Mill Creek
Oregon and Washington

Community Wildfire Protection Plan



February 8, 2006

Prepared by
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I. Introduction

This Community Wildfire Protection Plan (CWPP) addresses private and publicly owned lands in the Mill Creek drainage including Blue Creek, Dry Creek and Spring Creek. It includes the Mill Creek Municipal Watershed and surrounding National Forest lands to the south and east. The purpose of the plan is to assess wildfire hazards in, and around, the Mill Creek Drainage, and to consider options for reducing the risk of a major wildfire occurring in the planning area, and the effects from one which may happen. The plan was sponsored and funded by the City of Walla Walla. The planning process was designed to meet the guidance in the National Fire Plan and the Healthy Forest Restoration Act of 2003 (HR 1904). The plan, when implemented, is intended to reduce the effects to the city' municipal water supply and to private property from any fire which might occur in the planning area. Completion of the plan will help make the city, county and rural fire districts eligible for grant funding from the National Fire Plan and other programs. These grants would be used to treat hazard fuel situations and to better prepare residents for wildfires that may occur.

Privately owned lands, structures, and people in both Oregon and Washington are at risk from a wildfire which could occur in the planning area. There are many homes and cabins which have dangerous levels of hazard fuels in close proximity, access concerns and combustible structural material. The plan addresses these concerns and offers a strategy to reduce the wildfire risk to the structures and improve the safety of residents who live there.

The City of Walla Walla currently provides water for 30,000 customers and receives 90 percent of its municipal water supply from the Mill Creek Municipal Watershed. The surface water supply receives an ozone treatment but is unfiltered at this time. The city is very concerned about the possibility of a severe wildfire in the Municipal Watershed which would have significant effects on water quality and likely trigger the need for an expensive filtration system.

Large wildfires in the Municipal Watershed have been avoided for the past 100 years due to effective fire prevention and suppression. During this time, neither mechanical manipulation nor the use of prescribed fire for the control of forest fuels have been proposed because of the concern for water quality impacts. The primary focus of protecting water quality has been the control of human access and aggressive fire suppression. The result is forest conditions with heavy fuel loads making the area vulnerable to a large and destructive wildfire which would have serious negative effects on water quality and to the city's water supply. Hot and dry weather conditions during the fire season, steep slopes, and frequent windy conditions further make the area very susceptible to a large fire. Additionally, the Municipal Watershed is adjacent to a Wildland Urban Interface containing many year-round residences as well as vacation homes. This presents a significant human presence which creates an increased likelihood of wildfires which could enter the area.

The planning area for this CWPP includes the entire Mill Creek drainage and those portions surrounding it which are considered to be closely linked from a wildfire risk standpoint. Fire behavior specialists with the USDA Forest Service, the Oregon Department of Forestry, and the Washington Department of Natural Resources believe there is a strong possibility of a wildfire beginning outside of the Municipal Watershed and spreading into it. A wildfire beginning on privately owned land below, or on National Forest lands to the south or west, could quickly enter the Municipal Watershed and be difficult to control.

This CWPP is a stand-alone plan designed to mitigate the risk to private property owners within the affected area and to the City of Walla Walla's water supply. Upon final development of this CWPP, it will become a part of the Umatilla County CWPP completed in June, 2005. If Walla Walla or Columbia County completes a CWPP, this plan will become a part of theirs as well. Also, Wallowa County has completed its CWPP and this plan could be adopted by them.

There are other planning documents which cover the planning area and address some of the issues in this CWPP. The Walla Walla Watershed Plan (June 2005) recognized the importance of developing a Mill Creek CWPP. The Planning Unit for the Watershed Plan indicated their support for the process. The following objectives in the Watershed Plan address the wildfire issue in the Mill Creek Watershed:

> **WC12** Develop City of Walla Walla capability to respond to potential wildfire in the Mill Creek watershed through increased potable water treatment and storage capability.
>
> **MC13** Develop local and regional capability for responding to potential wildfires in the Mill Creek IA watershed by developing response plans for both aquatic habitat and drinking water impacts, and increased potable water treatment and storage capability.

The Walla Walla Subbasin Plan (May 2004) identifies wildfire risk as a priority and suggests the implementation of a local fire management plan as a risk management strategy. Additionally, the Snake River Salmon Recovery Plan addresses some of the same issues found in this CWPP.

II. Planning Process

The City hired a contractor, Jim Hulbert, to conduct the planning process. The planning process used was patterned after the handbook for Wildland-Urban Interface Communities titled, "Preparing a Community Wildfire Protection Plan[1]." The following steps were completed:

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[1] Preparing a Community Wildfire Protection Plan. A handbook for Wildland-Urban Interface Communities, March, 2004.

A. Step One: Convene Decision Makers

A Steering Committee with representatives from agencies and public interest groups was formed to provide guidance for the planning process. The committee met several times during the planning period to review and critique planning documents and offer recommendations. The committee consisted of the following people:

Hal Thomas,	City of Walla Walla
David King,	Oregon Department of Forestry
Len Riggin,	Washington Department of Natural Resources
Don Marlatt,	Walla Walla County Emergency Management
Bill Peters	Columbia County Emergency Management
Tom Groat	Umatilla County Emergency Management
Judy Johnson,	Kooskooskie Commons/Stream Team
Mark Klicker,	Landowner/Farm Bureau
Bob Carson,	Water Advisory Board/Whitman College
Bill Clemens,	PPL/Water Advisory Board
Rocky Eastman,	Fire District 4/Landowner
Kevin Scribner,	Walla Walla Water Alliance/Kooskooskie Commons

Technical advisors to the Steering Committee include:

Jim Beekman,	USDA Forest Service
Glen Westlund,	USDA Forest Service
Brian Wolcott,	Walla Walla Basin Watershed Council
Mark Wachtell,	Washington Department of Fish and Wildlife
Terry Bruegeman,	Columbia County Conservation District
Rick Jones,	Walla Walla Conservation District

B. Step Two: Establish Planning Area Boundary and Planning Goals

The Steering Committee decided the planning area would include the entire Mill Creek drainage plus portions of the surrounding area. There is a significant amount of human habitation in the planning area, although none of the communities are incorporated. The planning area generally includes the following:

- The portion of the Mill Creek drainage between the Municipal Watershed intake facility and the City of Walla Walla.
- Blue Creek including Little Blue Creek
- Dry Creek.
- Spring Creek
- Russell Creek
- Reser Creek
- Mill Creek Municipal Water

- National Forest system lands to the south and east of the Municipal Watershed boundary.

