations #1 – In the pinyon pine stand to the south of the structures have the Colorado State Forest Service mark the trees to be thinned. The purpose is to increase the distance between tree crowns if a fire is being carried through the tops of the trees. Prior to the marking of the trees the type of equipment used to thin the pinyon pine will need to be determined. If a hydroax is used, it is easier to remove small groups of trees rather than removing individual trees here and there. Both methods can be effective.

Recommendation #2 – Apply for a grant to assist in funding the thinning project.

Recommendation #3 – There is a large transmission power line located to the south of the property. Currently it is a marginal fuel break. If the hot waterline goes in for the City of Salida they will use the area where the power line is to put in road. The road would improve the effectiveness of the fuel break. The recommendation is to encourage the development of the hot water line.

Mitigation need: The City of Salida owns property in and around the former Boy Scout ranch. This property should be managed for fire mitigation.

Recommendation – CSFS will contact Salida Fire Chief Don Taylor and discuss the issue and get recommendations on how to mitigate the property.

Mitigation need: Connectivity of the fuel treatments from the land owned by the Town of Poncha Springs and adjoining private lands.

Recommendations – Make it a priority in the Poncha Springs CWPP to have the fuel treatments on the Town of Poncha Springs land connect with private lands. CSFS will talk with Dee Miller Planner for Town of Poncha Springs to have it in the Poncha Springs CWPP.

**Area 2 - Poncha Springs Cemetery and Mud Springs** – This section consists of the Town cemetery, a County dump, and range land. It is bordered on the East by US 285, and on the north by the Little Arkansas river, the south and west sides are National forest or privately owned land. The vegetation includes Pinyon/juniper, Wetland/riparian, and natural spring fed Irrigated meadows.

Mitigation needs: The Cemetery containing Pinyon/juniper will need ladder fuels, dead and down trees and hazardous tree removal.

**Area 3 - Rio POCO, Burnett's Addition, Pine Creek Homes subdivisions and Hoover Park** form a neighborhood that sits on the north side of the Little Arkansas, and west of US 285, it is bordered on the north by Denver & Rio Grand Railroad property and on the west by ag land. There are eight (8) privately owned lots that are in a densely forested Wetland/riparian area along the river, while the 89 residential and 15 commercial lots have landscaped yards and sit next to ag land and railroad property that typically consist of dry grasses. The Ouray ditch runs to the West of this area and has old Cottonwood growth, dead and down and ladder fuels.

Mitigation needs: Owners of lots that back up to the Little Arkansas will be contacted and encouraged to have a site visit by CSFS, and to participate in a neighborhood fire mitigation grant on private land. Removal of ladder fuels along the Ouray ditch is needed.

**Area 4 - North of the D & RG Railroad property, both sides of Hwy 50 toward Gunnison** approximately twenty (20) commercial properties including two gas stations border the highway, with seven (7) residential lots making up Angelo subdivision on the west side of Hwy 50 behind the commercial. The Ouray ditch extends the overgrowth of cottonwoods and ladder fuels along the south side (back) of this neighborhood.

Mitigation needed: Removal of ladder fuels, dead and down and hazardous trees along the Ouray ditch.

**Area 5 - Friend Ranch** is bordered on the north by US50 and sits on either side of Friend Ranch Road (CR 210). This new subdivision has 201 residential lots a golf course and a reservoir that sit behind a commercial area that fronts Hwy 50. The vegetation ranges from Wetland/riparian along the South Arkansas river that flows through the neighborhood, to Pinyon/juniper, to ag land with Irrigated meadows and dry grasses.

Mitigation needed: Friend Ranch has a fire mitigation plan requirement for each lot and it is attached. The plan doesn't address the golf course or the private land to the south or west of the subdivision which contains Pinyon/juniper. One of these land owners is

seeking to develop through the County and will be encouraged to participate in the CWPP plan as part of development.

**Area 6 - Poncha Springs Industrial Park and Chaffee County Fairgrounds** – This area is bordered by US 50 on the west, Crossroads lane on the North, Chaffee County Fairgrounds on the east and Fairgrounds drive (CR 120) on the west. It is surrounded by ag land with dry grasses and an irrigation ditch that hosts denser Wetland/riparian vegetation to the north. This is a light industrial area consisting of a retail propane gas sales lot and approximately 46 other commercial lots that may use and/or store flammable chemicals.

Mitigation needed: The Poncha Mesa Business Park lot is approximately 40 acres with the front portion subdivided into 6 lots and the rear into 1 large lot that is approx 34 acres. The large lot has a hole dug in it which retains water and has vegetation overgrowth that needs to be addressed to reduce fire fuels.

