



Serving North Spokane County

Denison Chattaroy Community Wildfire Protection Plan 2006



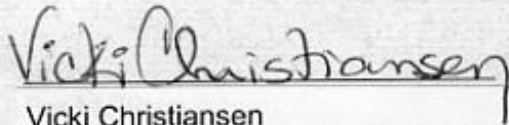
-Picture on Cover-

1994 Owens Rd Fire within the
boundaries of the
Denison Chattaroy Community
Wildfire
Protection Plan area.

**Denison Chattaroy Community
Wildfire Protection Plan**

July 31, 2006

Prepared by
FireSafe Spokane
with assistance from
Washington State Department of Natural Resources,
Spokane County Fire District 4
and



Vicki Christiansen
Executive Director of Regulatory Programs
Washington State Forester



Todd Mielke
Spokane County Commissioner
District 1
Resolution No. 6 0828



William E. Wilburn
Executive Director
FireSafe Spokane



Edward A. Lewis
Fire Chief
Spokane County Fire District 4

Table of Contents

ACKNOWLEDGEMENTS	-	-	-	-	-	-	-	-	6
<hr/>									
INTRODUCTION	-	-	-	-	-	-	-	-	7
Philosophy									
Vision and Goals									
Implementation									
<hr/>									
PLANNING AREA	-	-	-	-	-	-	-	-	8
<hr/>									
PLANNING PROCESS	-	-	-	-	-	-	-	-	11
Background									
<hr/>									
PHASE I	-	-	-	-	-	-	-	-	12
Denison Chattaroy History									
Evacuation History									
Public Information History									
General Fire History									
Fire Behavior Analysis									
Weather in Northern Spokane County									
Conclusion									
<hr/>									
FOREST CONDITIONS	-	-	-	-	-	-	-	-	22
Living in the Wildland Urban Interface									
Fire Behavior in Landscape A									
Fire Behavior in Landscape B									
Fire Potential									
Wildfire Hazard Assessment									
Fuel Models									
<hr/>									
PHASE II	-	-	-	-	-	-	-	-	34
Wildfire Risk Assessment and Evaluation									
<hr/>									

PHASE III	-	-	-	-	-	-	-	-	-	36
Strategic Fuel Breaks and Fuel Reduction										
Existing Fuel Breaks										
Strategic Fuel Breaks										
Mitigation Activities for Strategic Fuel Breaks and Fuel Reduction										
Ingress and Egress										
Railroad										
Power lines										

PHASE IV	-	-	-	-	-	-	-	-	-	51
Future Opportunities for Future Funding										

EMERGENCY PREPAREDNESS	-	-	-	-	-	-	-	-	-	52
Address Sign Program										
Creating a Defensible/Survivable Space										
The Three “R’s” of Defensible Space										
The 30’ of “Lean, Clean and Green Zone” Around the Home										
Structural Protection										
Ingress and Egress										
Creating a Personal Emergency Plan for Wildfire Protection										
If Caught in a Wildfire before the Fire Approaches the Home										
If You Decide to Stay in the Home										
Escaping a Wildfire in a Vehicle										
Evacuation Plan										
Fire Protection										
Education and Outreach										
Monitoring and Evaluation										

APPENDIX	-	-	-	-	-	-	-	-	-	68
-----------------	---	---	---	---	---	---	---	---	---	----

Acknowledgements

FireSafe Spokane would like to acknowledge the following for their assistance in the preparation of this document:

- Washington State Department of Natural Resources
 - Chuck Johnson
 - Steve Harris
 - Matt Castle
 - Andrew Stenbeck
 - Loren Torgerson
- Spokane County Fire District #4
 - Edward A. Lewis
 - Joe Krizanic
 - Dave Phillips
 - Howard B. Johnson III
 - Gary McBride
- FireSafe Spokane
 - Pat Humphries
 - Bill Willburn
 - Sarah Johnson
- Private Contractor
 - Gary Bennett
 - Don Stragis

INTRODUCTION

The development of the Denison Chattaroy Community Wildfire Protection Plan (CWPP) relies upon the coordination of multiple agencies. Wildfires in the area have prompted these agencies to implement a plan to protect human life and property, and reduce the risk of future wildfire related disasters.

Philosophy

Develop a long term wildfire community fire plan that includes wildfire defensible space, education, emergency communication, structural protection, natural and man made fuel breaks and plan implementation. Develop a strategic plan that includes educational mitigation and tactical components that meet the goal.

Vision and Goals

Residents of the Denison Chattaroy community value their homes, as well as the surrounding forest environment. They are concerned about the devastating effects which a wildfire can have on a community. The Washington State Department of Natural Resources (WDNR), Spokane County Fire District 4 (District 4) and FireSafe Spokane (FireSafe) have been concerned with wildfires, and potential wildfires, in this area. This prompted a joint effort to develop and implement a Community Wildfire Protection Plan (CWPP). This plan is designed to protect human life, property and reduce the risk future wildfire related disasters.

The primary goal of the Denison Chattaroy CWPP is to protect human life, private property, essential infrastructure and natural resources. It is our hope that this document will not only help to protect this community but serve as an example for other communities in this area to develop similar plans.

Implementation

Through the Denison Chattaroy CWPP the objective is to protect this community from the effects of wildfire through outreach education, strategic planning and action.

Defensible Space is the homeowner's responsibility to make sure their home will survive a wildfire. The partnership between FSS, WDNR and District 4 will continue to educate and reemphasize the homeowner's responsibility.

PLANNING AREA

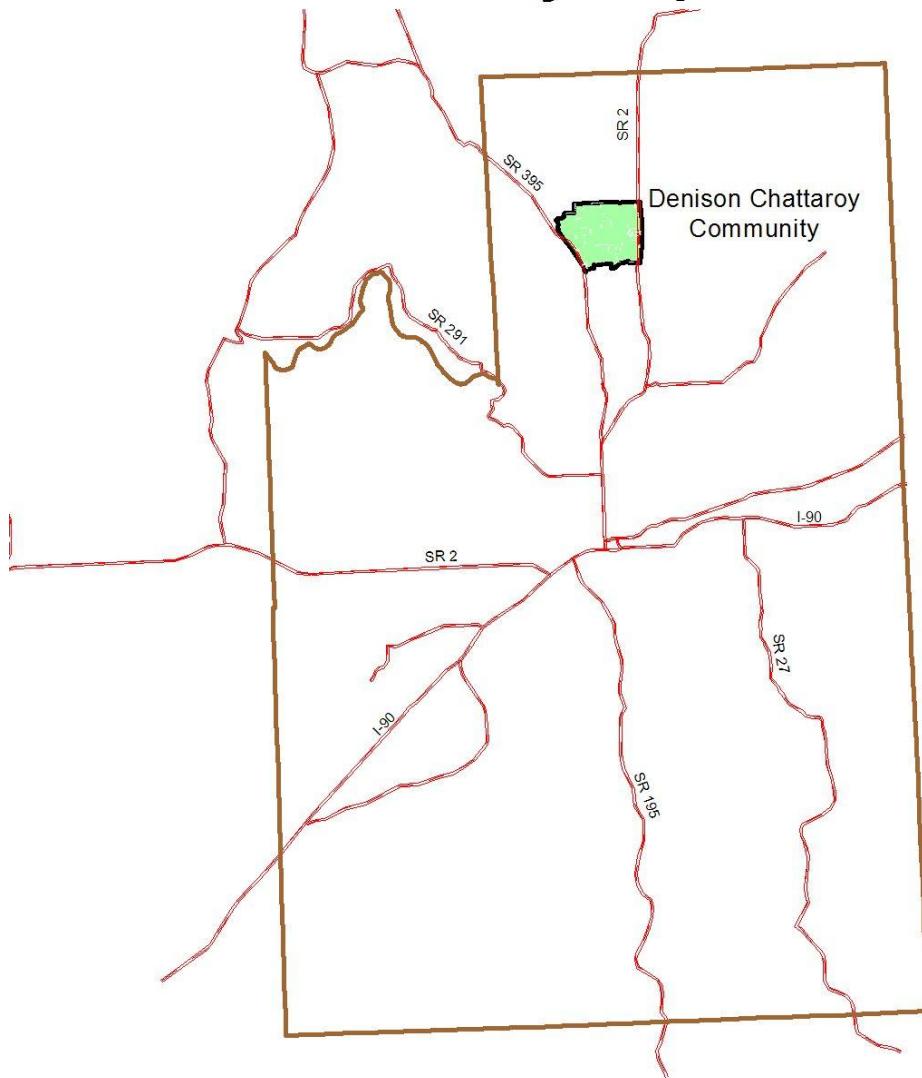
The Denison Chattaroy CWPP area is a rural residential development with small farm operations on private lands. The project area is located 10 miles south of Deer Park and 20 miles north of Spokane. Most of the homes are scattered throughout the area separated by large areas of open forest, patches of dense forest, grass range and brush lands, with minimal retail business in this community.

The entire planning area is considered to be Wildland Urban Interface (WUI). The community has loosely grouped neighborhoods and homes dispersed throughout the area with no pattern or regularity. There are no organized homeowner community groups.

Many of the residents are served by single access roads or private lanes, providing homeowners with only one way in and one way out. Evacuation and emergency response in these areas will be very difficult and dangerous in the event of the next fast -moving fire.

The Denison Chattaroy CWPP area is comprised of approximately 9,634 acres. Private land makes up 98 percent and the remainder is WDNR trust lands (**see CWPP overview map page 5**)

Denison Chattaroy Vicinity Map



-  Spokane County
-  Highways
-  Boundary



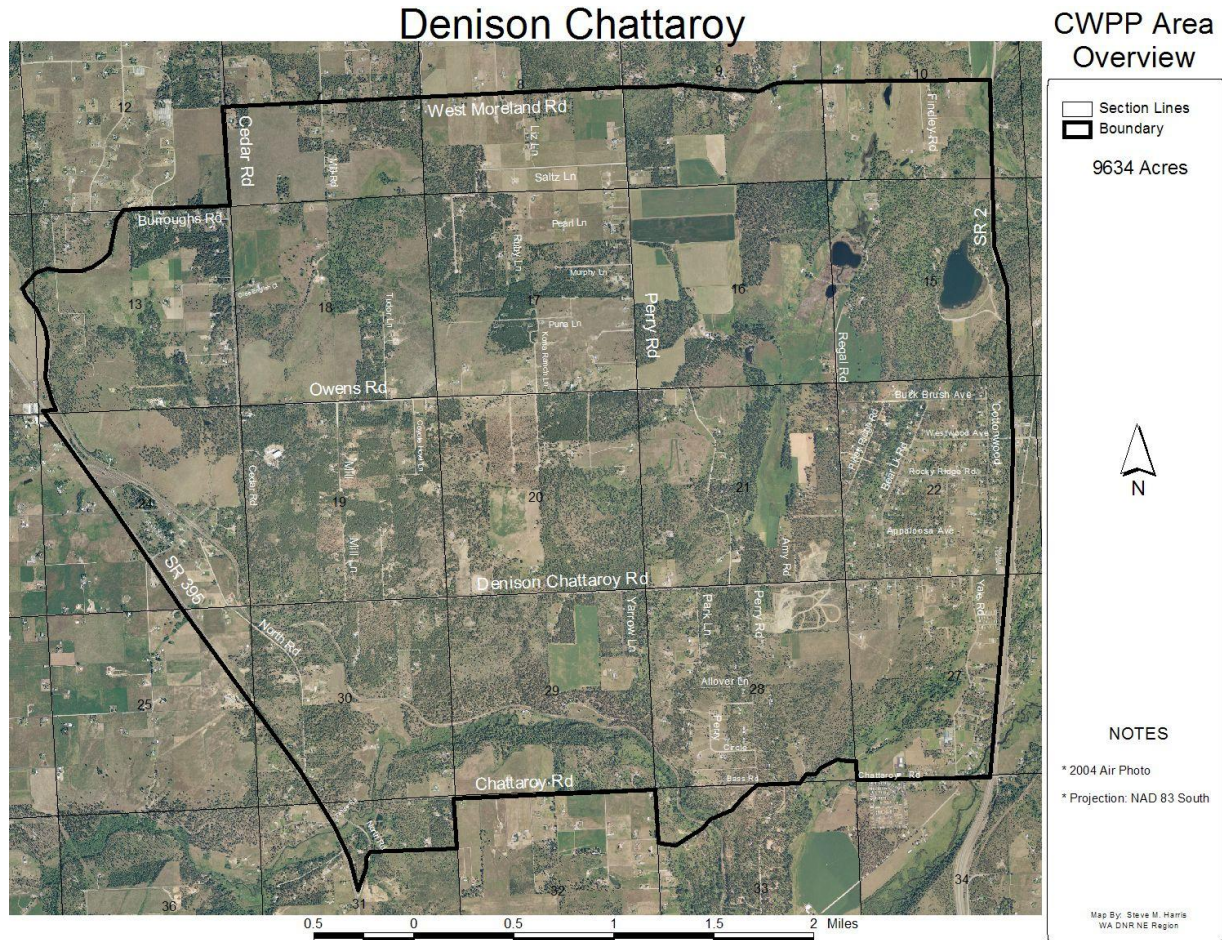
The Denison Chattaroy Project Area Boundaries are:

West: Highway 395, Cedar Road and Burroughs Road

North: Westmoreland Road

East: Newport Highway

South: Chattaroy Road



PLANNING PROCESS

Background

The enactment of the Healthy Forest Restoration Act of 2003 created the opportunities for communities like this to participate in community based forest planning and vegetation treatment projects. In order for communities like Denison Chattaroy to take full advantage of this opportunity, a CWPP must be prepared.

The process for developing a CWPP is intended to help the community of Denison Chattaroy to define priorities for the protection of life, property, and critical infrastructure in the WUI. The WUI is commonly considered the zone where structures and other human development meet and intermingle with undeveloped forest and range lands.

This WUI zone poses tremendous risk to life, property and infrastructure in associated communities, and is one of the most dangerous and complicated situations that firefighters face.

A local coordinating group that includes: FireSafe, WDNR, District 4 and community residents was developed for this planning process. Members from the coordinating group toured the Denison Chattaroy Area. The group reviewed the fire history of the area. During the tour, the coordinating group assessed the fuel problems and established priority 1, 2, and 3 areas.

Over 750 letters were sent out to the Denison Chattaroy Community landowners explaining that a CWPP was being developed. FireSafe responded to approximately 75 phone inquiries regarding the plan. Approximately 2 out of every 3 homes in the priority areas had contact from Firesafe, WDNR, and District 4. It is expected that updates will be necessary in order to reflect recent work done to mitigate hazards identified in the CWPP. Another important aspect of this plan will be to monitor the effectiveness of this project when implemented under the plan.

PHASE I

The Local Coordinating group identified four phases based upon the need for public and firefighter safety. These phases were also based on the history, current fuels, and the population residing within the project area. The highest probability of ignition was identified within the project area. With prevailing South and Southwest winds indicated, Highway 395 corridor along with the Burlington Northern Railroad line gave a clear identification to the highest probability of ignition within the project area.

DENISON CHATTAROY HISTORY

Over the past 40, years there has been a very large accumulation of forest fuel build-up in the Denison Chattaroy community. One of the areas of concern, identified in the CWPP, is an area that burned in August of 1959. This fire burned 1,500 acres and was caused by a down power line. (See Large Fire Map page 10) This area has since grown into a very thick stand of Lodgepole Pine. In the winter of 1996, an ice storm caused severe damage to this stand, leaving down and broken timber throughout. This left conditions for a very fast and intense fire to move through the area. There are many homes that have been, or are being constructed in this forest environment.

Wednesday, October 16, 1991, (Fire Storm 91) winds were gusting to 62 miles per hour. These winds were responsible for 92 separate wildland fires in Spokane, Stevens, Ferry, Okanogan, and Pend Orielle Counties. One hundred and fourteen homes and numerous other structures were destroyed.

This outbreak of wildfires in Northeastern Washington focused attention on the danger of overhead power lines. In most cases, these fires were sparked by strong winds pushing trees into power lines, which in turn fell or broke and started grass, brush and forest fires. The situation quickly became an urban wildland interface crisis. Complex fires raged for days. Suppression resources were requested from throughout the Pacific Northwest.