The goal of this planning project is to complete a Community Wildfire Protection Plan (CWPP) for the planning area which meets the intent of the Healthy Forests Restoration Act and accomplishes the following:

1. Identify and evaluate hazardous fuel conditions and wildfire risk factors, and describe potential wildfire impacts to private property owners in the planning area and to the municipal water supply for the City of Walla Walla.

2. Develop strategies for private, state, and federal lands to reduce potential fire starts and the potential for wildfire damage in the planning area.

3. Identify strategies to improve the wildfire response capability of the City of Walla Walla, Fire Districts #4&8, and the state and federal agencies.

4. Improve the ability of the City of Walla Walla, Walla Walla County, and Fire Districts #4 & #8 to become more competitive for funding assistance (National Fire Plan, Healthy Forest Restoration Act, FEMA and other sources) to complete prioritized projects identified in this plan.

5. Identify a Wildland Urban Interface (WUI) boundary that would provide flexibility in treatments and protection measures.

6. Provide opportunities for meaningful discussions among community representatives regarding their priorities for wildfire protection and National Forest System land management. Involve local, county, state, and federal government representatives and interested citizens.

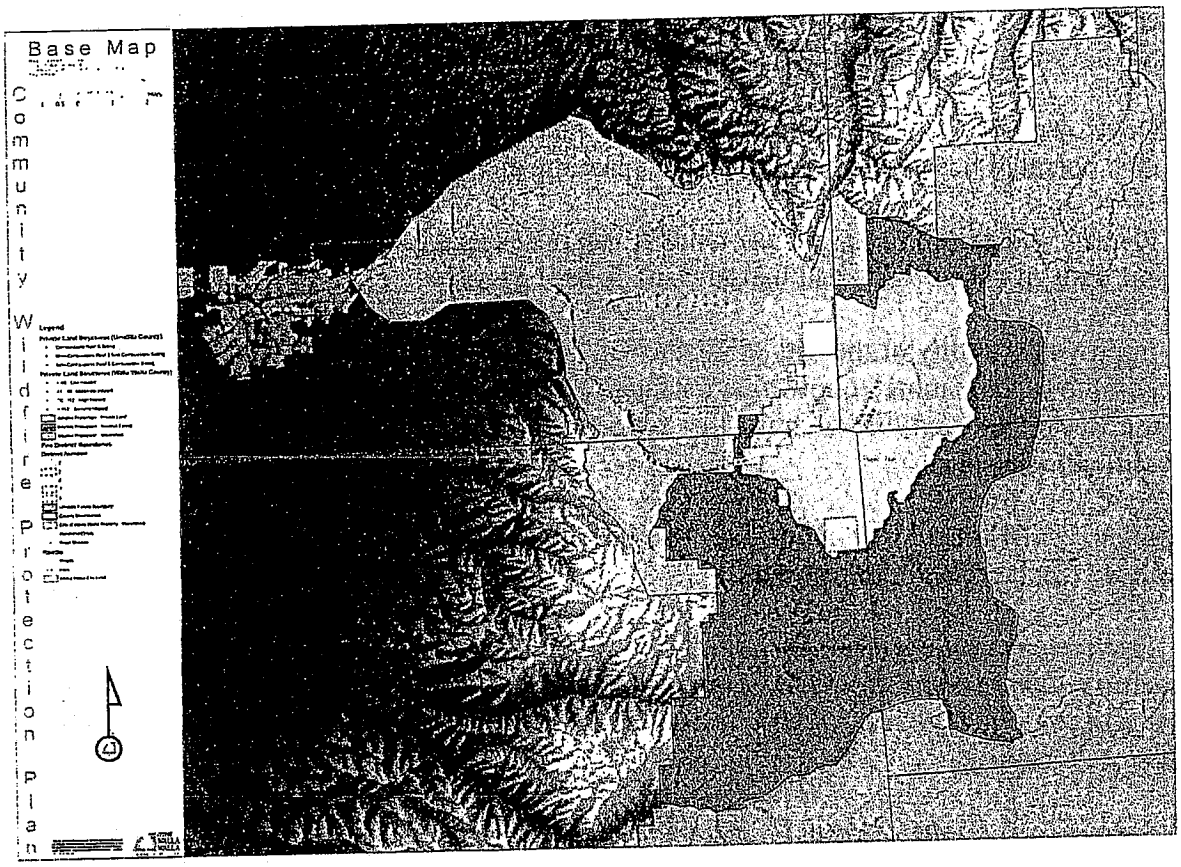
7. Identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment to protect the Mill Creek Municipal Watershed and private property. Coordinate efforts between private landowners, the Forest Service, states, counties, and the City of Walla Walla.

8. Develop an emergency response strategy for residents in the planning area.

C. Step Three: Establish a Community Base Map and Resource Maps

A Community Base Map was developed with the aid of the City of Walla Walla's GIS mapping system. The base map shows the planning area boundary, Fire District boundaries, and the three zones which were delineated to divide the planning area into similar-type areas from an administrative aspect. Zone One is the private lands in the Mill Creek drainage, Zone Two is the Mill Creek Municipal Watershed, and Zone Three is National Forest System lands surrounding portions of the Municipal Watershed.