**Area 7 - Established Highway Commercial** from Hwy 285 heading east this area includes approximately 30 commercial lots with 20 residential lots interspersed. The lots are situated along the south side of Fairgrounds Drive (CR 120), and either side of Hwy 50 to CR 127. A gas station and a retail propane facility are included in this area.

Mitigation needed: n/a

**Area 8 - Van Kleek's Addition**, the central neighborhood of the community, is bordered by Hwy 285 on the west, Poncha Avenue on the north, Poncha Springs lane on the east and the Little Arkansas river on the south. It consists of landscaped yards with the back yards of twelve lots along the river having dense Wetland/riparian vegetation. A few vacant lots contain native vegetation overgrowth.

Mitigation needs: Owners of lots that back up to the Little Arkansas will be contacted and encouraged to have a site visit by CSFS, and to participate in a neighborhood fire mitigation grant on private land. Removal of ladder fuels along the Ouray ditch is needed.

**Area 9 - Little River Ranch** is a subdivision consisting of approx 160 residential units set among Pinyon/juniper. It is bordered by: The Canyons subdivision on the south which sits in Pinyon/juniper and backs up to National Forest, the Bender property which is densely forested with Wetland/riparian areas and Poncha Springs lane on the west, and ag land with dry grasses on the north and east.

Mitigation needs: The subdivision has a fire mitigation plan that is included as an attachment to this plan. The Canyons subdivision residents will be encouraged to participate in the Towns fire mitigation plan. The US Forest Service and adjacent property owners should be contacted regarding fire mitigation on land adjoining the property.

### III. Summary Recommendations

*This document is intended to set forth a recommended plan only and imposes no obligations on the signatories. Specifically, executing this document in no way obligates*

*Chaffee County to take any action requiring the commitment of funds in order to accomplish the Summary Recommendations.*

*Notwithstanding any other provision of the CWPP to the contrary, no term or condition of the CWPP shall be construed or interpreted as a waiver, express or implied, of any of the immunities, right, benefits, protection, or other provisions of the Colorado Governmental Immunity Act § 24-20-101, et seq., C.R.S. (including future amendments) or as an acceptance by Chaffee County or any responsibility or liability with respect to the CWPP.*

### **Community Related Land Fuel Treatment and Programs**

#1. Encourage USFS to update Pike-San Isabel National Forest fire management plan with input from local residents. Future updates are likely to include authorization for wildland fire use (“appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives in predefined designated areas”) as part of the revision process to the forest’s 1984 Land and Resource Management Plan.

#2. Encourage the City of Salida to routinely maintain the Poncha Hot Springs Boy Scout Camp area and the land Salida owns that is adjacent to South Park in a manner that addresses fire mitigation and public safety.

#3. Encourage Private Landowners adjacent to the Town of Poncha Springs to participate in fire mitigation programs that will help maintain the privately owned properties in a fire safe manner.

#4. Town residents that own private land with overgrowth along riparian areas will be encouraged to participate in fire mitigation programs that remove fire fuels on their property.

#5. Residents removing fire fuels from private lands are provided free access to a local dump site that accepts natural materials only. Logs for firewood will periodically be offered free to the public to recycle the product and reduce the volume in the dump. After free pick up of wood is offered the remaining wood may be chipped and shredded to further reduce volume and offered to the public as free mulch.

#6. Wildfire education for individual property owners and community members will take place to encourage reduction of on-site fuels through properties, to develop safer more defensible perimeters around houses and other structures.

#7. Wildfire response preparedness will be ongoing including:

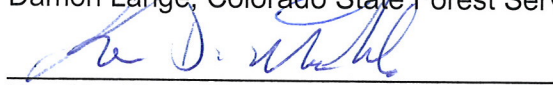
- a. Evaluating and pursuing water availability and storage for fire mitigation.
- b. Requiring new land developments to submit fire mitigation plans.
- c. Revise existing subdivision maps with updated homeowner status and contact information for local fire response teams.
- d. Establish neighborhood fire safety groups to continue fire mitigation in their specific area.

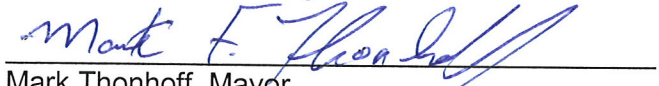
- e. Pursue grant funding to assist neighborhood Fire Safety groups and private land owners with fire mitigation.