The 1991 Denison Chattaroy Fire was broken into 3 components:

- ❑ **Denison Chattaroy West**, which was reported at 10:40 a.m. and was approximately 3 miles long.
- ❑ **Denison Chattaroy East**, which was reported at 10:45 a.m. and was approximately 6 miles long.
- ❑ **Denison Chattaroy Central**, which began at 2:00 p.m., had 4 separate ignition points caused from spotting, and was approximately 3 miles long. This fire was threatening homes within the first 60 minutes.

Spotting was a significant problem for firefighters and landowners. The Denison Chattaroy fires have had the highest loss of homes in Spokane County. Although the Denison Chattaroy fires had just over 200 homes at risk, firefighter intervention saved most of the homes. The majority of the homes were lost within the first 2 hours of the fires. There were 49 homes lost, along with 4,760 acres. This loss was due to a high intensity fire spread with little or no defensible space.

Evacuation History

Evacuation was complicated because of poor visibility due to dust and smoke. Fire raced through so quickly that public officials assigned to the fire could not organize an evacuation.

Once the evacuation decision was made, most of the residents from the high fire intensity areas chose to leave. However, many residents defied the recommendations of fire officials and direct orders from the Sheriff's Deputies. The decision by residents to ignore the evacuation request was due to the homeowner's attempts to save their homes and property.

Public Information History

When the fires started, concerned individuals overwhelmed the Spokane County 911 system with more than 2,600 calls. This included alarms and non-emergency requests for information.

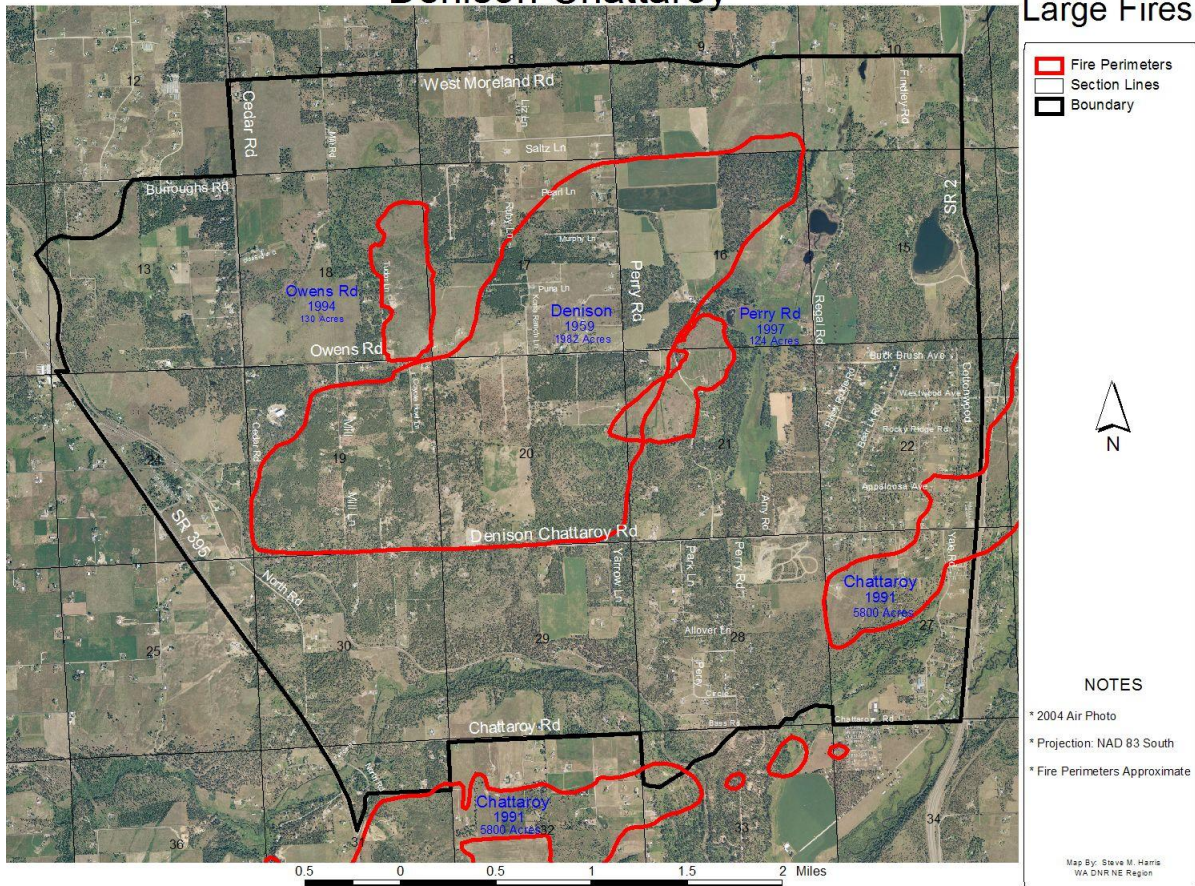
Regular phone lines into fire districts were also jammed. Radio and television stations would broadcast information that came from overhearing scanner radios and on-scene fire reports. In the early hours, no one had an overview of the regional situation. No aerial observation of this incident could be accomplished until just before sunset due to blowing dust.

Some of this information was derived from NFPA Case study: Fire Storm 1991.

Large Fire Map

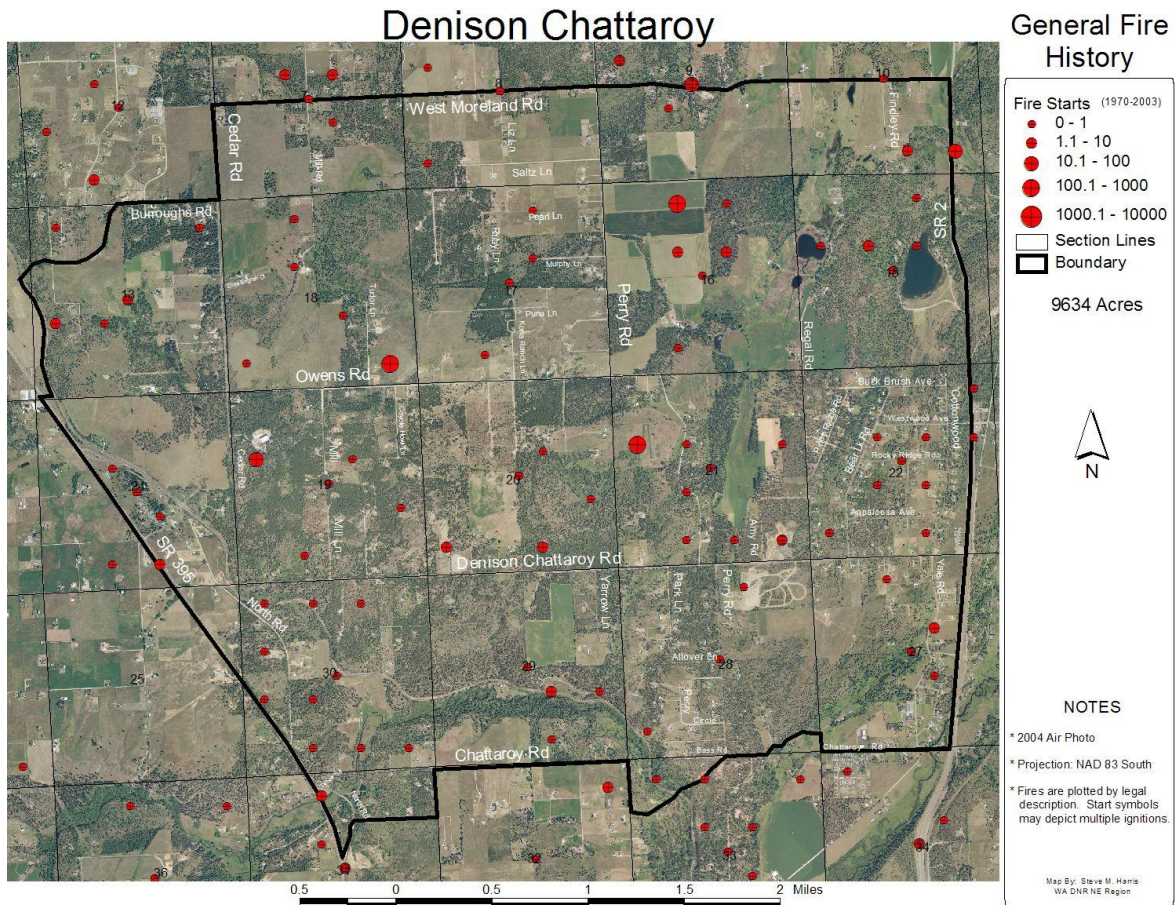
Denison Chattaroy

Large Fires



General Fire History

From 1970 to 2003, there have been approximately 80 fires in this area, with the major causes being debris burning and recreational fires. The Washington State Department of Natural Resources and Spokane County Fire District # 4 have both been very active with their educational awareness programs to the public and will continue these efforts.



Fire Behavior Analysis

The fuel type that surrounds the Denison Chattaroy area of Northeast Washington State is typical of the region. It consists of scattered pine forests intermingled with perennial grasses making a fire scenario that could be critical.

This area of Washington State, like much of the Western US, has been under the influence of drier and warmer climate changes.

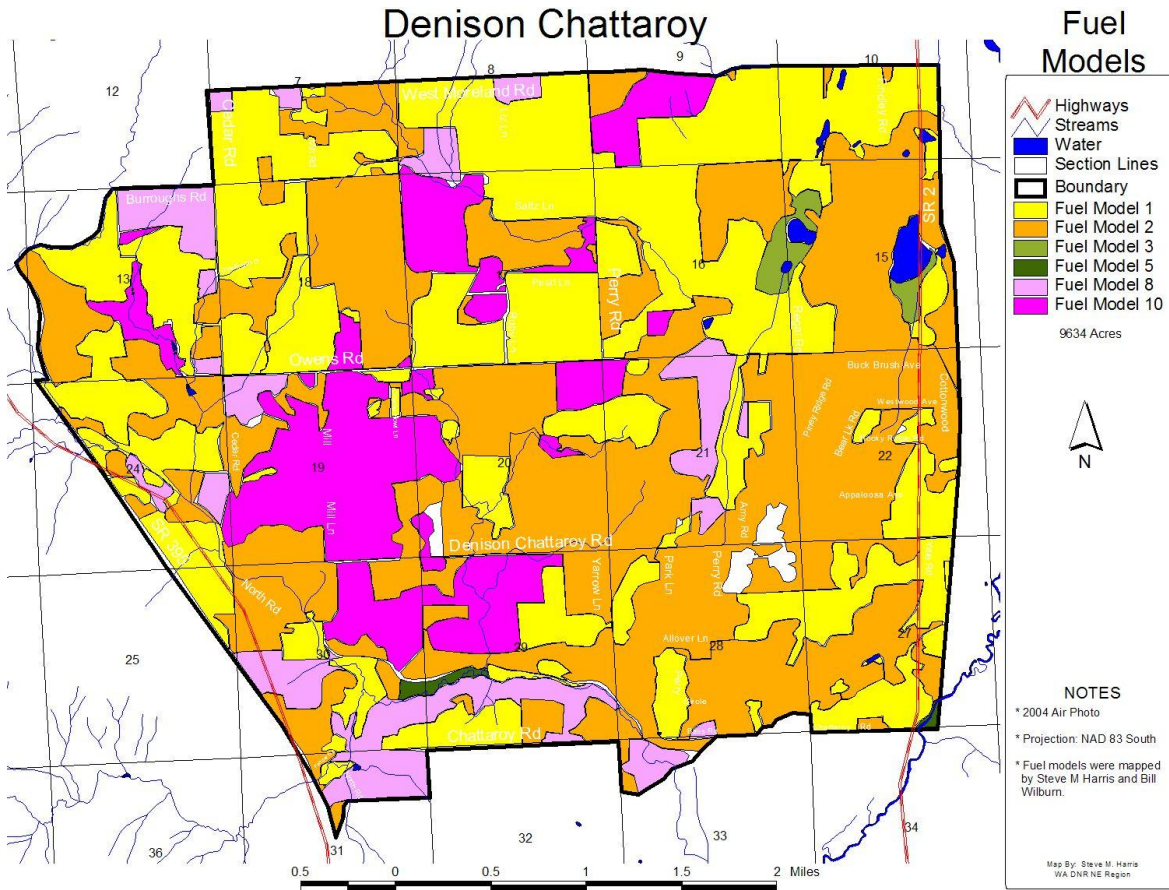
The Denison Chattaroy area has had significant population growth in the past 10-15 years. This has allowed the region to become part of a WUI zone, which means the forest lands are intermingled with homes and greater population.

The fuel types in the Denison Chattaroy area are taken from the NFPA Fire Behavior Prediction System (fuel models). Looking over the areas of concern for this report, the model(s) most likely used for fire safety would be a model two (2) or model (8). The model 2 is a grass model under timber where the perennial grasses are carrying the fire to the larger fuels. Fuel model 8 is a timber model where dead and down heavier fuels carries the fire.

These two fuel models are also inter mixed with fuel models one (1), three (3), six (6) and ten (10), making the potential fuel models very complex. There is an abundance of dead and down timber left over from the ice storm of 1996. This fuel has had 10 years to cure under near drought conditions and is now very ready to burn. Also, existing in the immediate area are remnants of Firestorm 91. Small pine tree growth which is called "reprod" or "reproduction" has now had nearly 15 years to grow. This added fuel has made the Denison Chattaroy area a very volatile fire environment. (See CWPP Fuel Model map page 13)

Continued on page 14.

Fuel Model Map



Fuel Model 1 - Annual grasses with very little shrubs or timber present.

Fuel Model 2 - Open Ponderosa Pine with annual grass under story.

Fuel Model 3 - Tall grass with approximately one-third of the stand dead or cured.

Fuel Model 5 - Regeneration shrub lands (after fire) with a large green fuel component.

Fuel Model 8 - Mixed Conifer fuel with little dead down litter loading.

Fuel Model 10 - Mixed Conifer stand with heavy ground fuels.

Reproduction (reprod) trees are small in nature and provide a fine ladder fuel for fire to climb into the tree tops. A fuel model is categorized by the fuel that is the carrier of the fire. Fires burn in the surface and ground fuels with greater fire intensity than timber litter models.

Dead and down fuels include greater quantities of 3-inch or larger limb wood resulting from over maturity or natural events. The ice storm created a large load of dead material on the forest floor. Crowning, spotting, and torching of individual trees are more frequent with the fuel type in the Denison Chattaroy area, leading to possible fire control difficulties. Any forest fuel type may be considered a fire problem if heavy down material is present. Heavy down materials are caused by ice storms, insect and disease-ridden stands, wind thrown stands, and over matured situations with deadfall. The Denison Chattaroy area has a little of all of these incorporated into the forest environment. With the advent and continued strengthening of the WUI, future fires potentially could be devastating to this area.

Weather in Northern Spokane County

Weather plays an important role in the formation of fire direction and rate of fire spread. The weather elements of most concern are wind, precipitation and lightning. Fire history has shown that all of the major fires in this project area have been wind driven. Drought, snow pack and local weather conditions can also expand the length of the fire season. Terrain is an additional factor, as the topography of a region or local area influences the amount and moisture of available fuel. That being said, there is so much that goes into evaluating an area for potential fire during the summer months. Summer months are the most likely time for wildland fires to ignite and spread.

The Denison Chattaroy area is dominated by cool and damp weather with occasional heavy snow episodes in the winter months. In the past 25 years, this part of Spokane County has been one of continual drought episodes. Lighter grassy fuels cure and die each summer, creating a fuel bed for lightning ignited fires throughout the Pacific Northwest.

The Denison Chattaroy area of Spokane County is an area that sees an average amount of lightning each summer. Convective lightning, from daytime heating, varies each year as to the amount of lightning strikes. This area receives this type of lightning from late April through September. If fuels are cured and lightning occurs, fires will ignite and burn. This area receives on average of 10 to 15 lightning days each summer. Wind is another serious problem, especially during the latter months of summer and the beginning of fall.