Several resource maps were developed to show existing wildfire related data. The Forest Service provided GIS maps with Fire Regimes, Fire Regime Condition Class, Fire History, and Fuel Models for National Forest lands. The ODF and the Walla Walla County Emergency Management Department contributed maps from their Structural Vulnerability surveys. The maps were used as part of the risk assessment and eventually led to the development of a strategy including specific projects to reduce wildfire hazards on private and public lands.



Base map with the planning area boundary, planning zones and fire district boundaries.

D. Step Four: Wildfire Risk Assessment

A wildfire risk assessment was completed for the planning area. Methodology for the Risk Assessment was developed by the Oregon Department of Forestry[2]; it involves five factors: Risk, Hazard, Values, Protection Capability and Structural Vulnerability. The methodology includes a rating or scoring system for the first four factors. The scores are cumulative and the total score indicates a low, moderate, or high overall Wildfire Risk rating.

[2] Identifying and Assessment of Communities at Risk in Oregon, draft prepared on October 18, 2004.

Criteria developed as part of the NFPA-1144 survey assessment program were used to establish hazard ratings for individual home sites (Structural Vulnerability). Individual home surveys in Washington were completed by a Walla Walla County Emergency Management crew in 2002. The Oregon Department of Forestry completed surveys of Oregon homes in 2004. The criteria used to rate individual parcels are in Appendix A. Overall, there was a continuum from a fire-safe condition up to a high hazard situation; every property had a unique set of conditions.

The Risk Assessment included the following steps:

- GIS maps and data created by the City, Walla Walla County Emergency Management, ODF, and Forest Service were used to assess the hazardous fuel situation and wildfire risk in the Mill Creek drainage, and surrounding areas within the planning area boundary. Field trips to verify conditions on the ground were conducted. Ideas and input from community members, especially fire district representatives, were an important part of the assessment.
- Specific wildfire hazards were identified within the study area.
- A Wildland Urban Interface (WUI) zone was identified.
- Major risk factors which cause wildfires to start within the study area were identified.
- Information from the NFPA 1144 surveys completed by Walla Walla County Emergency Management and ODF were used to describe Structural Vulnerability.
- Wildfire occurrence history was described.
- Available resources and resource needs for Fire Districts #4&8 and the government agencies were identified.

E. Step Five: Establish Community Priorities and Recommendations

The Steering Committee analyzed the results of the Wildfire Risk Assessment and then considered potential projects within the planning area. The type of projects considered includes:

- Bio-mass Removal - removable of hazardous fuels by mechanical means.
- Thinning- cutting trees/brush, piling, and burning.
- Mechanical Mastication – grinding and, or, crushing hazard fuel material with ground based equipment.
- Prescribed fire - a management ignited or natural wildland fire that burns under specified conditions where the fire is confined to a predetermined area and produces the fire behavior and fire characteristics required to attain planned fire treatment and resource management objectives.
- Development of defensible space and fuel reduction around individual homes.
- Hazard fuel removal along access routes.
- Establishment of evacuation routes to include ingress and egress improvement.
- Identification of structural material hazards.

- Identification of fire district equipment needs.
- Public outreach to include methods to distribute wildfire protection information to homeowners.
- Establishment and confirmation of effective forest management practices, healthy forest restoration etc.
- Identification of community organizations to implement provisions in the CWPP.
- Revised County Fire Siting Standards for homesites.
- Power line maintenance.
- Wildfire education and prevention measures.
- Water filtration facility.

Projects selected will be implemented by the responsible entity as funding and opportunities become available.

F. Step Six: Communicate Community Wildfire Protection Plan Information to the Public.

A strategy to effectively communicate information from the plan was devised. A combination of news letters, public meetings, TV/radio slots and handout material designed to reach the maximum number of property owners in the planning area was considered. Four public meetings were held with two at the beginning of the CWPP formulation to inform the public of the upcoming process and two after the draft plan had been finalized to discuss the results and obtain public comment/input on the plan and identified projects prior to final publication. The meetings were held at the Mill Creek Fire District 45 Station, located in the wildland/urban interface and at City Hall in Walla Walla. Approximately 60 people attended the initial meeting and 75 the final meeting. The notes from the Public Meetings are included in Appendix F.

III. Community Profile

This section describes the physical makeup of the planning area and the people and agencies that live and work in it. It also explains some of the agreements, rules and regulations which apply to the area in regards to wildfire issues.

A. General Description of the Mill Creek Municipal Watershed

The Mill Creek Municipal Watershed, with 21,740 acres, straddles the border between Oregon and Washington. It occupies portions of two counties in Washington - Walla Walla and Columbia counties, and portions of two counties in Oregon – Umatilla and Wallowa. The area is mostly National Forest System Lands with a minor amount owned by the city. The Municipal Watershed is a Forest Service inventoried roadless area and has been managed by the Forest Service and the City of Walla Walla solely for the