Attachments: Little River Ranch Fire Safety Plan  
Friend Ranch Fire Safety Plan  
Poncha Springs CWPP Areas 2009 Map

  
James Wingert, Chaffee County Fire Protection District

  
Damon Lange, Colorado State Forest Service

  
Ken MacNicol, Planning Commission Chairman

  
Mark Thonhoff, Mayor

received  
15-26-06

**LITTLE RIVER RANCH**  
**STAGE II**  
**FIRE PROTECTION**  
**AND**  
**FIRE MITIGATION**  
**PLANS**

**APPROVED BY:** *Jim Wingert*

**Jim Wingert**  
**Fire Chief, Chaffee Fire**  
**Protection District**



## **1.5. Fire Mitigation**

Trees, shrubs and other debris from all road and utility construction will be removed from the site. Hutchinson Lane (Power Line Road) provides a significant well maintained firebreak south of the subdivision. Sufficient fire mitigation procedures have also been implemented on the Canyons subdivision thus lowering the fire severity to the south. The South Arkansas River provides a firebreak on the north side of the subdivision. Dead trees and ground debris will be removed in the subdivision improvements process. Defensible space will be required in the covenants to 71 feet of the structures.

## **1.6 Covenants & Subdivision Improvements**

The subdivision covenants will require and allow the following items to conform to the hazard severity evaluation:

- 24' minimum roadway width
- Required - Underground utilities
- Required - Defensible space to 71 feet from structures (see Appendix C for defensible space using the Low Severity column)
- Allowed – Combustible siding and decks
- Required – Class A roofing
- Required – Central water system with 500 gpm flow minimum

Element	Points	
<b>D. Additional Rating Factors (rate all that apply)</b>		
1. Topographical features that adversely affect wildland fire behavior	0-5	0
2. Areas with a history of higher fire occurrence than surrounding areas due to special situations (e.g., heavy lightning, railroads, escaped debris burning, and arson)	0-5	0
3. Areas that are periodically exposed to unusually severe fire weather and strong dry winds	0-5	0
4. Separation of adjacent structures that can contribute to fire spread	0-5	0
<b>E. Roofing Assembly</b>		
1. Class A roof	0	0
2. Class B roof	3	
3. Class C roof	15	
4. Nonrated	25	
<b>F. Building Construction</b>		
1. Materials (predominate)		
a. Noncombustible/fire-resistive siding, eaves, and deck (see Chapter 8)	0	
b. Noncombustible/fire-resistive siding and combustible deck	5	
c. Combustible siding and deck	10	10
2. Building setback relative to slopes of 30% or more		
a. ≥9.14 m (30 ft) to slope	1	1
b. <9.14 m (30 ft) to slope	5	
<b>G. Available Fire Protection</b>		
1. Water source availability		
a. Pressurized water source availability		
1892.7 L/min (500 gpm) hydrants ≤304.8 m (1000 ft) apart	0	0
946.4 L/min (250 gpm) hydrants ≤304.8 m (1000 ft) apart	1	
b. Nonpressurized water source availability (off site)		
≥946.4 L/min (250 gpm) continuous for 2 hours	3	
<946.4 L/min (250 gpm) continuous for 2 hours	5	
c. Water unavailable	10	
2. Organized response resources		
a. Station ≤8 km (5 mi.) from structure	1	1
b. Station >8 km (5 mi.) from structure	3	
3. Fixed fire protection		
a. NFPA 13, 13R, 13D sprinkler system	0	
b. None	5	5
<b>H. Placement of Gas and Electric Utilities</b>		
1. Both underground	0	0
2. One underground, one aboveground	3	
3. Both aboveground	5	
<b>I. Totals for Home or Subdivision (Total of all points)</b>		38

Hazard Assessment	Total Points
Low hazard	<40
Moderate hazard	40-69
High hazard	70-112
Extreme hazard	>112

# APPENDIX C

## DEFENSIBLE SPACE CLEARING SUMMARY

1144-12

PROTECTION OF LIFE AND PROPERTY FROM WILDFIRE

**Table A.4.2 Wildland Fire Hazard Severity Classification Analysis by Fuel Type, Slope, and Building Material**

NFDRS Fuel Models	FBO Fuel Models	Slope Percent <sup>1</sup>			Building Material Combustibility <sup>2</sup>
		0-20%	21-40%	41+%	
H, R	8 Grass	L	L	M	L or M or H
U, P, E	9 Timber	L	L	M	L or M or H
K	11 Slash	L	M	H	L or M or H
A, L, S	1 Grass	L	M	H	L or M or H
D	7 Shrub	L	M	H	L or M or H
N	3 Grass	M	M	H	L or M or H
G	10 Timber	M	M	H	L or M or H
F	5 Shrub	M	M	H	L or M or H
C, T	2 Grass	M	M	H	L or M or H
F, Q	6 Shrub	M	H	H	L or M or H
J	12 Slash	M	H	H	L or M or H
I	13 Slash	M	H	H	L or M or H
B, O	4 Shrub	H	H	H	L or M or H

<sup>1</sup>Wildland fire hazard ratings are as follows: L = low; M = moderate; or H = high.