Firestorm 1991 occurred because very strong winds from an active dry cold front swept into the region during the second week of October. Fuels were very dry as little or no rain fell for the entire summer months leading up to the catastrophic fires. The wind speeds, measured in excess of 60 mph at the Spokane Airport, blew down power lines and wires, sparking the fires. In the Denison Chattaroy area, the fast moving fires swept through the region, destroying homes and other structures.

Homeowners need to be aware of their surroundings meteorologically, and check current and past weather extremes from the weather office in Spokane. Homeowners need to educate themselves on how the fuels around their homes are reacting to the warm and dry months and watch for lightning events forecasted for the area. If a family is prepared, knowledge of the weather will tend to help them stay safe from a fast moving fire that potentially could be created from the weather and fuel mix.

Conclusion

When wildfires occur near homes, homeowners often feel powerless to protect their property. An approaching fire may seem unpredictable and difficult for trained firefighters to control. However, with an understanding of the concepts of fire behavior outlined in this report, homeowners can anticipate the intensity and movement of a fire by considering several key conditions: fuels and its structure, local weather and topography.

Homeowners can help save their homes with simple precautions.

- Changing the fuel conditions around the home, such as the arrangement of trees and plants.
- Knowing the distance that the vegetation is from your home in relation to the intensity of the shrubs and trees if they catch fire.

A homeowner can influence the movement and intensity of fire by following some of these preventive measures and consequently improve the survivability of their home. Making a home survivable will be expanded upon in the emergency preparedness section of this plan.

FOREST CONDITIONS

Living in the Wildland Urban Interface

Fires initiated in wildland areas can spread to populated areas where structures can be ignited; these are called Wildland Urban Interface Fires (WUI fires). As fire moves into the structures, it introduces intensities and durations different from that produced by vegetation. Fires are dictated by landscape and the types of fuels within that setting. Homes exposed to both burning vegetation and other structures are complex.

As the growth and urbanization of northern Spokane County continues, the potential for WUI fire increases. As a result of this urban interface, the effects of these fires can be the combined consequences of both structure and wildland fires. Wildland fires can encroach into residential properties and structure fires can invade wooded areas. Interface fires can also be quite difficult to fight, as remote locations of residential properties in wooded areas can increase the firefighting response times.

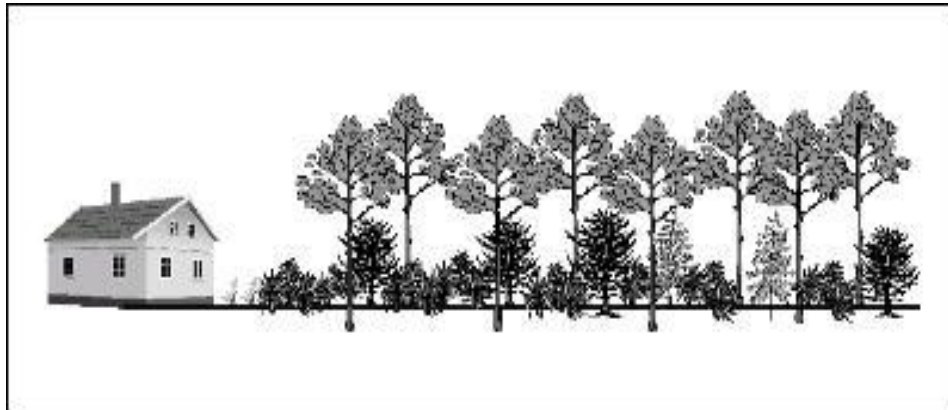
Look at the following conceptual models; this clearly depicts two WUI fire scenarios. We can see that an abundance of available fuel in Landscape A, along with the proper ignition, could potentially create a fire behavior problem that may not easily be extinguished or controlled.

In Landscape B we have removed some of the available fuel. Having a basic understanding of fire behavior, we can rapidly assess the relative fire hazard of different landscapes.

Fire behavior in Landscape A:

Landscape A is very similar to much of the Denison Chattaroy area. The presence of ladder fuels from dead and down fuel, plus reprod, and abundant seasonal grasses could produce a high intensity crown fire in the surrounding forest. Even without a crown fire, the fire could exhibit a rapid rate of spread through the under story. The potential for firebrands (burning embers that produce spot fires) would also be great. Possible sources of ignition for the home would be:

1. Firebrands landing on the roof or entering the vents.
2. Radiant heat igniting blinds through the windows or raising the temperature of the houses exterior to the point of ignition.
3. Flames carried directly from the forest to the side of the house through burning fuels (shrubs, pine needles, dry grasses, or dead leaves).

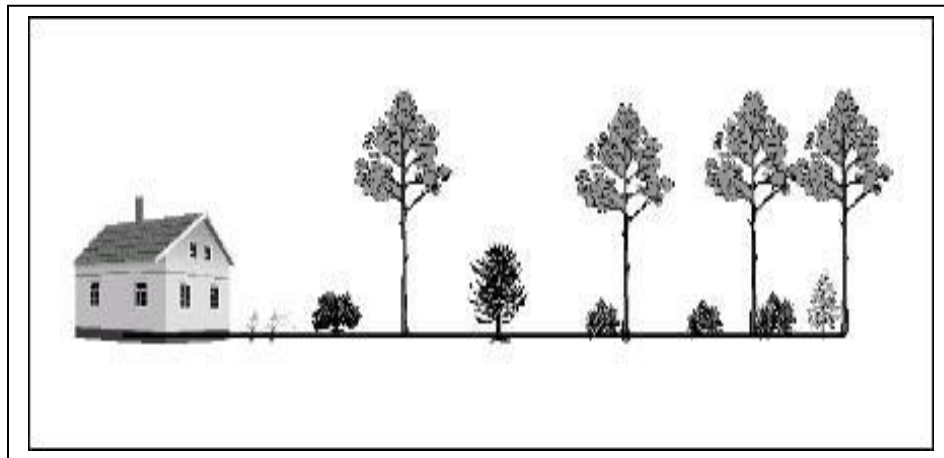


LANDSCAPE A

Fire Behavior in Landscape B

In Landscape B, a low intensity fire would be about all that could be experienced in this fire scenario. The absence of ladder fuels and a lower density of pine trees make the likelihood of a crown fire developing significantly less than in Landscape A. If a crown fire should reach this forest, it may be reduced to a surface fire due to the lack of sufficient under story fuels to sustain it. Assuming that only a surface fire develops in Landscape B, how do the same three potential home ignition sources fare?

1. The risk of ignition from firebrands would be lower in Landscape B because there are fewer plants to produce firebrands.
2. The ample defensible space reduces the amount of heat to which the house is exposed and consequently, reduces the preheating or ignition of interior items and exterior features of the house.
3. Finally, the defensible space greatly reduces the chance of any flames reaching the exterior walls of the house.



LANDSCAPE B

Fire Potential

The vast majority of the homes and other structures in the Denison Chattaroy area are surrounded by forest fuels, many of which have vegetation near or below overhanging structures. The timber types in the area consist predominantly of Ponderosa Pine, Douglass-Fir, and Lodgepole Pine. The under story component is thick brush and regeneration. In 1996, a major ice storm event in this area caused severe damage to the Lodgepole Pine timber type, leaving large amounts of dead and down material within this community.

Some homeowners prefer to keep as much natural vegetation around their structures as possible, (privacy screen) regardless of the fire risk. Many of the homes in this project area are built using wood siding and decking materials, along with other numerous ignition sources that put this community at high risk of wildfire. Although the topography is relatively gentle, fire in these fuel types (see fuel model map page 13) will tend to burn at moderate to high intensities. Some areas have been thinned or cleared of underbrush, making those areas much less at risk (see fire behavior section of this plan). The Denison Chattaroy project area has many fire starts during the wildland fire season, over 80 starts between 1970-2003. (See General Fire History, fire starts map, page 11)

Wildfire Hazard Assessment

Wildfire behavior is affected by fuel, weather, and topography. These environmental elements affect the ability of a fire to start, the speed and direction it will travel, the intensity it will burn and the ability of firefighters to suppress it. Although topography and weather cannot be controlled, managing the fuel in the fire environment can be done. Therefore, assessment and management of fuels is our best opportunity to prepare for, or prevent a wildfire.

FUEL MODELS

The Following is a list of six fuel type models identified in the Denison Chattaroy planning area. Photo Examples of fuel model types to follow.

Fuel Model 1 - Annual grasses with very little shrubs or timber present.

Fuel Model 2 - Open Ponderosa Pine with annual grass under story.

Fuel Model 3 - Tall grass with approximately one-third of the stand dead or cured.

Fuel Model 5 - Regeneration shrub lands (after fire) with a large green fuel component.

Fuel Model 8 - Mixed Conifer fuel with little dead down litter loading.

Fuel Model 10 - Mixed Conifer stand with heavy ground fuels.

For more information regarding the fuel models contact:

Department of Natural Resources: Arcadia District Manager (509) 684-7474

Fuel Model 1: Annual grasses with very little shrubs or timber present



Acres: 3,561

Percent of total area: 38

Priority: # 5

Objective: Mow or Graze within 100 feet of structures

Fuel Model 2: Open Ponderosa Pine stand with annual grass under story, in addition to litter and dead-down stem-wood from the open shrub or timber over-story.



Acres: 3,998

Percent of total area: 41

Priority: #2

Objectives: Thin and prune, graze or mow for minimizing accumulation of slash both current and future forest activities.

Fuel Model 3: Tall grass stands with approximately one-third of the stand dead or cured.



Acres: 85

Percent of total area: 1

Priority: #6

Objectives: Mow or graze within 100 feet of structures, or high use areas such as recreational sites.

Fuel Model 5: Regeneration shrub-lands (after fire) or other disturbances have large green fuel component.



Acres: 7

Percent of total area: 1

Priority: #4

Objectives: Graze, mow, chip slash, rehab non forested areas. Treat fuel within 100 feet of structures and pre plan fire breaks.

Fuel Model 8: Mixed Conifer fuel with little dead-down litter loading.



Acres: 657

Percent of total area: 7

Priority: #3

Objectives: Thin and prune, graze or mow for minimizing accumulation of slash both current and future forest activities.

Fuel Model 10: Mixed Conifer stand with heavy ground fuels.



Acres: 1173

Percent of total area: 12

Priority: #1

Objectives: Thin and prune and remove or reduce this material. Outcome should be either fuel model 2 or 8.

Fuel Model 10: Mixed Conifer stand with heavy ground fuels.

Fuel model 10 after fuel reduction plan met.



PHASE II

Wildfire Risk Assessment and Evaluation

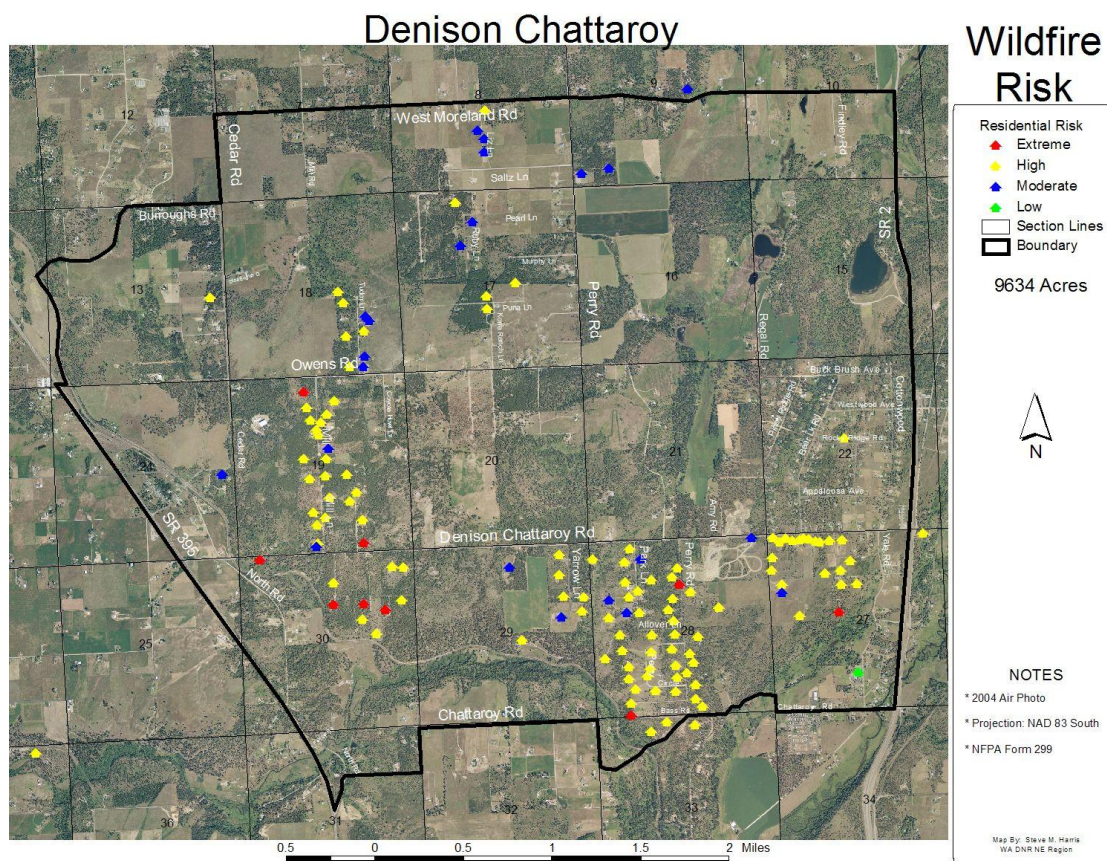
Phase II includes the following:

Complete a Fire Risk Survey collecting data from the priority areas to aid in the wildfire prevention and defensibility needs of this rural community. A Fire Risk Survey is used to assess a given structure's risk level prior to a wildfire danger. The survey compiles an assortment of information such as:

- GPS location
 - Structure
 - Driveway
- Roof construction
- Defensible Space
- Driveway Length
- Water Availability
- Hazards

FireSafe, WDNR and District 4 have completed risk assessments in accordance with NFPA 299 on approximately 66 percent of the residences in the priority areas of the Denison Chattaroy CWPP (see Wildfire Risk map).

By doing the assessments on these individual homes, FireSafe has been able to spend time with homeowners educating them on how to improve the survivability of their homes in case of a wildfire.



PHASE III

Strategic Fuel Breaks and Fuel Reduction

Fuel reduction and fuel breaks are both key elements in achieving early fire control. They allow firefighters the ability to gain the upper hand early in the incident.

Existing Fuel Breaks

A fuel break is a natural or manmade change in fuel characteristics which effects fire behavior so wildfires can be more readily controlled. The purpose of a fuel break is to slow the rate of spread and intensity of a fire and create a safe area in which fire suppression operations may safely occur.

FireSafe, WDNR, and District 4 have identified several man made and natural fuel breaks within the Denison Chattaroy CWPP in the event of major wildfires. The coordinating group is working in cooperation with Spokane County Engineers to improve county roads that have been identified as fuel breaks in the plan. In addition, Avista Corporation contractors have completed fuel reduction on power lines within these fuel break areas.