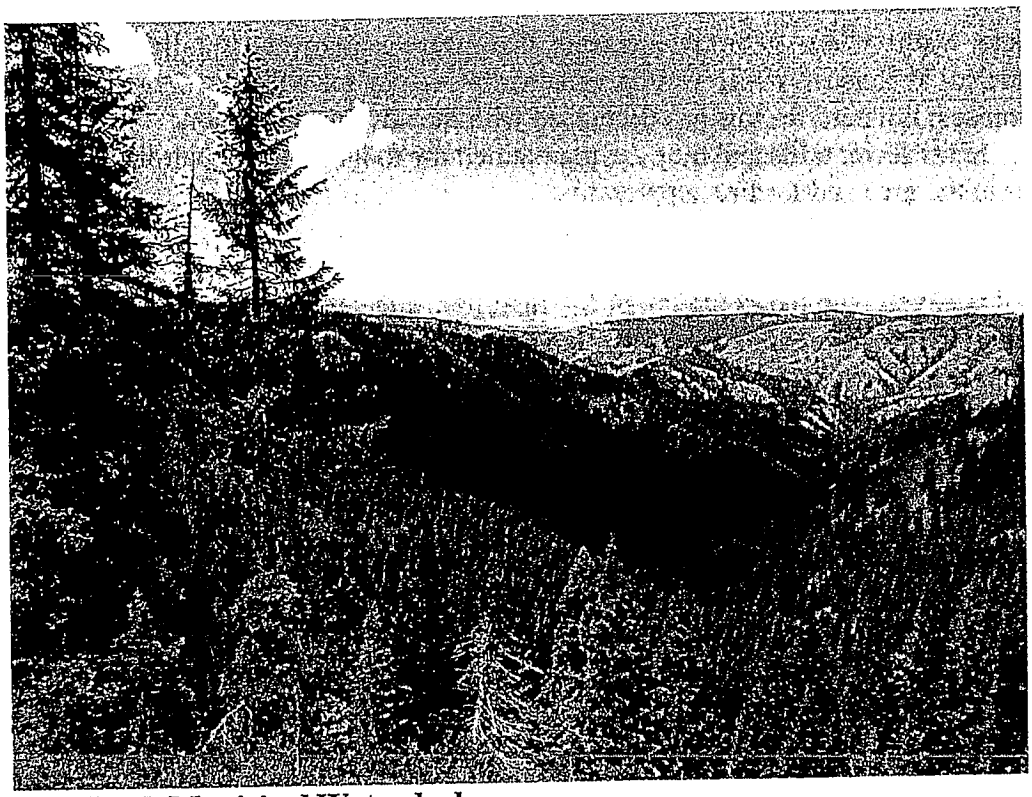
protection of water quality since 1918. At one time, there were as many as 50 miles of trail in the Municipal Watershed which were maintained primarily for wildfire suppression purposes; the need for this has decreased with the advent of aviation. Presently, there are far fewer trails and they are maintained for foot and horse patrols to prevent trespass in the area and for fire suppression.

Mill Creek Road provides access to the City's intake facility, about 16 miles from Walla Walla. The road is paved with the exception of the final four miles which has a gravel surface. Gravel or dirt roads provide access to a large portion of the perimeter of the Municipal Watershed. Forest Roads 64 and 65 run along the west, south and east perimeters of the Municipal Watershed while a system of private roads and National Forest trails are located on the north side. The eastside of the Municipal Watershed borders the Wenaha-Tucannon Wilderness.

Landforms in the Municipal Watershed are typical of those along the Blue Mountain front in eastern Oregon and Washington. Deeply incised canyons and sharp ridges are common. Elevations range from around 2,500 feet at the lower portion to over 6,000 feet at the Table Rock Lookout. Plant communities have developed according to aspect and moisture regimes. North and east facing slopes are typically heavily forested while the south and westerly aspects are generally open and grass covered. Lower elevation areas along riparian zones often exhibit old forest characteristics.

The area has not experienced a major vegetative disturbance since it was declared a Municipal Watershed in 1918. There has been an average of about one wildfire per year and these have been quickly extinguished by Forest Service suppression crews. Through a collaborative process with the City of Walla Walla, the Umatilla National Forest Land and Resource Management Plan provides direction to protect water quality placing a high priority for the control of wildfires as well as controlling access into the Municipal Watershed. Fire fighting crews rapidly gain access to wildfire starts with the use of smoke jumpers and helicopters preventing wildfires from becoming large in size. The result is the mid elevation forests and brush-lands have become out of character with historic fire disturbance processes. The high elevation forest maintained by an infrequent fire regime has transitioned to fuel conditions with high probability for a stand replacement event. The existing forest contains unnatural buildups of heavy fuel loads making it prone to a large wildfire under the right conditions.

The Municipal Watershed receives very little human use. A permit is required from the U.S. Forest Service for public entry and permits are only issued for official business and for a limited number of elk hunters in the fall. The Forest Service and the City of Walla Walla conduct foot and vehicle patrols to prevent trespass. The purpose for restricting human use is to avoid contamination with fecal coli bacteria. The EPA/Washington Department of Health regulation for fecal coli bacteria is a very low level and could be reached by one careless person thus triggering the need for filtration.



Mill Creek Municipal Watershed

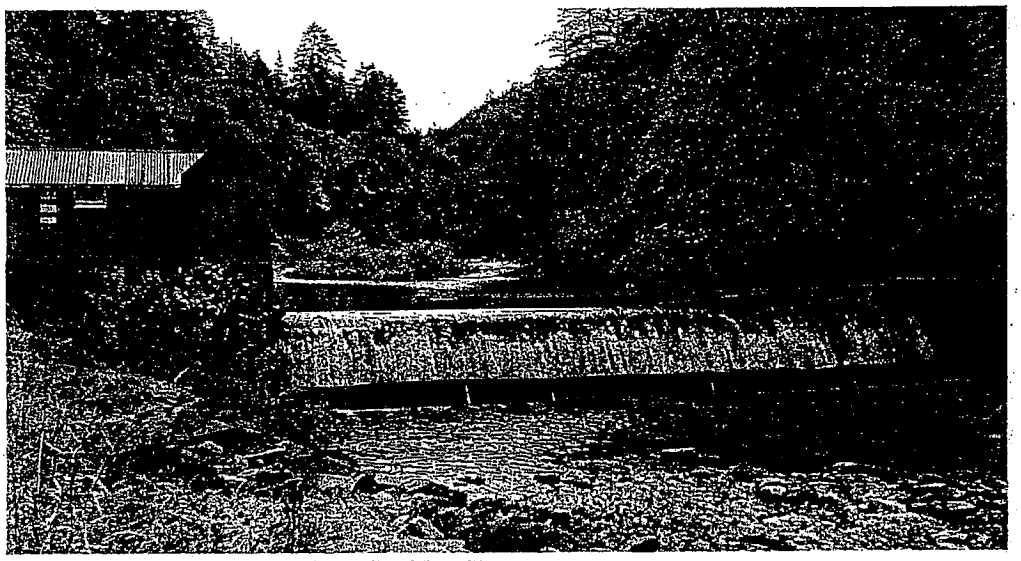
B. Cooperative Agreement

In 1918, the City of Walla Walla and the Forest Service signed a cooperative agreement for the purpose of conserving and protecting the water supply from the Mill Creek Municipal Watershed for use by the city. The agreement states the following:

- Use of the lands within the Municipal Watershed will not be permitted without the approval of the proper city authorities, except for the following purposes: measures necessary for the proper protection and care of the forest; marking, cutting and disposition of such timber, as in the judgment of forest officers, may be removed without injury to the water supply; for the construction of roads and trails, telephone lines and other means of transportation and communication not inconsistent with the objective of the agreement.
- All persons employed or occupying any of the lands for any purpose will be required to comply with regulations governing National Forests and to observe such sanitary regulations as may be proposed by the city and approved by the Secretary of Agriculture.
- So far as practicable with the means at his disposal, the Secretary will extend and improve the forest upon these lands by seeding and planting and by the most approved methods of silviculture and forest management.
- The city will cooperate with the Forest Service in patrolling the Municipal Watershed for the enforcement of regulations and the prevention and suppression

of forest fires and the additional guards necessary will be responsible to the Forest Supervisor but compensated by the city.

The agreement between the Forest Service and the city has served the city well since 1918. Currently the city pays for a seasonal Forest Service employee to patrol the perimeter of the Municipal Watershed and a Forest Service employee to be stationed at the Table Rock Lookout during the fire season. The city employs a full-time employee who lives and works at the water intake facility. This employee maintains the facility and conducts foot and horse patrols in the area to enforce the closure regulations. The Forest Service has been very effective in suppressing forest fires over the years; they have not conducted active forest management since the cooperative agreement was signed in 1918.



Municipal Watershed Intake Facility

C. Fire Districts #4 and #8

The private lands within the planning area receive fire protection from Fire Districts #4 and #8. Fire District #4 provides wildland and structural protection for lands within its fire district and has mutual aid agreements with Washington State DNR for response in the Klicker Mountain and Blacksnake Road areas. Fire District #4 has five paid staff and about 60 volunteers. There are five stations in the district; the main station is in the City of Walla Walla. Station #45 is located in the planning area and is near the junction of Mill Creek Road and the Blue Creek Road. There is a fire protection tax which supports the district. Fire District #4 also contracts with Oregon residents in the Mill Creek area for structural fire protection. Those who do not contract with the District would be billed if the district responds to a structure fire on their property. The district responds to about one structure fire and a dozen natural cover fires a year in the planning area. It has six Type 1 engines, six Type 3 engines, and three 2,000 gallon water tenders.

Fire District #8 provides wildland and structural protection for lands within its fire district and has mutual aid agreements with Washington State DNR for response in the Biscuit Ridge, Lewis Peak, North and South Forks of the Coppei areas. Fire District #8 is primarily a volunteer fire department with one part time paid fire fighter and approximately 40 volunteers. The fire district has one fire station located in Dixie housing the majority of its apparatus. Several Type 6 engines are located at volunteer's homes for quick response to the west side of the district. It responds to one structure fire every 2 to 3 years and several natural cover fires a year in the planning area. The district has one Type 1 engine, six Type 6 engines, and two water tenders.

D. Private Lands

There are approximately 316 homes located within the planning area. Most of these are in the Mill Creek drainage along Mill Creek Road; some are found along Spring, Dry, Blue, Russell and Reser Creeks. Of the total homes surveyed in the planning area, 99 are on the Oregon side and 217 are in Washington. Almost all of these are located along creek bottoms. The hills above the bottom land transition from crop land at the lower elevations to grass, shrubs and eventually forest land at the higher elevations. Most homes are occupied year-round, but there are some which are used as vacation homes occupied mainly during the summer and fall months.

There are two loosely organized communities within the planning area, Kooskooskie and Mill Creek Glen. Kookooskie, Tracy, and Five Points are shown on the National Forest map but none of them have a community council. Kooskooskie is a subdivision with many small lots located near the Oregon/Washington border on Mill Creek Road. There is a Cabin Owners Association in Kookooskie. Much of the forest land at the higher elevations is a part of locally owned, large ranches.

E. Forest Service

The USDA Forest Service has responsibility for management of National Forest System lands within the Mill Creek Municipal Watershed. The entire Municipal Watershed is located on the Walla Walla Ranger District which is a part of the Umatilla National Forest. Headquarters for the Ranger District is in the City of Walla Walla.

Management activities by the Forest Service since the 1918 agreement was signed with the city have focused on water quality protection involving access management, and wildfire prevention and suppression activities. The Forest Service staffs a patrol officer who monitors the perimeter of the Municipal Watershed and occasionally hikes into it. The patrol officer is on duty during the snow-free period. The primary duties of the officer include the prevention of trespass, fires, ORV use, and litter. The Forest Service also staffs the Table Rock fire lookout. The lookout has an excellent view of the Municipal Watershed and can quickly alert fire fighting forces of fires occurring over most of the area.

Resource concerns that have limited the ability to manage within and around the Municipal Watershed include:

- Inventoried roadless areas (the Walla Walla and Mill Creek),
- The Wenaha Tucannon Wilderness,
- Three Endangered Species Act listed species (Canada Lynx, bull trout, and the mid-Columbia steelhead,
- The reintroduction of salmon to Mill Creek by the Confederated Tribes of the Umatilla Indian Reservation,
- High water quality standards needed for water coming out of the Mill Creek Municipal Watershed.

The Umatilla National Forest Management Plan has special language for the Mill Creek Municipal Watershed (Appendix B).