<sup>2</sup>Building material combustibility ratings are as follows:  
 L = Low (Class A roof; noncombustible siding and deck).  
 M = Moderate (Class B roof; noncombustible siding and deck).  
 H = High (Class C or nonrated roof; combustible siding and deck).

**A.4.2.2.2** Figure A.4.2.2.2 describes the physical similarities of NFDRS fuel models with fire behavior fuel models.

**A.4.2.2.4** Refer to A.4.2.2.2 for the effect of slope when combined with vegetative fuel types and construction factors.

**A.4.2.2.7** These additional factors can be positive (reducing risk) or negative (increasing risk) in the overall rating. Table A.4.2.2.7 is a summation of typical desirable characteristics found in various wildfire hazard analyses.

**A.5.1.7** See Figure A.5.1.7.

**A.5.2.3** See Figure A.5.1.7 and Figure A.5.2.3.

**A.5.6.1** The United States Postal Service and regional "911" emergency services systems could have requirements for these signs. All such signs should be coordinated with Section 5.6.

**A.6.2.1** Acceptable methods of fuel treatment include prescribed burning by qualified personnel, mowing, mulching, converting to compost, and grazing.

**A.8.1.2** Figure A.8.1.2 illustrates how setback is measured.

**A.8.2** Roof covering assemblies are tested for the following three levels of fire exposure:

- (1) Severe (Class A)
- (2) Moderate (Class B)
- (3) Light (Class C)

The following descriptions of the expected performance of roofs meeting those class standards is based on UL Standard 790. *Tests for Fire Resistance of Roof Covering Materials*:

- (1) **Class A roof coverings.** Class A roof coverings are tested against severe fire exposures. Under such exposures, roof coverings of this class are fire-retardant, afford a fairly high degree of fire protection to the roof deck, do not slip from position, and pose no flying-brand hazard.

**Table A.4.2.2.7 Defensible Space Clearing and Structural Summary**

Low	Moderate	High
9.14 m (30 ft) clearance	9.14 m (30 ft) irrigated	9.14 m (30 ft) irrigated
Class C roof	Class B roof	Class A roof
No portion of trees or other vegetation within 3.048 m (10 ft) of chimney outlets	Noncombustible siding/wood decks	30.48 m (100 ft) fuel treatment
Trees within defensible space shall be pruned to minimize ladder fuels.	Selected fire-resistant trees within 9.1 m (30 ft) of structures	Noncombustible siding/decks, and boxed eaves
	Trees within defensible space shall be pruned to minimize ladder fuels.	Selected fire-resistant trees within 9.1 m (30 ft) of structures
	No portion of trees or other vegetation within 3.048 m (10 ft) of chimney outlets	Selected thinning of trees and shrubs
		Trees within defensible space shall be pruned to minimize ladder fuels.
		All trees and shrubs pruned of dead material
		No portion of trees or other vegetation within 3.48 m (10 ft) of chimney outlets

Note: This summary does not include all the requirements listed in this standard.

- (2) **Class B roof coverings.** Class B roof coverings are tested against moderate fire exposures. Under such exposures, roof coverings of this class are fire-retardant, afford a moderate degree of fire protection to the roof deck, do not slip from position, and pose no flying-brand hazard.

- (3) **Class C roof coverings.** Class C roof coverings are tested against light fire exposures. Under such exposures, roof coverings of this class are fire-retardant, afford a measurable degree of fire protection to the roof deck, do not slip from position, and pose no flying-brand hazard.

It is important to realize that the roofs tested are installed in a very specific manner. For this reason the class ratings should be thought of as roof covering assembly tests. In other words, in order to meet the standard at which it is rated, a roof covering material should be installed in the same manner as is described in its listing.

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ARCHITECTURE CONCEPTS  
& DESIGN GUIDELINES

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FRIEND RANCH

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## 8.12 Wild Fire

It is important the Friend Ranch home owners be aware of the possibility of wildfire. However, the threat of wildfire can be greatly reduced with thoughtful planning and preventative landscape maintenance.

The goal of fire-safe landscaping is to reduce the amount of potential fire fuel immediately surrounding a home. This need not result in a barren or unattractive landscape.

Along with the use of fire-resistant plant material, a 30-foot safety zone in all directions around a home is recommended. The following actions are recommended within this zone:

- Dispose of slash and debris left from thinning.
- Stack firewood away from the home.
- Maintain irrigated greenbelt.
- Mow dry grasses and vegetation.
- Remove dead limbs, leaves, needles and other materials. This should also be done in areas outside of the safety zone.

These suggestions are intended only as general guidelines. Specific fire-safety considerations will vary based on the characteristics of each lot.