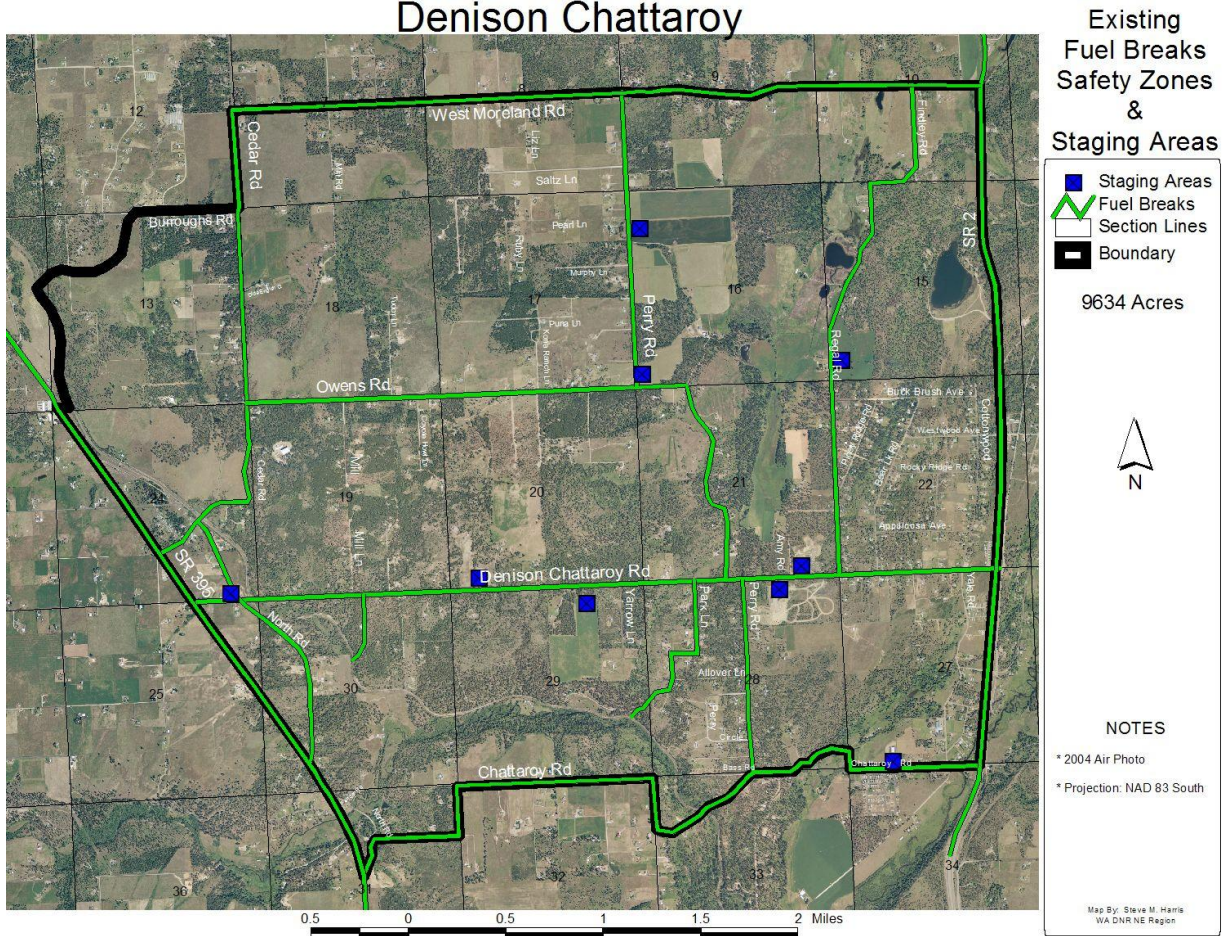
(See fuel break page 32)

Strategic Fuel Breaks

Strategic fuel breaks are places on the landscape located to slow a fire down or provide for preplanned tactical containment by firefighters. This process involves working with landowners where possible to accomplish strategic fuel break objectives.

Existing Fuel Breaks, Safety Zones & Staging Areas

Denison Chattaroy



Fuel Break

The photograph below is an example of a man made fuel break.



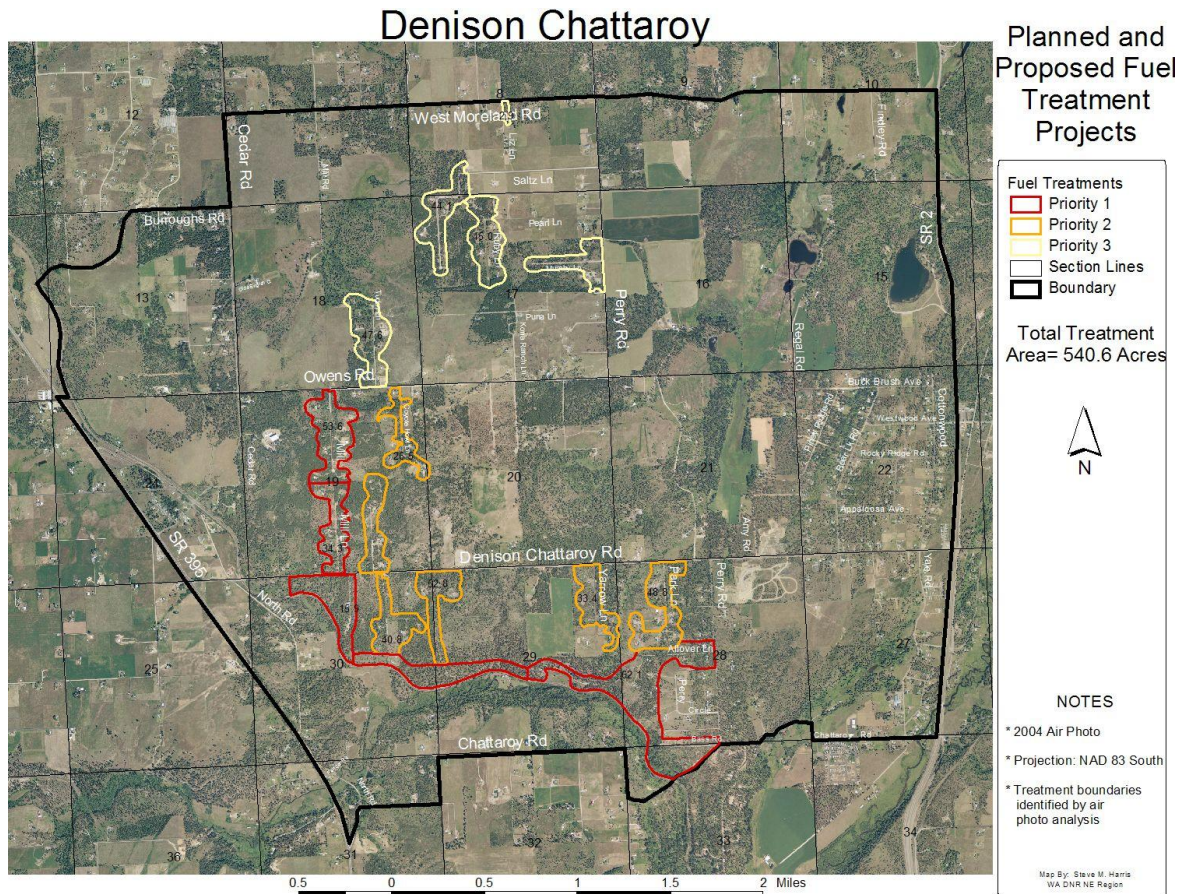
Below is an example of a Natural Fuel Break



Mitigation Activities for Strategic Fuel Breaks and Fuel Reduction

There are three main categories of mitigation actions identified by members of the Denison Chattaroy Coordinating Group. Categories include fuel reductions, education and outreach, and fire prevention and suppression in the WUI area. These categories are listed in order of priority.

- Ingress and egress on the 14 identified private lanes (see map below). Treat vegetation within 60-100 of roads and driveways.
- Write and implement defensible/ survivable plans for homeowners that access these lanes.
- Conduct risk assessments and mapping on all residences in the priority areas and updates as needed.
- Identify escape routes and safety zones for the residents.
- Encourage all residents to get involved in District 4's Address Sign Program.
- Continue to do education and outreach in this and adjacent communities.
- Encourage these communities to get involved in the public planning process and to participate in "Fire Wise" work shops and fire prevention programs.



The Denison Chattaroy CWPP fuel mitigation priorities are as follows:

<u>Name</u>	<u>Priority</u>	<u>Acres*</u>
Allovar/Bass Lanes	1	38
Chattaroy Rd/ RR Spees	1	19
Mill Lane North	1	54.5
Mill Lane South	1	38
Unnamed Lane 1	1	35.2
Unnamed Lane 2	1	36.6
Gebhardt Driveway/ Railroad Fuel Break	1	47.1
Coyote Howl Lane	2	26.5
Park Lane	2	48.8
Yarrow Lane	2	33.4
Tudor Lane	2	47.6
Ruby Lane	3	45.0
Murphy Lane	3	20
Saltz Lane	3	44.1

*All acreages are approximated

Fuel Reduction Before and After Pictures

BEFORE



AFTER



Ingress and Egress (Access)

Ingress and Egress is our number one priority in this community fire plan. The local coordinating group identified 14 private lanes that need major fuel reduction activities before emergency fire response equipment could enter these lanes during a fire incident. Private lanes are listed in the appendix.

This is an example of adequate private lane access



This is an example of a inadequate private lane access.



This picture depicts the following:

- ❑ Narrow access
- ❑ No turn-outs
- ❑ Heavy forest fuel loading
- ❑ Closed canopy conducive to crown fire

This is an example of a crown fire crossing a private lane. There is no escape route for emergency personnel or homeowners.



Railroad

The Burlington Northern Santa Fe Railroad (BNSF) runs through the Southwest boundary of the planning area (approx 4 miles). This is an active secondary railroad line and has the potential of starting a wildfire which could affect several homes along this route. Once a fire starts along this track, there is potential for a major fire during periods of high wind, hot temperatures, and dry conditions. Railroad officials have expressed an interest in working with District 4 and WDNR in a wildfire prevention effort.

Currently BNSF is sending a patrol vehicle following each train on any day when the temperature is above 80°F. When temperatures near or exceed 100°F the BNSF road master will close the line to all railroad traffic. There also needs to be an ongoing effort to improve fuel reduction along their railroad right-of-way.

Contact Person: Road Master, (Jeff Chicks) (509) 995-0291
Emergency 911

Railroad Right of Ways

Inadequate railroad right of way clean-up



Adequate railroad right of way



Power lines

Electrical power lines in this planning area are managed by Avista and Inland Power and Light. Both companies have ongoing tree trimming programs.

Recently Avista's tree trimming contract company has done significant tree and brush trimming to adjacent power lines in this planning area.

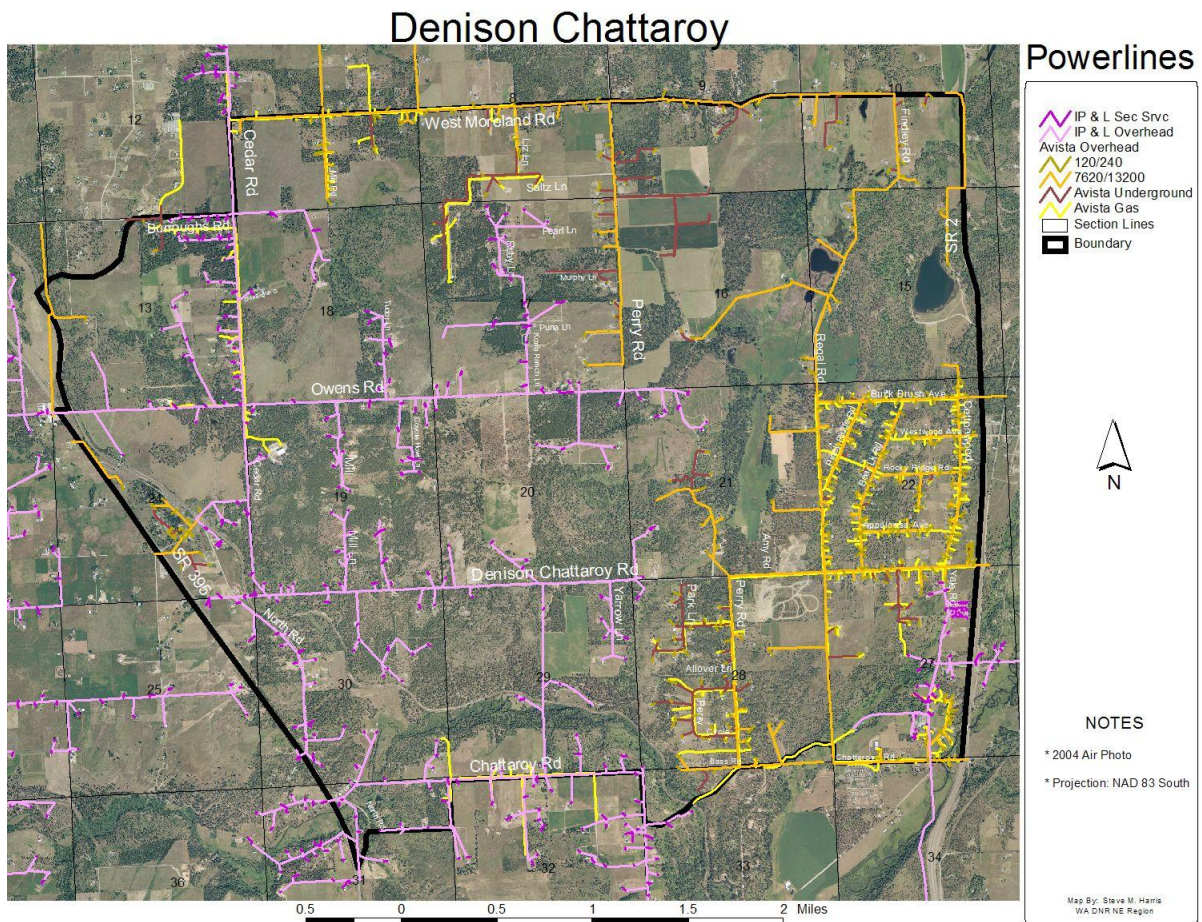
Tree trimming is an ongoing maintenance issue for both companies. WDNR and District 4 continue to encourage both utility companies to maintain proper tree trimming programs and construction of underground power lines

Avista Contact Person for Line Maintenance: Sharon Vore (509) 495-4059

Avista Contact to Shut Power off: 911

Inland Power & Light Contact for Line Maintenance: (509) 747-7151

Inland Power & Light Contact to Shut Power off: 800-747-7151



Power lines

Adequate example of power line maintenance



Inadequate example of power line maintenance



Underground along with overhead power lines.



PHASE IV

Future Opportunities for Future Funding

The local coordinating group should continue to explore new funding sources for this projects such as:

- National Fire Plan Grants
- Western States Fire Manager's Grants
- Forest Health Grants
- Other stewardship or fuels grants
- Environmental Quality Improvement Program Grants

EMERGENCY PREPAREDNESS

Address Sign Program

Spokane County Fire District 4 provides address signs to residences and businesses as a public service for the District's citizens. Since the program inception in 2002, District 4 has installed approximately 1,800 signs. In the Denison Chattaroy project area, approximately 181 address signs have been installed. The signs are a white Washington State Department of Transportation approved flexible highway marker with vertically read numbers. The signs are normally placed near the intersection of the structure's driveway entrance and the County or City road.

The numbers on the address sign are reflective and assist responders in finding the emergency locations at night. Many times emergencies are not visible from main roadways. Even a fire (flames and smoke) may be contained within the structure and therefore will not be visible from the county road or city street. District 4 has a limited amount of budgeted funds dedicated for these signs each year. Donations have been assisting and allowing the District to help citizens with this and other programs. The cost of materials is approximately \$20 per sign. The address sign program is on a first come first receive basis when funds are available. The District places the sign on the homeowner's property or in the county/state right-of-way. The entire process usually takes approximately 6-8 weeks. For information on this program, please contact:

Spokane County Fire District 4: (509) 467-4500

Address Sign Program

Spokane County Fire District 4 address sign program.



Address signs are double sided, at least 4 inch high numbers, and reflective. The address sign is placed in a visible location for emergency personnel.

Creating a Defensible/Survivable Space

Communities are developing more and more in the WUI areas throughout the Inland Empire. This means there may not be enough firefighting resources available to defend every threatened home. Firefighters have to make decisions about which homes they can safely and effectively protect. Properties with heavy fuel loading (dense vegetation), highly combustible building materials, and poor or limited access will be lower priority for protection due to life safety and accessibility.

It is the action the homeowners take prior to a wildfire that is critical in determining if their home will survive.

Homes that are properly landscaped with good defensible space and non-combustible roofs are more likely to survive a wildfire than a home that does not. It is the homeowner's responsibility to make their home survivable, not the firefighters.

Defensible space is the area between the home and an approaching wildfire where the vegetation has been reduced or modified to reduce the advancing fire front and to give firefighters an opportunity to defend the home.

The optimum size of each homeowner's defensible space depends on the type of vegetation, the location of the home in relationship to the steepness of terrain and structural design. The defensible space will vary from about 30 feet to 200 feet.