F. City of Walla Walla

The City of Walla Walla, with a population of 31,600[3], is the largest city located in Walla Walla County. It is served by US Route 12 and is about 58 miles east of the Tri-Cities, the closest large-size municipality. The city, at 1,000 feet elevation, is about 11 square miles in size and has a regional airport and two colleges. Its annual precipitation is around 12 to 14 inches, of which only about three inches occur during the months from June through September. During this 122 day period, there is an average of just 17 days with precipitation. Recent climate studies have indicated that weather patterns are changing in this area, resulting in less annual snow pack and more spring rains.

The City relies on the Mill Creek Municipal Watershed for 90 percent of its municipal water supply. The remaining 10 percent of its water comes from seven deep basalt wells located between the city and the Municipal Watershed. Facilities for the Mill Creek water system include a low head dam with an intake and fish screen, an ozone plant for pathogen treatment in Walla Walla, and a 30 inch diameter transmission pipe from the intake to the treatment plant (14 miles). Additionally, the city owns and operates a small hydro-power generator as part of the water transmission system. This hydro plant is operating at about half capacity in order to meet in-stream requirements for endangered species needs.

The system of basalt wells is used to supplement the surface water supply during summer months when Mill Creek does not have sufficient water to meet demand. During high flow periods, excess surface water is pumped into two specially configured city wells in an effort to recharge the aquifer.

[3] 2,000 census

The surface water portion of the municipal water supply system is operated under State of Washington criteria designed to avoid the need for filtration. The following criteria must be met to avoid filtration:

- Turbidity of less than 5.0 NTU (Nephelometric Turbidity Units).
- Fecal coliform density less than 20/100mL in 90% of samples.
- Virus and Giardia inactivation met 11 months out of 12.
- Distribution system residual maintained.
- Municipal Watershed control program implemented.
- System meets Total Coliform Rule.
- System meets Stage 1 DBP (Disinfection Byproduct) Rule.

The City staffs a full-time position at the intake facility where water enters the transmission line. This person is responsible for maintaining the intake facility and fish screen. A portion of the person's duties involves sampling the water before it enters the transmission line. He also conducts patrols in the Municipal Watershed for enforcement of the closure and for fire prevention purposes.

G. County Building Codes (Fire Siting Requirements)

Two counties in Washington (Walla Walla and Columbia) and one in Oregon (Umatilla) have building codes with fire siting requirements for new home development. These requirements are intended to reduce the vulnerability of structures to wildfires.

Walla Walla County uses the international fire code and requires design standards to accommodate the firefighting apparatus that will respond to structure fires. They have road standard amendments pending that will clarify the access standards and be much more comprehensive. They have nothing on roofing standards now.

Umatilla County implements fire siting standards for dwellings developed in the Grazing Farm (GF) Zone but does not currently have a land use chapter on fire safety standards for non-resource zoned lands, including Forest Residential (FR) Mountain Residential (MR) and Multiple Use Forest (MUF). Developments along Mill Creek Glen are predominately encompassed by non-resource zoning.

Currently, Umatilla County planners implement road improvements and access standards found in the Umatilla County Transportation Plan and Development Code when processing new land partitions and subdivisions. These road improvement and access standards address access needs and turnaround space for emergency vehicles. The Planning Department also provides notice to the Oregon Department of Forestry and rural fire districts during administrative review of land use requests and advises new homeowners to comply with the "Recommended Fire Siting Standards for Dwellings and Structures" published by the Oregon Department of Forestry. The Oregon Department of Forestry is proposing to implement SB 360 in the next year which could ultimately lead to fire siting and safety standards in all non-resource zoned lands of Umatilla County, as well as resource zoned lands that meet the criteria of SB 360.

Fire siting requirements for Columbia County include the following for the Agricultural/Residential Zone (AR-2):

- Roofs and exteriors of buildings shall be of fire resistant materials, shingle, sheets of iron, aluminum, or fire retardant-treated shingles or shakes.
- Any chimney or stovepipe connected to a device burning solid or liquid fuel shall be equipped with a screen over the outlet.
- A fire break of not less than 30 feet shall be maintained around all buildings and structures. Wider breaks may be required on slopes greater than 30%.
- No portion of a tree or any other vegetation shall extend to within 15 feet of the outlet of a stovepipe or chimney.
- Permanent outdoor fireplaces and barbeques shall be equipped with a screen over the outlet and a method of controlling the draft. No portion of a tree or other vegetation may extend to within 15 feet of the outlet of the stovepipe/chimney. An area of five feet around permanent outdoor fireplaces and barbeques shall be cleared of flammable material, including bark and mulch.

H. Emergency Management

Walla Walla, Columbia and Umatilla Counties have Emergency Management Departments. These departments consider wildfire an important part of their responsibilities and are involved with wildfire prevention and suppression efforts. The following statements from the Walla Walla County Emergency Management Department typify the mission of the Emergency Response Departments.

> Walla Walla County Emergency Management is organized by agreement between Walla Walla County and the cities of Walla Walla, College Place, Waitsburg, and Prescott. We provide mitigation, preparedness, response and recovery planning for emergency responders for major disaster events. We facilitate forums with responders to exchange information and improve plans. We are prepared to open an Emergency Operations Center to provide support to field incident commanders and information to the public when a disaster occurs. We provide public information on the hazards in Walla Walla County, how we can mitigate or reduce their effects, and ways of preparing ourselves.
>
> **Mission Statement**
>
> Coordinate and facilitate resources to minimize the impacts of disasters and emergencies on people, property, the environment and the economy of Walla Walla County. Through education, training, information and community awareness, we will prepare for; respond to; recover from; and mitigate the effects of disaster for all who live, work or visit here.

I. Fish and Wildlife Issues

Both the Washington and Oregon Departments of Fish and Wildlife have interests in the management of the Mill Creek Municipal Watershed. A limited number of permits are issued by each department for elk hunting in the fall. The departments carefully monitor the elk herd which uses the area in an effort to keep the numbers at an acceptable level. Hunters who draw permits may hunt by foot or horse travel only. The use of horses is permitted to carry out their harvested animals but most hunters do it themselves.