The Three R's of Defensible Space

- ❑ **Removal** -The technique involving the elimination of entire plants, particularly trees and shrubs, from the site.
Examples of removal are cutting down a dead, diseased or dying tree, or removing flammable shrubs.
- ❑ **Reduction**-The removal of plant parts, such as branches or leaves.
Examples of reduction are pruning dead wood from a shrub, removing lower tree branches, and mowing dead or dried grass.
- ❑ **Replacement** - substituting less flammable plants for more hazardous vegetation.
Examples of replacement are the removal of a dense stand of flammable shrubs and planting an irrigated, well maintained flower bed.

The 30 foot "Lean, Clean, and Green Zone" Around your Home

- ❑ **Lean**-Small amounts of flammable vegetation.
- ❑ **Clean**-No accumulation of dead vegetation or other flammable debris.
- ❑ **Green**-Plants and lawn are healthy and green during the fire season.

Homeowner guidelines for modifying and maintaining vegetation within the home ignition zone:

- Remove all dead vegetative materials, including standing and down trees, shrubs, grasses, needles, leaves, branches, cones, and firewood.
- Remove most of the live trees within 30 feet from the house.
- Use fire resistive, high moisture content varieties of vegetation for landscaping.
- Use non combustible materials in landscaping near the house.
- Prune all smaller trees 1/3 the height of the tree.
- Prune all larger trees 10 feet from the ground.
- Remove or thin overcrowded or weakened trees beyond the 30 foot distance from the home and up 200 feet away depending on slope and vegetative conditions.
- Stack wood and other flammable materials at least 30 feet from your home.
- Clean all materials (combustible) from gutters, roofs, decks, and yard.
- Do not keep combustible materials under decks or elevated porches.
- Keep lawn areas mowed, watered and green.
- Keep tree branches 15 feet away from chimneys.
- Design driveways and walkways to serve as fuel breaks.
- Locate propane tanks at least 30 feet from any structure and provide 10 feet of clearance around them. Place non-combustible materials under the tank.

Structural Protection

Homes are very durable in a wildfire environment when constructed properly for that environment. The following are general guidelines for new construction, remodeling or maintenance activities:

- ❑ The roof is the most vulnerable part of your home in a wildfire environment. The roof should be constructed of a non-combustible material.
- ❑ Siding and decks should all be constructed of non combustible materials when possible.
- ❑ Windows should at least be double pane glass; tempered glass can withstand convection and radiant heat at much higher temperatures than plate glass and is recommended for larger windows.
- ❑ Homes should have smoke detectors, fire extinguishers and sprinkler systems if possible.
- ❑ Keep garden tools easily accessible.
- ❑ Enclose all eaves.
- ❑ Prevent sparks from entering your house by covering all vents with wire mesh. The mesh should have a maximum of 1/8" opening.
- ❑ Homes with wells should have an emergency generator to operate when there is a power failure.
- ❑ Call your local Utility Company if there are tree limbs impeding power lines.

Ingress and Egress

- ❑ Educate Homeowners to insure accesses to their homes.
- ❑ Home-owners should try to maintain two means of ingress and egress for use in emergencies.
- ❑ Assure driveway access is wide enough for emergency vehicles with ample turn around. Construct turnouts along one way roads.
- ❑ Clear vegetation 30 to 60 feet from the center line of driveway into your home where possible.
- ❑ Install address signs (Contact District 4 regarding the Address Sign Program).
- ❑ 12%-14% maximum grade (outside right-of-way) 2%-8% maximum grade, within right-of-way. Contact the Spokane County Division of Engineering and Roads.
- ❑ 12' clear travelway with all-weather surface.
- ❑ One approximately every 400 feet. All-weather surface 20' in total width for 50' in length.
- ❑ Required for driveways over 150' in length. "Hammerhead" or 50' minimum radius cul-de-sac needs to be within 150' of dwelling.
- ❑ Approach permit are required from the Division of Engineering and Roads to connect to any country public road. Private driveways constructed prior to obtaining building permits may require a grading permit.
- ❑ Installation inspection and acceptance of the driveway is required prior to dwelling occupancy (i.e., road surfacing, width, vertical clearance and drainage).
- ❑ No curve radius shall be less than 100' measured from the road centerline unless approved by the local fire district and the Division of Building and Code Enforcement.

- ❑ Corrugated metal pipe (CMP) or approved alternate: Driveway cross pipes at approaches to the Fire Apparatus Access Roads, public or private, shall be a minimum of 12" in diameter.

For more information or an appointment contact:

Spokane County Division of Building and Code Enforcement

1026 W. Broadway, Spokane, WA 99260-0050

(509) 477-3675 BACE@spokanecounty.org

<http://www.spokanecounty.org/building>

or

See Appendix Page 87 & 89

Creating a Personal Emergency Plan for Wildfire Protection

Residents should develop a personal emergency plan for wildfire. Residents with questions should contact; District 4, WDNR, or FireSafe for information to put your plan together.

Elements of the Plan

- ❑ Have an evacuation plan.
- ❑ Have at least two escape routes.
- ❑ Know where safety zones and escape routes are located.
- ❑ Have a communication plan with family members (ways to stay in touch).
- ❑ Have assignments for your family. Designate who is to do what in an emergency.
- ❑ Connect garden hoses and nozzles to an active water source.
- ❑ Teach family members how to use the fire extinguisher (ABC Type) and show them where it is kept.
- ❑ Have a ladder long enough to reach roof areas.
- ❑ Ask neighbors about tools, equipment and other resources they could share in an emergency.

If Caught in a Wildfire before the Fire Approaches the Home

- ❑ Evacuate pets and family members who are not essential to preparing the home.
- ❑ Remove combustible items that will burn around the house, (30 feet of lean, clean & green).
- ❑ Seal up attic and ground vents, windows, doors and pet doors.
- ❑ Close shutters, blinds and heavy window coverings.
- ❑ Close inside doors and open fireplace dampers, close fireplace screens.
- ❑ Shut off all gas and other fuel supplies.
- ❑ Fill all tubs, pools, and other large containers with water.
- ❑ If you have a water pump, be sure it is fueled and ready to use.
- ❑ Place metal ladders against house in a visible location.
- ❑ Back car into your driveway or garage and roll up all windows.
- ❑ Disconnect any automatic garage door openers.
- ❑ Have valuables packed and ready to go.
- ❑ Keep pets with you; have larger animals loaded in trailers.
- ❑ Turn on lights in each room to increase visibility of home in heavy smoke.
- ❑ Have fire tools available for yourself or firefighters.

If You Decide To Stay in the Home

- Stay in your house until the fire passes (there may be more than one fire front).
- After fire has passed your home, check your roof immediately and put out any fire or sparks that may be visible.
- Check outside the home for any live fire or embers
- Check the attic and crawl space for fire or embers.
- If you have fires, seek help from firefighters or neighbors, if possible.
- Maintain a “fire watch” for several hours. Look for smoke and sparks on and around your home.
- If you are caught in the open, try to find an area with sparse fuel or no fuel. If you are on a steep hillside, go to the back side of the hill if fuels are sparse. Avoid canyons, natural “chimneys” and saddles. If near a road lie face down along the road or in the ditch on the uphill side.

Escaping a Wildfire in a Vehicle

- Your vehicle is a very dangerous place to be during a wildfire, and should be used in an emergency situation only. However, you have a better chance of surviving a firestorm if you stay in your car rather than to outrun it on foot.
- Close all car windows so airborne embers cannot ignite upholstery. Close air vents.
- Turn on headlights, slow down in heavy smoke and watch out for other vehicles, people and falling debris.
- If you have to stop or your car quits, turn off the ignition, get on floor and cover up with a coat or blanket.
- Try to avoid stopping where there are heavy fuels such trees and brush.
- The intensity of the fire may rock the car; temperatures will increase inside (like an oven).

Evacuation Plan

The Incident Commander and the command staff would coordinate with the Spokane County Sheriff's Department to determine evacuation routes, and safety zones, should these be needed.

In the event of an evacuation, the Sheriff's Department may declare a need for the following;

- S.A. - Safety Advisory
- E.A.S. - Emergency Alert System
- Door to Door evacuations

Evacuation routes will vary due to the wildfire situation and will be based upon origin of the fire, the direction the fire is advancing, fire behavior, wind condition and the time of day.

This project area has sufficient primary roads for residential evacuation. The major concern for evacuation is the numerous private lanes that have been identified in this plan with major fuel reduction needs. (See page 32)

Fire Protection

Spokane County Fire District 4 provides structural and wildland fire protection for the Denison Chattaroy Community. The Washington State Department of Natural Resources is responsible for wildland fire protection only.

On an average fire day during fire season (14M, Moderate Response Level), WDNR and District 4 would respond with the following resources for initial attack fire suppression:

- WDNR
 - 3 Type 6 wildland engines with 3-person crews
 - 1 Fire Warden / Fire Investigator
 - 1 Overhead - Type 4 Incident Commander / Single Resource Boss or higher
- District 4
 - 2 Type 5 wildland engines
 - 1 Type 3 wildland engine
 - 1 Type 2 water tender
 - 1 wildland plow
 - 1 Duty Officer

Depending on potential of fire location on the particular day, or if the fire is rapidly building, or if initial forces request, any or all of the following additional resources would be typically dispatched:

- WDNR
 - Tanker 85 Air Tanker
 - Type 2 Rotor w/ bucket
 - Air Attack fixed wing platform (if multiple suppression aircraft dispatched)
 - Type 2 Dozer and Single Resource Boss Dozer
 - 1-2 10 person inmate crews w/ supervisor
 - 3-5 additional Type 6 wildland engines with 3-person crews
 - Additional overhead as the incident needs, including but not limited to: Type 3 Incident Commander, Operations Section Chief, Division supervisors, Task force leaders, Resource Boss.
- District 4
 - 2 Type 5 wildland engines
 - 2 Type 3 wildland engines
 - 2 Type 2 water tenders
 - 1 wildland plow

Education and Outreach

- Continue to conduct risk assessments on new homes being built in the community and individual homes that emergency personnel could not access in the initial planning process. (locked gates, etc.)
- The WDNR, District 4 and FireSafe will continue to distribute “Fire Wise/Defensible Space” information essential for landowners to improve their home survivability and individual preparedness in case of a wildfire.
- Work with homeowners on fuel reduction in the home ignition zone and forest environment.
- Educate homeowners on ingress, egress and alternate routes to their residence.
- Continue to educate homeowners on the importance of address signs. In the Denison Chattaroy Community, these are available upon request through the District 4 address sign program.
- Continue with educating the community through the WDNR “Smokey Bear” program and District 4 Fire Prevention and Education program.
- FireSafe has developed a CD titled: Making Your Home Survivable in a Wildfire Environment. This CD is available through FireSafe or WDNR.

Monitoring and Evaluation

The fuel model map (see page 13) delineates six fuel models for this Community Wildfire Protection Project. These ratings (models) establish a base, or existing condition for this area. As forest management and fuel reduction activities continue, the plan should be revised to reflect the resulting changes.

The WUI is an ever changing environment; however, incremental changes are somewhat difficult to notice over time. To document these changes, before and after pictures should be taken of the project area. Photo points should be established at selected locations and updated from year- to -year. Risk assessments for those residences missed in the original survey and new structures being built, should be updated to the base risk assessment map and GPS database yearly.

APPENDIX

1. Map List	-	-	-	-	-	-	-	Page 64
2. Aids to Determining Fuel Models	-	-	-	-	-	-	-	Page 65-71
3. NFPA 299 Criteria	-	-	-	-	-	-	-	Page 72
4. Glossary of Terms	-	-	-	-	-	-	-	Page 73-75
5. Fire-Resistant Plant List for the Inland Northwest	-	-	-	-	-	-	-	Page 76-82
6. Denison Chattaroy Information Sheet 4-06	-	-	-	-	-	-	-	Page 83-84
7. Denison Chattaroy Community Mailer	-	-	-	-	-	-	-	Page 85
8. News Release, May 5, 2006-	-	-	-	-	-	-	-	Page 86
9. Spokane Co. Technical Information Driveways (B-17)	-	-	-	-	-	-	-	Page 87-88
10. Spokane Co. Fire App. Access Road Standards (BP-28)-	-	-	-	-	-	-	-	Page 89-92
11. Acronyms	-	-	-	-	-	-	-	Page 93
12. Reference material (Defensible/Survivable Space)	-	-	-	-	-	-	-	Page 94
13. Bibliography and Resources	-	-	-	-	-	-	-	Page 95

LIST OF MAPS

Maps		Page #
1. Denison Chattaroy Vicinity Map Spokane County Location	- - - - -	4
2. Denison Chattaroy (CWPP) Area overview.	- - - - -	5
3. Denison Chattaroy (CWPP) Large Fires.	- - - - -	10
4. Denison Chattaroy (CWPP) A General Fire History, 1970-2003. WA DNR	- - - - -	11
5. Denison Chattaroy (CWPP) Fuel Models. WA DNR	- - - - -	13
6. Denison Chattaroy (CWPP) Fire Hazard Assessment 'Wild Fire Risk' (299's)	- - - - -	30
7. Denison Chattaroy (CWPP) Existing Fuel Breaks, Safety Zones and Staging Areas	- - - - -	32
8. Denison Chattaroy (CWPP) Area planned and Proposed Fuel Treatment Projects.	- - - - -	34
9. Denison Chattaroy (CWPP) Power-Line map. Avista Utility Company and Inland Power and light.	- - - - -	42

A Publication of the
**National Wildfire
Coordinating Group**

Sponsored by
United States
Department of Agriculture

United States
Department of Interior

National Association of
State Foresters

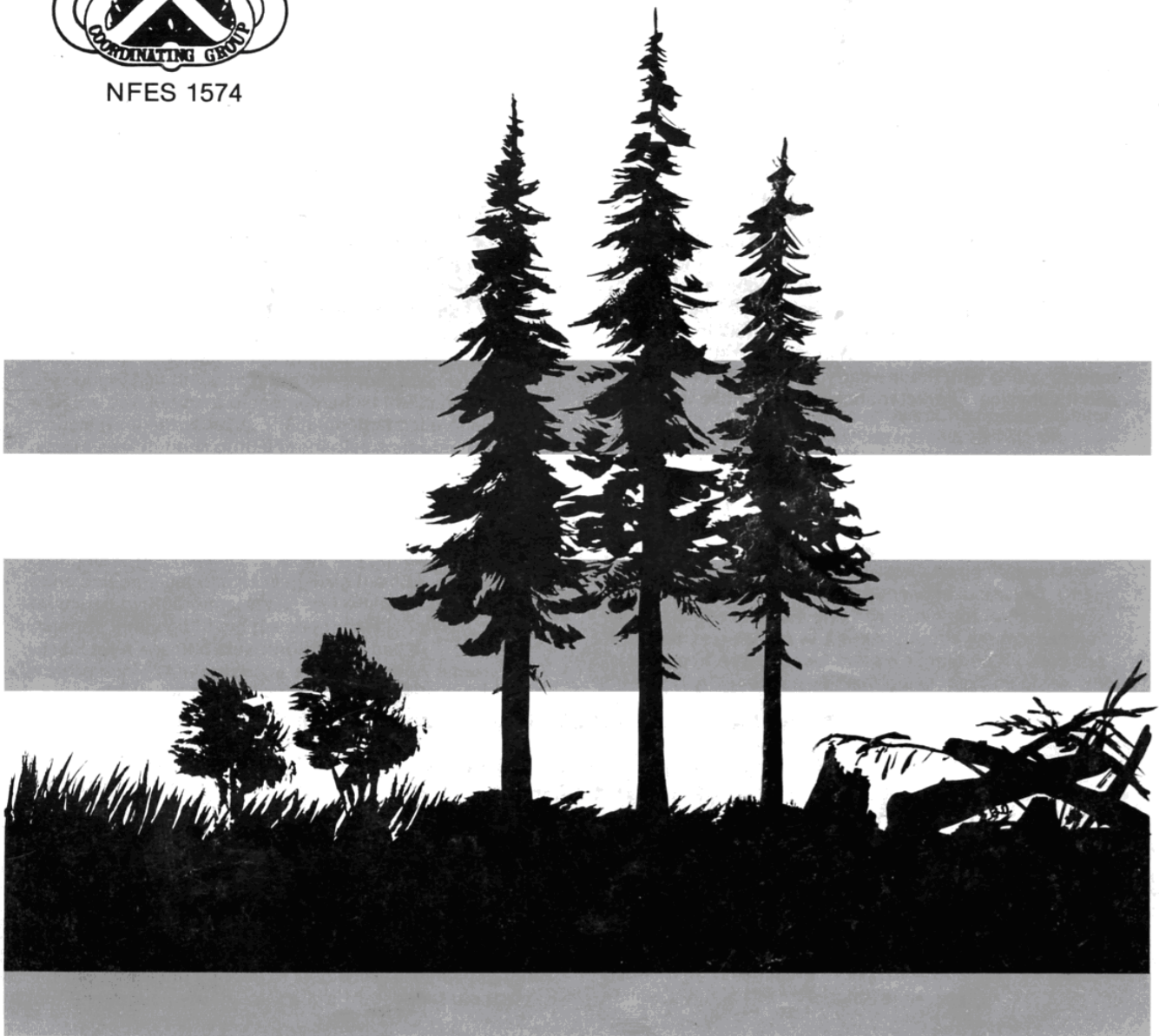
Aids to Determining Fuel Models For Estimating Fire Behavior

Hal E. Anderson

General Technical
Report INT-122
April 1982



NFES 1574



FUEL MODEL DESCRIPTIONS
Grass Group

Fire Behavior Fuel Model 1

Fire spread is governed by the fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Very little shrub or timber is present, generally less than one-third of the area.