There are three listed ESA (Endangered Species Act) species associated with the planning area: bull trout, Canadian lynx and the mid-Columbia steelhead. Of these, the Canadian lynx may have the largest potential issues associated with active fuel management activities. The lynx evolved under an infrequent fire regime and an active fuels reduction program in the planning area would shift the amount of suitable habitat available for the species. The Forest Service follows conservation measures in the Canadian Lynx Conservation Assessment and Strategy[4]. This strategy constrains the amount of unsuitable habitat in a Lynx Analysis Area to no more than 35 percent at one time. There are portions of two Lynx Analysis Areas in the planning area, Mill Creel and Wenaha. Fire, either wildfire or prescribed, can shift suitable lynx habitat to an unsuitable condition.

The Walla Walla Watershed Plan, Walla Walla Basin Subbasin Plan and the Snake River Salmon Recovery Plan all contain goals and objectives designed to protect the listed ESA species:

http://www.nwcouncil.org/fw/subbasinplanning/wallawalla/plan/EntirePlan.pdf
http://www.wallawallawatershed.org/wsplanning.html
http://www.snakeriverboard.org/pdf_files/Summary102505.pdf

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[4] Ruedig, Bill, Jim Claar, Steve Gniadek, Bryon Holt, Lyle Lewis, Steve Mighton, Bob Naney, Gary Patton, Tony Rinaldi, Joel Trick, Anne Vandehey, Fred Wahl, Nancy Warren, Dick Wenger, and Al Williamson. 2000. Canada Lynx Conservation Assessment and Strategy. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication #R1-00-53, Missoula, MT. 142pp.

IV. Planning Issues/Concerns

The following issues and, or, concerns were considered as part of the planning process for this CWPP.

- There are more than 300 homes on the private lands within the planning area. Many of these have been rated as a high risk for severe damage from wildfires; some would be difficult to defend during a wildfire event. Some of the main concerns include:

  Access – Many homes are located on roads or driveways which would limit the ability of fire response units to gain access and protect them during a wildfire. Further, during an emergency situation, these roads could hamper the evacuation of residents.

  Defensible space – Some homes have limited defensible space with heavy fuels in close proximity to the structures which would make it difficult for firefighters to defend them in a wildfire.

  Structural material – There are homes with flammable roofing and, or, siding material which would make them vulnerable to ignition during a wildfire.

  Hazard fuels – Many home are at risk from wildfires because of heavy fuel situations located beyond the "defensible space" area. These fuel situations could result in severe wildfires with a high rate of spread.

  County building codes - There is a need to strengthen fire safety standards for new home development and remodeling in the planning area.

  Home-site surveys have been completed but need to be updated in some situations.

  There is a need to provide more information and to assist homeowners in becoming more fire-safe.

- Dense forest conditions and heavy fuel loads in portions of the Municipal Watershed have placed the area at extreme risk of a catastrophic wildfire. Associated issues with the Municipal Watershed include:

  State and Federal officials generally agree that because fire has been essentially excluded in the area for the past 100 years, there is a high probability that a large wildfire will eventually occur in the Municipal Watershed.

Such a fire would burn extremely hot, cover a significant portion of the area and almost certainly cause erosion such that water from the watershed would be unusable until a surface water filtration system could be installed.

It is likely that a large wildfire affecting the Municipal Watershed will begin outside of the area and burn into it. The most likely scenario would be for a fire to begin on private lands below the Municipal Watershed and burn into it.

There is a concern by the U.S. Forest Service about enacting active fuel management activities in the Municipal Watershed for a variety of reasons including the potential cost and short-term negative effects on water quality. The Forest Service currently favors measures to isolate the Mill Creek Municipal Watershed from external fire sources, and on improving prevention and suppression response.

Prescribed fire use may be the best option to consider for reducing fuel loads in the Municipal Watershed, but the risk of an escaped fire and its consequences is high. Multiple burn entries would be required to effectively manage fuel loads. The initial prescribed fire would generate new fuels from the mortality generated by the original burn requiring additional burning to maintain desired fuel loads reflective of low intensity and low severity wildfires.

Access in the Municipal Watershed is very limited making active fuel management activities difficult. The area is a Forest Service inventoried roadless area.

- Fire Districts responsible for wildfire protection in the planning area are in need of more and better firefighting equipment.

- The planning area contains habitat for threatened Mid Columbia steelhead, Columbia bulltrout, and Canadian lynx. Threatened and Endangered Species requirements affect surface water operations and capacity. Instream requirements for fish recovery and maintenance are currently unknown pending completion of basin plans. A large wildfire could affect the quality of fish and lynx habitat.

- Domestic water supply for the City of Walla Walla is a concern. Sediment generated by a large wildfire could seriously affect the supply for several years. Construction of a filtration system has been considered and is currently estimated to cost about 20 million dollars which would add to the already comparatively high water rates and financial burden for city residents. The long-term capacity of the deep basalt wells which supplement the Mill Creek surface water supply is unknown. Declining aquifer water levels indicate its capacity is limited and is being affected by current well withdrawals.

V. Special Considerations

This chapter describes several state, federal and private laws, policies, or plans which have application for wildfire risk considerations.

A. Senate Bill - 360

The Oregon Forestland-Urban Interface Fire Protection Act of 1997 (SB-360) is the State of Oregon's response to several escalating wildland fire problems. Wildfires are burning homes in the interface and firefighters are working in increasingly hazardous situations. Fire suppression costs are increasing significantly. In some cases, emergency service agencies cannot provide equipment and personnel for all structures threatened by a wildfire.