Grasslands and savanna are represented along with stubble, grass-tundra, and grass-shrub combinations that met the above area constraint. Annual and perennial grasses are included in this fuel model. Refer to photographs 1, 2, and 3 for illustrations.

This fuel model correlates to 1978 NFDRS fuel models A, L, and S.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre	0.74
Dead fuel load, 1/4-inch, tons/acre	.74
Live fuel load, foliage, tons/acre	0
Fuel bed depth, feet	1.0

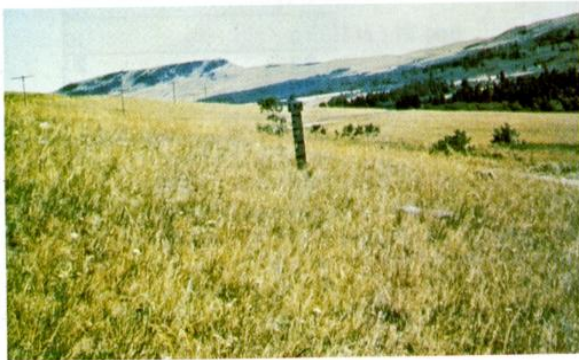


Photo 1. Western annual grasses such as cheatgrass, medusahead ryegrass, and fescues.

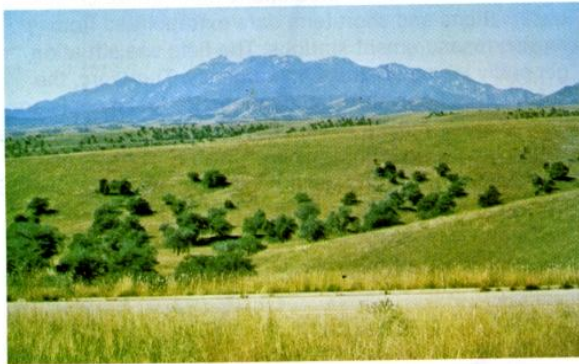


Photo 2. Live oak savanna of the Southwest on the Coronado National Forest.



Photo 3: Open pine—grasslands on the Lewis and Clark National Forest

Fire Behavior Fuel Model 2

Fire spread is primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, in addition to litter and dead-down stemwood from the open shrub or timber overstory, contribute to the fire intensity. Open shrub lands and pine stands or scrub oak stands that cover one-third to two-thirds of the area may generally fit this model; such stands may include clumps of fuels that generate higher intensities and that may produce firebrands. Some pinyon-juniper may be in this model. Photographs 4 and 5 illustrate possible field situations.

This fuel model correlates to 1978 NFDRS fuel models C and T.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre	4.0
Dead fuel load, ¼ inch, tons/acre	2.0
Live fuel load, foliage, tons/acre	0.5
Fuel bed depth, feet	1.0

Photo 4. Open ponderosa pine stand with annual grass understory.



Photo 5: Scattered sage within grasslands on the Payette National Forest.



Fire Behavior Fuel Model 3

Fires in this fuel are the most intense of the grass group and display high rates of spread under the influence of wind. Wind may drive fire into the upper heights of the grass and across standing water. Stands are tall, averaging about 3 feet (1 m), but considerable variation may occur. Approximately one-third or more of the stand is considered dead or cured and maintains the fire. Wild or cultivated grains that have not been harvested can be considered similar to tall prairie and marshland grasses. Refer to photographs 6, 7, and 8 for examples of fuels fitting this model.

This fuel correlates to 1978 NFDRS fuel model N.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre	3.0
Dead fuel load, ¼-inch, tons/acre	3.0
Live fuel load, foliage tons/acre	0
Fuel bed depth, feet	2.5

Fires in the grass group fuel models exhibit some of the faster rates of spread under similar weather conditions. With a windspeed of 5 mi/h (8 km/h) and a moisture content of 8 percent, representative rates of spread (ROS) are as follows:

Model	Rate of spread	Flame length
	Chains/hour	Feet
1	78	4
2	35	6
3	104	12

As windspeed increases, model 1 will develop faster rates of spread than model 3 due to fineness of the fuels, fuel load, and depth relations.



Photo 6. Fountaingrass in Hawaii; note the dead component.



Photo 7. Meadow foxtail in Oregon prairie and meadowland.



Photo 8: Sawgrass "prairie" and "strands" in the Everglades National Park, Fla.

Fire Behavior Fuel Model 5

Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs and the grasses or forbs in the understory. The fires are generally not very intense because surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Usually shrubs are short and almost totally cover the area. Young, green stands with no dead wood would qualify: laurel, vine maple, alder, or even chaparral, manzanita, or chamise.

No 1978 NFDRS fuel model is represented, but model 5 can be considered as a second choice for NFDRS model D or as a third choice for NFDRS model T. Photographs 13 and 14 show field examples of this type. Young green stands may be up to 6 feet (2 m) high but have poor burning properties because of live-vegetation.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre	3.5
Dead fuel load, 1/4-inch, tons/acre	1.0
Live fuel load, foliage, tons/acre	2.0
Fuel bed depth, feet	2.0



Photo 13. Green, low shrub fields within timber stands or without overstory are typical. Example is Douglas-fir-snowberry habitat type.



Photo 14. Regeneration shrublands after fire or other disturbances have a large green fuel component, Sundance Fire, Pack River Area, Idaho.

Timber Group

Fire Behavior Fuel Model 8

Slow-burning ground fires with low flame lengths are generally the case, although the fire may encounter an occasional "jackpot" or heavy fuel concentration that can flare up. Only under severe weather conditions involving high temperatures, low humidities, and high winds do the fuels pose fire hazards. Closed canopy stands of short-needle conifers or hardwoods that have leafed out support fire in the compact litter layer. This layer is mainly needles, leaves, and occasionally twigs because little undergrowth is present in the stand. Representative conifer types are white pine, and lodgepole pine, spruce, fir, and larch.

This model can be used for 1978 NFDRS fuel models H and R. Photographs 22, 23, and 24 illustrate the situations representative of this fuel.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch, dead and live, tons/acre	5.0
Dead fuel load, ¼-inch, tons/acre	1.5
Live fuel load, foliage, tons/acre	0
Fuel bed depth, feet	0.2

Photo 22. Surface litter fuels in western hemlock stands of Oregon and Washington.



Photo 23. Understory of inland Douglas-fir has little fuel here to add to dead-down litter load.



Photo 24. Closed stand of birch-aspen with leaf litter compacted.



Fire Behavior Fuel Model 10

The fires burn in the surface and ground fuels with greater fire intensity than the other timber litter models. Dead-down fuels include greater quantities of 3-inch (7.6-cm) or larger limbwood resulting from overmaturity or natural events that create a large load of dead material on the forest floor. Crowning out, spotting, and torching of individual trees are more frequent in this fuel situation, leading to potential fire control difficulties. Any forest type may be considered if heavy down material is present; examples are insect- or disease-ridden stands, wind-thrown stands, overmature situations with deadfall, and aged light thinning or partial-cut slash.

The 1978 NFDRS fuel model G is represented and is depicted in photographs 28, 29, and 30.

Fuel model values for estimating fire behavior

Total fuel load, < 3-inch dead and live, tons/acre	12.0
Dead fuel load, ¼-inch, tons/acre	3.0
Live fuel load, foliage, tons/acre	2.0
Fuel bed depth, feet	1.0

Photo 28. Old-growth Douglas-fir with heavy ground fuels.



Photo 29. Mixed conifer stand with dead-down woody fuels.

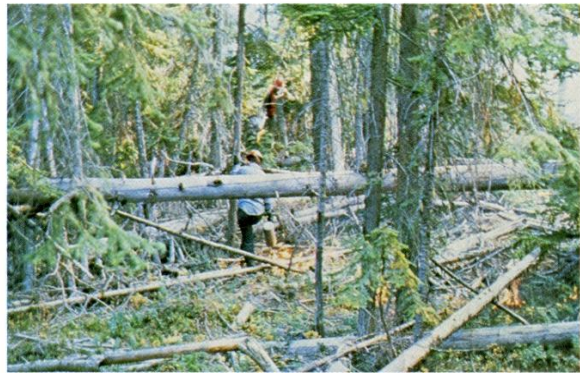


Photo 30. Spruce habitat type where succession or natural disturbance can produce a heavy downed fuel load.



The fire intensities and spread rates of these timber litter fuel models are indicated by the following values when the dead fuel moisture content is 8 percent, live fuel moisture is 100 percent, and the effective windspeed at midflame height is 5 mi/h (8 km/h):

Model	Rate of spread	Flame length
	Chains/hour	Feet
8	1.6	1.0
9	7.5	2.6
10	7.9	4.8

Fires such as above in model 10 are at the upper limit of control by direct attack. More wind or drier conditions could lead to an escaped fire.

Wildfire Hazard Severity Form NFPA 299

Landowner / Community Name: Address	Qtr-Qtr / Sec / Town / Range Lat. / Long. RAMS Comp.	Prevention Officer Date
--	---	--

A. Means of Access		
1. Ingress and egress	2. Defensible space	2. Setback from slopes >30%
Two or more roads in/out	More than 100 ft.	More than 30 ft. to slope
One road in/out	More than 71 – 100 ft.	Less than 30 ft. to slope
2. Road width	30 – 70 ft.	Not applicable
Greater than 24 feet	Less than 30 ft.	G. Available Fire Protection
Between 20 and 24 feet	C. Topography	1. Water source availability (on site)
Less than 20 feet	1. Slope	500 gpm pressurized hydrants < 1000 ft. apart
3. All-season road condition	Less than 9%	250 gpm pressurized hydrants < 1000 ft. apart
Surfaced, grade < 5%	Between 10 – 20%	More than 250 gpm non-pressurized, 2 hrs
Surfaced, grade > 5%	Between 21 – 30%	Less than 250 gpm non-pressurized, 2 hrs
Non-surfaced, grade < 5%	Between 31 – 40%	No hydrants available
Non-surfaced, grade > 5%	Greater than 41%	2. Organized response resources
Other than all-season	D. Additional Rating Factors	Station within 5 miles of structure
4. Fire service access	1. Topography that adversely affects wildland fire behavior	Station greater than 5 miles
< = 300 ft. with turnaround	2. Area with history of higher fire occurrence	3. Fixed fire protection
> = 300 ft. with turnaround	3. Areas of unusually severe fire weather and wind	Sprinkler system (NFPA 13, 13R, 13D)
< = 300 ft. no turnaround	4. Separation of adjacent structures	None
> = 300 ft. no turnaround	E. Roofing Material	H. Utilities (Gas and Electric)
5. Street signs	1. Construction material	All underground utilities
Present (4 in. in size and reflective)	Class A roof	One underground, one aboveground
Not present	Class B roof	All aboveground
B. Vegetation (Fuel Models)	Class C roof	
1. Predominant vegetation	Non-rated	Total Score
Light	F. Existing Building Construction	
Medium	1. Materials	
Heavy	Noncombustible siding/deck	
Slash	Noncombustible siding/wood deck	
	Combustible siding and deck	Risk Rating

Low Hazard: <39 Points; Moderate Hazard: 40 – 69 Points; High Hazard: 70 – 112 Points; Extreme Hazard >113 Points

NOTES:

Glossary of Terms

Arson Fire - A wildfire willfully ignited by anyone to burn, or spread to, vegetation or property without consent of the owner or his/her agent.

Aspect - The direction a slope is facing, i.e., its exposure in relation to the sun.

Available Fuels - Those fuels, which will burn during a passage of a flaming front, under specific burning and fuel conditions.

Barrier - Any obstruction to the spread of fire. Typically in an area or strip devoid of combustible fuel.

Brush - A collective term that refers to stands of vegetation dominated by shrubby, Woody plants, or low growing trees, usually of a type undesirable for livestock or timber management.

Brush Fire - A fire burning in vegetation that is predominantly shrubs brush, and scrub growth.

Burning Conditions - The state of the combined factors of the environment that affect fire behavior in a specified fuel type.

Burning Period - That part of each 24-hour period when fires will spread most rapidly. Typically, this is from about mid-morning to about sundown, or late afternoon.

Canopy - The Stratum containing the crowns of the tallest vegetation present.

Combustible - Any material that, in the form in which it is used and under the conditions anticipated will ignite and burn.

Combustion - Is a self-sustaining chemical reaction yielding energy or products that cause further reactions of the same kind.

Chain - This is a measuring instrument consisting of 100 wire links each 7.92 inches long, or 792 inches, or 66 feet.

Continuity of Fuels - The proximity of fuels to each other that governs the fire's capability to sustain itself. This applies to aerial fuels as well as surface fuels.

Convection - Is the transfer of heat energy by the movement of heated liquids or gases.

Crown Closure - The spacing between tree crowns; usually expressed as the percent of area covered by tree crowns in the forest canopy region as viewed from above.

Direct Attack - A method of suppression that treats the fire as a whole, or all its burning edge, by wetting, cooling, smothering, or by chemically quenching it or mechanically separating it from unburned fuel.

Defensible Space - This is an area typically a width of 30 feet or more, between an improved property and potential wildfire where the combustibles have been removed, or modified.

Duff - The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.

Escape Route - Route away from dangerous areas on a fire; should be preplanned.

Fine Fuels - Fuels that are less than ¼ inch in diameter such as grass, leaves, draped pine needles, fern, tree moss, and some kinds of slash which, when dry, ignite readily and are consumed rapidly. (This is also called Flash Fuels.)

Firebreak- A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

Flash Fuels - Fuels such as grass, leaves, draped pine needles, fern, tree moss, and some kinds of slash that ignite readily and are consumed rapidly when dry. (This is also called Fine Fuels.)

Firewise -A public education program developed by the National Wildland Fire Coordinating Group that assists communities located in proximity to fire-prone lands. (For additional information go to www.firewise.org)

Fuel Break - A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled.

Heavy Fuels - Fuels of large diameter such as snags, logs, and large limb wood that ignite and are consumed much more slowly than flash fuels. (This is also called Course Fuel.)

Home Ignition Zone - A “home ignition zone,” the area that includes a home and its immediate surroundings, determines a home’s ignition resistance during a severe wildfire. This zone varies from 100 to 200 feet from the home out, in a 360 degree radius.

Radiation (Radiant Heat) - Is the transmission of energy as an electromagnetic wave without an intervening medium.

Reproduction (reprod) - Young tree (evergreen) seedlings up to 15 to 20 feet in height

Running - Behavior of a fire that is spreading rapidly, usually with a well-defined head.

Slash - Debris left after logging, pruning, thinning, or brush cuts; debris that was from ice damage, wind, or fire. It may include logs, chunks, bark, branches, stumps, and broken under story trees or brush.

Snag - A standing dead tree or part of a dead tree from which at least the leaves and smaller branches have fallen. (Often called Stub, if less than about 20 feet tall.)

Spotting - Behavior of a fire producing sparks or embers that are carried by convection columns and/or the wind and which start new fires beyond the zone of direct ignition by the main fire.

Topography - The configuration of the earth’s surface, including its relief and the position of its natural and manmade features.

Wind-driven Wildfire - A wildland fire that is controlled by a strong consistent wind.

Wildland Urban Interface - The line, area, or zone: where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. (Glossary of Wildland Fire Terminology, 1996).

Fire-Resistive Plant Material: for the Inland Empire.

All plants will burn under extreme fire weather condition such as drought. However, plants burn at different intensities and rates of consumption. Fire-Resistive plants burn at a relatively low intensity, slow rates of spread and with short flame lengths. The following are characteristics of fire-resistive vegetation:

1. Growth with little or no accumulation of dead vegetation (either on the ground or standing upright).
2. No Resinous plants (willow, poplars).
3. Low Volume of total vegetation (for example, a grass area as opposed to a forest or shrub-covered land).
4. Plants with high level fuel moisture (plants that contain a large amount of water in comparison to their dry weight).
5. Drought tolerant plants (deeply rooted plants with thick heavy leaves).
6. Stands without ladder fuels (plants without small, fine branches and limbs between the ground and the canopy of overtopping shrubs and trees).
7. Plants requiring little maintenance (slow-growing plants which, when maintained, require little care).
8. Plants with woody stems and branches that require prolonged heating to ignite.

Plants that ignite readily and burn intensely are **Fire-Prone** plants and typically share the following characteristics:

- Are water stressed
- Usually accumulate fine, twiggy, dry or dead material
- Have leaves and wood containing volatile waxes, fats, terpenes, or oils.
- Are typically aromatic (crushed leaves have strong odors).
- Have gummy, resinous sap with a strong odor.
- Are usually blade-leaf or needle-leaf evergreens.
- Have stiff, leathery, small or fine lacy leaves.
- May have pubescent (hair covered) leaves.
- May have loose or papery bark.
- Are plants that flame (not smolder) when preheated and ignited with a match.

Below is a partial list of potentially available fire-resistive plants; there are many other species that would fit the criteria for fire-resistive ness that are not listed here. If the species you are thinking about using has the characteristics of a fire-resistive plant and will be properly maintained then it should work in landscaping to protect your home from wildfire.

The following lists of plants are in Native and Adapted Landscape Plant List for the Inland Northwest.

GROUND COVERS

Succulents:

<u>Botanical Name</u>	<u>Common Name</u>
Sedum spp.	Stone crops

NON-Succulents:

<u>Botanical Name</u>	<u>Common Name</u>
Achillea tomentosa	wooly yarrow
Ajuga reptans	carpet bugle
Arctostaphylos uva-ursi	kinnikinnick
Armeria maritima	sea pink, thrift
Cerastium tomentosum	snow in summer
Cotoneaster apiculatus	cranberry cotoneaster
Cotoneaster dammeri	bearberry cotoneaster
Euonymus fortunei 'Coloratus'	winter creeper
Potentilla tabernaemontanii (verna)	spring cinquefoil
Thymus praecox arcticus	mother of thyme
Mahonia repens	creeping Oregon grape

PERENNIALS

<u>Botanical Name</u>	<u>Common Name</u>
Achillea millefolium	western yarrow
Achillea ptarmica 'The Pearl'	yarrow 'The Pearl'
Achillea tomentosa 'Nana'	woolly yarrow
Coreopsis lanceolata	lance-leaved coreopsis
Coreopsis verticillata	coreopsis
Geranium viscosissimum	sticky purple geranium
Iris cristata	crested iris
Iris missouriensis	rocky mountain iris
Iris species	bearded iris
Lupinus sericeus	silky lupine
Oenothera caespitosa	desert evening primrose

PERENNIALS CONTINUED

<u>Botanical Name</u>	<u>Common Name</u>
<i>Oenothera missouriensis</i>	ozark sundrops
<i>Penstemon deustus</i>	hot rock penstemon
<i>Penstemon venustus</i>	blue mountain penstemon

VINES

<u>Botanical Name</u>	<u>Common Name</u>
<i>Campsis radicans</i>	trumpet vine
<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Vitis</i> spp.	Grapes
<i>Wisteria</i> spp.	Wisteria

LOW SHRUBS, 1 ½ to 4 feet

<u>Botanical Name</u>	<u>Common Name</u>
<i>Caryopteris x clandonensis</i>	blue-mist spirea
<i>Cornus ericea</i>	red osier dogwood
<i>Cotoneaster adpressus</i> var <i>praecox</i>	creeping cotoneaster
<i>Cotoneaster apiculatus</i>	cranberry cotoneaster
<i>Cotoneaster horizontalis</i>	rock cotoneaster
<i>Mahonia aquifolium</i> 'Compacta'	compact Oregon grape
<i>Pachistima canbyi</i>	dwarf mountain lover
<i>Prunus laurocerasus</i> 'Zabeliana'	Zabel's laurel
<i>Rhododendron</i> 'Dora Amateis'	Dora Amateis rhododendron
<i>Rhododendron</i> 'Ramapo'	Ramapo rhododendron
<i>Rhododendron</i> 'Scarlet wonder'	scarlet wonder rhododendron
<i>Rhododendron impeditum</i>	impeditum/cloudland rhododendron
<i>Rhododendron</i> species (Azalea)	Deciduous Azalea
<i>Symphoricarpos albus</i>	snowberry
<i>Yucca</i> spp.	Yucca

MEDIUM TO TALL SHRUBS 4 to 15 FEET

<u>Botanical Name</u>	<u>Common Name</u>
Buddleia davidi	butterfly bush or summer lilac
Cotoneaster acutifolius	peking cotoneaster
Cotoneaster divaricatus	spreading cotoneaster
Cotoneaster horizontalis	rock cotoneaster
Mahonia aquifolium	Oregon grape
Philadelphus coronarius	sweet mockorange
Philadelphus lewisii	syringa
Philadelphus x virginalis	virginal mockorange
Prunus glandulosa	dwarf flowering almond
Prunus laurocerasus 'Otto Luyken'	Otto Luyken laurel
Prunus subhirtella 'Pendula'	weeping higan cherry
Prunus tomentosa	Nanking cherry
Prunus triloba	flowering almond
Prunus x cistena	purple -leaf sand cherry
Rhododendron 'Cunningham's White'	Cunningham rhododendron
Rhododendron 'Daphnoides'	daphnoid rhododendron
Rhododendron 'PJM'	'PJM' rhododendron
Rhododendron (species)	Rhododendron
Rhododendron: Exbury hybrids	Exbury / knaphill azaleas
Rhododendron Northern lights	northern lights azaleas
Ribes alpinum	alpine currant
Ribes aureum	golden current
Ribes sanguineum	red-flowering currant
Salix purpurea	blue arctic willow or purple osier
Salix scouleriana	Scouler willow
Viburnum trilobum	cranberry bush

SHRUB/SMALL TREES 10 to 30 FEET

<u>Botanical Name</u>	<u>Common Name</u>
<i>Acer campestre</i>	hedge maple
<i>Acer circinatum</i>	vine maple
<i>Acer ginnala</i>	amur maple
<i>Acer glabrum</i>	Rocky Mountain maple
<i>Acer griseum</i>	paperback maple
<i>Acer palmatum</i>	green Japanese maple
<i>Acer palmatum</i> 'Atropurpureum'	red Japanese maple
<i>Amelanchier alnifolia</i>	serviceberry
<i>Cornus alternifolia</i>	pagoda dogwood
<i>Cornus florida</i> 'Cherokee Chief'	red flowering dogwood
<i>Cornus florida</i> 'Cherokee Princess'	white flowering dogwood
<i>Cornus florida</i> 'Rubra'	Pink flowering dogwood
<i>Cornus florida</i> 'Welchii'	tricolor flowering dogwood
<i>Cornus kousa</i>	kousa dogwood
<i>Cornus mas</i>	cornelian cherry
<i>Fagus sylvatica</i> 'Pendula'	weeping beech
<i>Prunus cerasifera</i> 'Krauter Vesuvius'	Krauter Vesuvius purple leaf plum
<i>Prunus cerasifera</i> 'Newport'	Newport flowering plum
<i>Prunus cerasifera</i> 'Thundercloud'	Thundercloud flowering plum
<i>Prunus sargentii</i>	sergeant cherry
<i>Prunus serrulata</i> 'Kwanzan'	Kwazan Japanese flowering cherry
<i>Prunus serrulata</i> 'Shirotae'	Mt. Fuji flowering cherry
<i>Prunus virginiana</i>	chokecherry
<i>Prunus x blireiana</i>	Blireiana flowering plum
<i>Rhamnus purshiana</i>	casara buckthorn

TREES 30 FEET AND HIGHER

Deciduous:

<u>Botanical Name</u>	<u>Common Name</u>
<i>Acer platanoides</i>	Norway maple
<i>Acer pseudoplatanus</i>	sycamore maple

TREES 30 FEET AND HIGHER: CONTINUED

Deciduous:

<u>Botanical Name</u>	<u>Common Name</u>
<i>Acer rubrum</i>	red maple
<i>Acer saccharinum</i>	silver maple
<i>Aesculus hippocastanum</i>	common horse chestnut
<i>Aesculus x carnea</i>	red horse chestnut
<i>Alnus rubra</i>	red alder
<i>Catalpa speciosa</i>	western catalpa or northern catalpa
<i>Fagus sylvatica</i>	European beech
<i>Fraxinus pennsylvanica</i>	green ash
<i>Fraxinus pennsylvanica</i> 'Marshall'	Marshall seedless ash
<i>Gleditsia triacanthos</i> var. <i>inermis</i>	thornless honey locust
<i>Populus nigra</i> 'Italica'	Lombardy poplar
<i>Populus tremuloides</i>	quaking aspen
<i>Populus trichocarpa</i>	black cottonwood
<i>Quercus palustris</i>	pin oak
<i>Quercus rubra</i>	red oak
<i>Quercus shumardii</i>	shumard oak
<i>Salix Alba</i> var. <i>tristis</i>	golden weeping willow
<i>Salix babylonica</i>	weeping willow
<i>Salix matsudana</i> 'Tortuosa'	corkscrew willow

CONIFERS

The conifer species in the Inland Empire are not considered good trees for fire protection (due to resinous compounds in the needles). However, with some pruning and thinning you can use the native conifers in landscaping. These recommendations apply to your thin and trim zone around the house, which may extend up to 200 feet, depending on conditions around your home.

Follow these suggestions to help local conifer trees survive a fire and protect your home:

Prune all branches 10 feet high

Thin trees until there is 10-foot spacing between crowns.

Remove trees that are dead, diseased or dying.

The above list was adapted from *Landscaping for Wildfire Prevention – Protecting homes on the Wildland/Urban Interface*, 1998. Yvonne Carre, Chris Schnepf, and W. Michael Colt.

REFERENCE:

Backyard Forest Stewardship, 1996. Washington State Department of Natural Resources.

Landscaping for Wildfire Prevention – Protecting homes on the Wildland /Urban Interface, 1998.

Yvonne Carre, Chris Schnepf, and W. Michael Colt.

Urban-Wildland Interface Code, 1997. International Fire Code Institute.

NE WASHINGTON
WILDLAND URBAN INTERFACE GRANTS
INFORMATION SHEET – 4/06
DENISON CHATTAROY GRANT

The Washington State Department of Natural Resources (DNR) in cooperation with Firesafe Spokane and Spokane County Fire District 4 has received a grant to assist private landowners in the Denison Chattaroy area near Chattaroy, WA. The grant is for fuels reduction and creating defensible space around homes to reduce the threat from wildfire.

The program is part of the National Fire Plan funded by Congress, administered by the DNR in Washington State, and cooperatively implemented by federal, state, and local authorities, as well as private contractors.

Fuels reduction and defensible space plans will be developed in cooperation with landowners. The plans consider a wide range of factors to protect homes and properties and increase survivability from wildfire. The plans determine work to be accomplished by a DNR Fuel Management Contractor as well as the responsibilities of the landowner. The grant will fund the plan as well as the fuel management contractors.

If your property or home is in a forested area in the Denison Chattaroy area you may qualify for a fuels reduction project.

Further information is available by leaving a message for the Fuels Reduction program at the DNR NE Region office (509) 684-7474 or contact Don Stragis, Administrative Contractor at (509) 233-2710 or (509) 993-3154.



Don Stragis
Timberland Management Company
4/11/06

MEMO TO: Private landowners in the Denison Chattaroy area.

DATE: 4/11/06

FROM: Don Stragis, WA Department of Natural Resources (DNR) Contractor

SUBJECT: Fuels Reduction & Defensible Space Grants

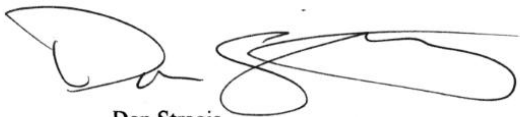
I am writing to inform you of an opportunity to reduce the risk of catastrophic wildfire near your home, property, and neighborhood. County records indicate that you own property in the Denison Chattaroy area. We have a grant that will fund fuels reduction and defensible space projects in your neighborhood.

As many of you know Firesafe Spokane and Spokane County Fire District 4 have been working in cooperation with the DNR on a community wildfire protection plan for the Denison Chattaroy area. This is a cooperative effort that will benefit you and your neighbors.

Hand and mechanical crews are available to remove brush, thin and prune trees, and dispose of the fuels that are accumulating on your property.

Interested? Fill out and return or fax the enclosed request form, call the DNR NE office at (509) 684-7474, or contact Don directly at (509) 233-2710 or 993-3154 for further information.

If your property qualifies a plan will be developed and a contractor scheduled to accomplish the work. The grant will fund the cost of the plan as well as the DNR fuel management contractor. Funding is limited so interested parties are encouraged to apply as soon as possible.



Don Stragis
Timberland Management Company
Administrative Contractor to the DNR



October 25, 2004

TO: Residents of Denison Chattaroy Area

From: Spokane County Fire District #4
The Department of Natural Resources

FireSafe Spokane
P.O. Box 366
E. 3219 East Chattaroy Road
Chattaroy, Washington 99003

Dear Residents of Denison Chattaroy Project Area,

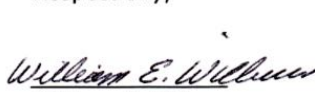
This letter is pre-notification that Spokane County Fire District 4, FireSafe Spokane, and The Department of Natural Resources will be in your area to conduct a Defensible Space/Survivability Assessment. This assessment will be utilized to develop a community fire protection plan.


The Denison Chattaroy Project Area boundaries are:

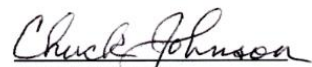
West; Hwy 395, Cedar Road and Burroughs Road, **North;** Westmoreland Road, **East;** Newport Hwy, and **South;** Chattaroy Road.

Over the next twelve months, these assessments will be conducted on the outside of your homes, Monday through Friday from 8:00 am to 4:30 pm. Please call us if you have any questions or concerns. FireSafe Spokane 509-238-9589.

Respectfully,


William E. Wilburn
Executive Director
FireSafe Spokane


Edward A. Lewis
Fire Chief
Spokane Co. Fire Dist. 4


Chuck Johnson
Landowner Assistance Mgr.
Dept. of Natural Resources

SAJ

Fuel build-up and ground litter are obvious to the eye. The issue is whether we want control over the effects that fire could bring.



NEWS RELEASE

No. 06-

May 5, 2006

Contact: DNR Northeast Region, (509) 684-7474
Steve Harris, (509) 995-4373

**Media Invited to Observe Wildland Fuel Reduction Project Near
Chattaroy**

Local communities recognize Wildfire Awareness Week.

CHATTAROY – Just in time for Wildfire Awareness Week, fuel reduction work has begun in the Denison and Chattaroy areas north of Spokane. Crews are using a combination of hand and mechanical methods to treat hazardous forest fuels. News media personnel are invited to schedule a site visit and witness fuel reduction activities.

Fire protection staff from Firesafe Spokane, Spokane County Fire Protection District Four and Washington State Department of Natural Resource (DNR) have determined that the Denison and Chattaroy areas are ripe for catastrophic wildfires. Currently, there is a dangerous intermix of thick trees, brush and homes. For a wildfire, these are all sources of fuel. Unfortunately, the chances of a major wildland fire starting are high due to many potential sources of ignition such as outdoor burning, railroad, highways, powerlines, ORV use and children.

Instead of waiting for a wildfire to spark, fire agencies have taken a proactive approach to mitigating the wildfire hazard. With the aid of awareness campaigns, many landowners are taking action themselves to reduce the forest fuels. Thinning and pruning projects are occurring throughout the area. Unfortunately, this process is slow and costly. Fire agencies have applied for and received National Fire Plan funding to assist landowners. Through careful planning, priority fuel treatment blocks have been targeted. Once completed, these treated areas will allow fire fighters to safely implement fire suppression strategies and tactics.

May 7-14 is Wildfire Awareness Week in several western states and Canadian provinces. It is designed to advise homeowners that wildfires are inevitable but there are steps that can be taken to protect their homes, properties and lives from wildfire. Fuel reduction projects like the one in the Chattaroy are common wildfire risk reducing strategies.

Fuel Reduction Site Visit Information

Schedule a site visit by contacting Steve Harris, Washington State Department of Natural Resources Northeast Region Fire Prevention Coordinator, at (509) 995-4373 or (509) 684-7474. Visits will be limited to the fuel reduction crew's work schedule.

#



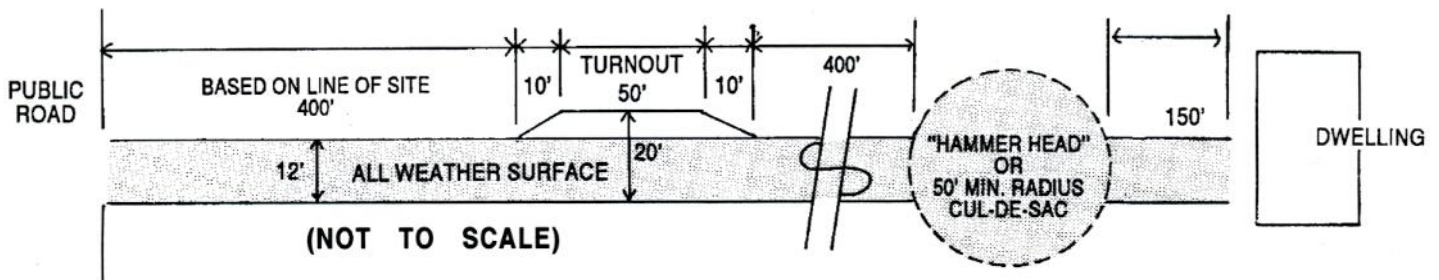
Technical Information Driveways

B-17

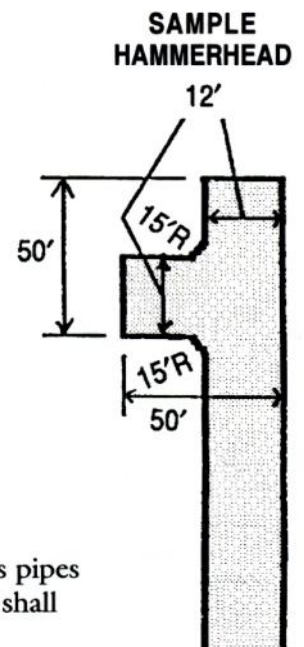
Division of Building and Code Enforcement

Private Driveway Standards

Section 3.05.050(a)2(ii), Fire Apparatus Access, of Title 3 of the Spokane County Code defines private driveways as access roads that serve no more than two parcels. They must be constructed in substantial conformance with the following standards developed and recommended by the Spokane County Fire Prevention Committee. Driveway approaches are subject to conformance with the Spokane County Road Standards and requirements are outlined in Brochure E-3 *Rural Residential Approaches* and E-4 *Urban Residential Approaches*.



- **Max. Grade:** 12% - 14% maximum (outside right-of-way) 2-8%; within right-of-way — contact the Spokane County Division of Engineering and Roads.
- **Width:** 12' clear travelway with all-weather surface.
- **Turnouts:** One approximately every 400 feet. All-weather surface 20' in total width for 50' in length.
- **Turnaround:** Required for driveways over 150' in length. "Hammerhead" or 50' minimum radius cul-de-sac needs to be within 150' of dwelling
- **Permits:** Approach permit are required from the Division of Engineering and Roads to connect to any county public road. Private driveways constructed prior to obtaining building permits may require a grading permit.
- **Inspections:** Installation inspection and acceptance of the driveway is required prior to dwelling occupancy (i.e., road surfacing, width, vertical clearance and drainage).
- **Curves:** No curve radius shall be less than 100' measured from the road centerline unless approved by the local fire district and the Division of Building and Code Enforcement.
- **Drainage:** Corrugated metal pipe (CMP) or approved alternate: Driveway cross pipes at approaches to the Fire Apparatus Access Roads, public or private, shall be a minimum of 12" in diameter.



- **Maintenance:** A recorded road maintenance agreement with financial provisions is recommended. Please note that Spokane County is not responsible to build, improve, maintain, survey, construct, repair, provide drainage or snow removal on any private driveway.

Other brochures that may be helpful

- B-19 *Erosion & Sedimentation Control*
- B-19a *Erosion & Sedimentation Control Techniques*
- B-46 *Grading and Parking Lot Permits*
- B-46a *Typical Grading Permits*

For more information or an appointment contact:

Spokane County Division of Building and Code Enforcement
1026 W. Broadway, Spokane, WA 99260-0050
(509) 477-3675 BACE@spokanecounty.org
<http://www.spokanecounty.org/building>

Please note that while every effort is made to assure the accuracy of the information contained in this brochure it is not warranted for accuracy. This document is not intended to address all aspects or regulatory requirements for a project and should serve as a starting point for your investigation. For detailed information on a particular project, permit, or code requirement refer directly to applicable file and/or code/regulatory documents or contact the appropriate division or staff.

(B17) 09/01



Fire Apparatus Access Road Standards

BP-28

Department of Building and Planning

Overview

These Access Road Standards are derived from the International Fire Code as adopted in Section 3.06.050 of Title 3 of the Spokane County Code. They are generally applicable to “unsubdivided” parcels created through the Certificate of Exemption process and lacking frontage on a public road or private road constructed in accordance with the Spokane County Road Standards which are administered by the Spokane County Division of Engineering and Roads. The intent is to assure adequate provisions for emergency vehicle access.

Fire access must be provided for every building located more than 150 feet from an approved public way. Fire access may be provided by a driveway when no more than three parcels are served (refer to Brochure *BP-17 - Driveways*). For four or more parcels the fire apparatus access road standards apply. Access roads serving more than 20 residential units or parcels must connect at two independent locations to a public road.

THIS STANDARD ONLY APPLIES TO ROADS WITHIN AN EASEMENT RECORDED WITH THE SPOKANE COUNTY AUDITOR'S OFFICE PRIOR TO MAY 15, 1995.

PRIVATE ROADS WITHIN SUBDIVISION DEVELOPMENTS OR CONSTRUCTED AFTER MAY 15, 1995 MUST MEET COUNTY ROADS STANDARD # 3.22 AS ADMINISTERED BY THE DIVISION OF ENGINEERING AND ROADS (477-3600).

Are permits required?

In most cases grading permits are required for the construction of a Fire Apparatus Access Road. Given

the scope of these road projects, compliance with State Environmental Policy Act (SEPA) and the Spokane County Critical Areas Ordinance and Shoreline Ordinance must be demonstrated. (See Brochure *BP-49 - Environmental Review*).

Maintenance Agreement & Final Acceptance

Maintenance: A recorded road maintenance agreement with financial provisions is required. It must demonstrate that upkeep is provided for the entire length of road being used as access to improved properties. It shall state that Spokane County is not responsible to build, improve, maintain, survey, construct, repair, provide drainage or snow removal on the private road(s).

Acceptance: Permits for structures will not be issued prior to the receipt of certified “as-built” road plans, copies of recorded covenants, title notices, maintenance agreements and acceptance of the road by the local Fire District. The as-built access road shall be certified by a civil engineer.

Conditions for Existing Access Roads

Private access roads previously recognized by the County must be maintained in substantial conformance with these standards. If determined by the fire district that an existing access road constitutes a distinct hazard to life or property, improvements may be required. Such findings will be in writing and shall include minimum improvements necessary to mitigate the distinct hazard(s). Similar improvements may also be required when an extension or increased loading is being proposed on an existing private access road.

SPECIFICATIONS

Plans

Plans for access roads or extensions to existing access roads shall be prepared by a registered civil engineer and submitted to the Department of Building and Planning for review. The plan shall depict the road location and be in accordance with Spokane County's Fire Apparatus Access Road Standards. In order to determine conformance, the road plans must include a recorded survey, indicate the location of all easements, road gradients, surfacing description, drainage controls, and road dimensions. Plans will be circulated to the local fire district for review and comments.

When it is found by the Building Official that the access road plan substantially conforms to the following road specifications, construction of the road may proceed.

Road Width:

- Access roads serving up to 6 lots/parcels shall have an unobstructed width of not less than 20 feet.
- Access roads serving 7–20 lots/parcels shall have an unobstructed width of not less than 24 feet.
- Access roads serving 21+ lots/parcels shall have an unobstructed width of not less than 30 feet. (If parking is intended or permitted, then overall widths shall be increased by 6 feet.)

Easement Width:

- A dedicated easement shall be not less than 50 feet. (If parking is intended or permitted, then easement width shall be increased by 6 feet.)

Vertical Clearance:

- Access roads shall have an unobstructed vertical clearance from trees, power lines, entry gates, etc. of not less than 13 feet, 6 inches.

Surface:

- Access roads shall provide all-weather driving capabilities.
- Access roads shall be designed to support "im-

posed loads of fire apparatus" (gross vehicular weight) as determined by the fire district.

Turnarounds:

- Access roads in excess of 150 feet in length which dead-end shall have a minimum 50 foot radius cul-de-sac.
- An approved "hammerhead" not less than the required road width is an acceptable option.
- Private roads must terminate at, or within the last parcel they serve.

Grade:

- Access roads shall not exceed 12% grade.

Drainage:

- Corrugated Metal Pipe (CMP): Driveway cross pipes at approaches to the Fire Apparatus Access Roads shall be a minimum of 12" diameter. All cross pipes on fire Apparatus Access Roads shall be a minimum of 18" diameter.
- Drainage of surface water shall be away from access roads.

Design Speed:

- 20 miles per hour (must be posted)

Stopping Sight Distance:

- 120 feet

Signage:

- Access roads shall be designated by names or numbers on signs clearly visible and legible.
- Each dwelling or business must have its assigned street number posted as per requirements of the Uniform Building Code and the International Fire Code.

Bridges:

- Shall use designed live loading sufficient to carry the imposed loads of fire apparatus.

- When construction or repair of a bridge becomes necessary, a Washington State civil engineer's certification is required.

Curves

- No curve radius shall be less than 100 feet measured from the road centerline unless approved by the fire district and the Department of Building and Planning.

Other Brochures that may be helpful

BP-18 *Wildland/Urban Interface*

BP-19 *Erosion and Sediment Control*

BP-19a *Erosion & Sedimentation Control Plan Requirements*

For more information or an appointment contact:

Spokane County

Department of Building and Planning

1026 W. Broadway Avenue

Spokane, WA 99260-0050

(509) 477-3675 bp@spokanecounty.org

www.spokanecounty.org/bp

Please note that while every effort is made to assure the accuracy of the information contained in this brochure it is not warranted for accuracy. This document is not intended to address all aspects or regulatory requirements for a project and should serve as a starting point for your investigation. For detailed information on a particular project, permit, or code requirement refer directly to applicable file and/or code/regulatory documents or contact the appropriate division or staff.

BP-29 02/05

SAMPLE FIRE APPARATUS ACCESS ROAD SPECIFICATIONS

Proponent:

Project Type:

Project Name:

Access Road Name:

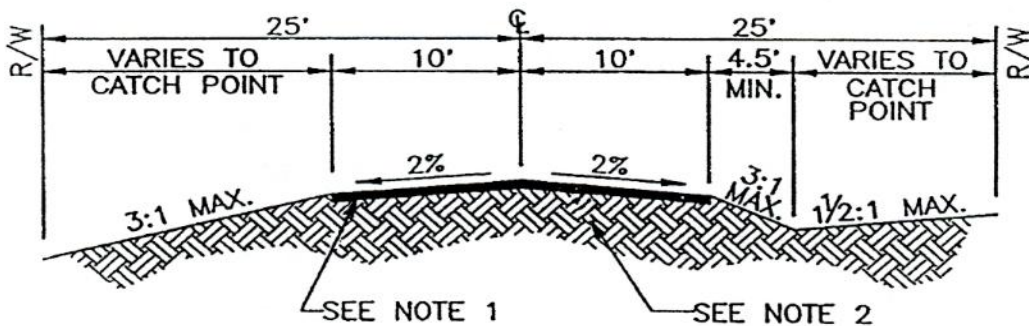
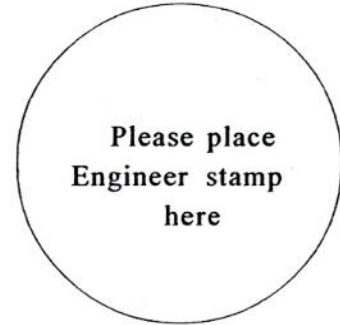
Project Location:

Number of Lots:

Overhead Structures:

Roadway Plan: SEE ATTACHED RECORD OF SURVEY - to include all lots/parcels to be served by this road(s).

Typical Section:



ENGINEER'S NOTES:

1. Roadway centerline grade shall not exceed 12% or be less than 0.8%.
2. Compact subgrade per the requirements of WSDOT/APWA standard specification for roads, bridges and municipal construction (1991) - Section 2-06.
3. Place and compact crushed surface top course to a depth of 0.4 feet per requirements of WSDOT/APWA standard specification for road, bridge and municipal construction (1991) - Section 4-04.
4. Drainage improvements shall consist of drainage ditches on at least one side of roadway. The remaining side shall have a maximum slope of 3:1. Cross drainage culverts shall be installed at natural drainages as required but no further than 500 feet. Aluminum culverts shall be installed according to WSDOT/APWA specification Section 7-02.3.
5. Roadway approach shall be constructed as per the Spokane County Approach Permit.

ACRONYMS

ARC	American Red Cross
CWPP	Community Wildfire Protection Plan
FSS	FireSafe Spokane
GIS	Geographic Information System
GPS	Global Positioning System
ICS	Incident Command System
NFPA	National Fire Protection Association
NWCG	National Wildfire Coordination Group
WDNR	Washington Department of Natural Resources
WUI	Wildland Urban Interface

Reference material for Creating a Defensible/Survivable Space

- ✚ Living with fire (WDNR)
 - A Guide for the Homeowner
- ✚ Protect Your Property From Wildfire (FireSafe Spokane)
 - 10 FireSafe Steps
- ✚ Defensible Space (WDNR)
 - Planning and managing your fire defensible landscaping
- ✚ Wildfire - Are you Prepared? (American Red Cross)
 - Planning brochure
- ✚ Protecting your home from Wildfire (Jack Cohen-USFS)
 - Video/CD
- ✚ Wildfire -- Protecting Home Ignition (Jack Cohen-USFS)
 - Video/CD
- ✚ Making your home survivable in a wildfire environment (FireSafe Spokane)
 - CD
- ✚ FireSafe Spokane Web Site
 - www.firesafespokane.com
- ✚ Spokane County Fire District 4 Web Site
 - www.scf4.org
- ✚ Washington State Department of Natural Resources
 - www.dnr.wa.gov

Bibliography and Resources

Firewise Communities Workshop:

Participant Workbook

Second Edition, Second Printing 2003.

National Wildfire Coordinating Group:

Fireline Handbook, January 1998

NWCG Handbook 3 PMS 410-1 NFES 0065.