The act enlists the aid of the only people who can make fuel reduction changes to residential property: the landowners themselves. The Act prescribes vegetation treatment derived from research conducted at the Rocky Mountain Research Station in Missoula, Montana (Cohen and Saveland , 1996). The measures are simple and easy to apply, they address the following:

- Removing pine needles and leaves from the roof.
- Pruning limbs from trees, keeping trees healthy.
- Removing shrubs near the home and close to trees.
- Mowing dead grass near the home.
- Storing firewood and other flammable material at least 20 feet from the home (during fire season).
- Removing tree limbs that are within 10 feet of a chimney opening.
- Maintaining a shaded fuel break near the house and in some cases around the property line.
- Maintaining driveways that are over 150 feet long clear of branches and trees that could prevent emergency vehicles from gaining access to the structure.

The act applies to lands protected by the Oregon Department of Forestry and does not apply to other properties outside of ODF protection. Each county will establish a classification committee that will identify the hazard class of each area affected by the act. Once classified, landowners are provided a certification package and given two years to certify that their lands meet the standards. The Northeast Oregon District of the Oregon Department of Forestry will work closely with local emergency management personnel, conduct public meetings, hearings and community workshops along with providing onsite consultation for landowners affected by the act.

The Forestland-Urban Interface Fire Protection Act of 1997 is intended to be both voluntary and self certifying by the homeowner. By design, the Oregon Department of Forestry developed a program that recruits the assistance of each homeowner, offers defensible space prescriptions and allows affected homeowners the option of certifying

their property or not. The act contains no statutory provisions, homeowners will not be cited or required to appear in court if they choose not to participate. The act does contain a potential civil liability if the homeowner does not certify their property in two years after notification. However, if a fire originates on that property and spreads through the area that should be treated and the Oregon Department of Forestry must utilize extraordinary suppression efforts to contain that fire, a home owner could be liable for up to one hundred thousand dollars of suppression costs.

B. Oregon Emergency Conflagration Act

Under circumstances when wildfires create a serious threat to life and property, the Governor of Oregon may invoke the Emergency Conflagration Act. Once invoked, the Act authorizes the Governor to use the resources of any county, city, or district fire suppression organization to assist fire-fighting efforts anywhere in the state. The Act requires the state to reimburse the political subdivision for costs in providing such fire suppression assistance. The Governor can also declare a "state of emergency" authorizing the participation of all public agency personnel and equipment, including the Oregon National Guard, to assist in the battle against wildfires. During a Governor-declared "state of emergency," the Oregon State Police coordinates National Guard resources through the Office of Emergency Management and structural fire fighting resources through the Office of the State Fire Marshal. The Oregon Military Department also provides both staff and equipment for emergency fire fighting needs.

C. Washington State Mobilization Plan

When a local fire chief in Washington State has exhausted internal and mutual aid resources, he or she can request fire mobilization. Once approved by the Governor, an overhead team assumes command of the fire under a specific transfer of authority and can bring in state-wide fire resources. The state picks up the bill after mobilization is approved. A local EOC supports a Type III Incident Management Team with resources. A Type II team is self-supporting.

D. Federal Emergency Management Act (FEMA) Eligibility

Federal fire management financial assistance is provided through the President's Disaster Relief Fund and made available by FEMA. Only fires involving structures or homes can be declared eligible for FEMA reimbursement. Cost reimbursement can only occur if the Governor invokes the Emergency Conflagration Act and the Office of Emergency Management requests assistance and provides information on the estimated amount and severity of the threat to structures or homes through the FEMA Region 10 office. Each incident requires separate approval. After validating the nature and extent of the threat, the FEMA regional office requests approval by the FEMA director in Washington, D.C. Once approved, subsequent fire fighting costs on all FEMA approved fires are eligible for approximately 70% cost reimbursement under an approved grant for managing,

mitigating, and controlling designated fires during the incident time period as established by FEMA.

E. Healthy Forest Restoration Act (HFRA)

The November 2003, Healthy Forest Restoration Act (HFRA) offers new tools and additional authorities for treating more acres in a timely fashion to meet forest restoration goals. It provides new authorities to treat fuels on federal land that require NEPA at the EA or EIS level. HFRA strengthens public participation by providing incentives for the local communities to develop their own community wildfire protection plans. It limits the complexities of Environmental Analyses for hazard reduction projects. It provides a more effective appeal process and instructs the Courts to balance short-term affects of implementing projects against the harm caused by delay and long-term benefits of a restored forest.

Title I of HFRA addresses vegetation treatments on National Forest System and Bureau of Land Management lands that are at risk of wildland fire or insect and disease epidemics (emphasis is on Fire Regime I, II, and III in Condition Class 2 & 3). Title II encourages each community to develop their own CWPP and to designate their own specific WUIs where restoration projects might occur. Half of all fuel reduction projects under the HFRA must occur in the community protection zone as defined by HFRA. It also encourages biomass energy production through grants and assistance to local communities to help create market incentives for the removal of otherwise valueless forest material.

F. National Fire Plan (NFP)

Following the explosive fire season of 2000, the National Fire Plan was established to respond to severe wildland fires and their impacts to communities. It is an umbrella term that covers a variety of government programs and ideas addressing wildland fire issues. The NFP is a long-term investment that will help protect human lives, communities, and natural resources, while fostering cooperation and communication among federal, state, and local governments, tribes, and interested publics. Federal fire agencies worked closely with these partners, and the Western Governor's Association to complete a 10-Year Comprehensive Strategy in August 2001. An Implementation Plan was developed in May 2002 to provide consistent and standard direction for implementing the NFP and the Strategy.

The NFP is focused on firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability. The guiding principle for dealing with fire risks is the reduction of hazardous fuel loads threatening communities and wildland ecosystems. The NFP offers grant opportunities for hazard fuel reduction, wildfire planning, wildfire prevention, and hazard fuel utilization. Most NFP funding in Oregon goes to wildfire preparedness and hazardous fuel treatment projects.

G. Oregon Statewide Land Use Planning Goals

Since 1973, Oregon has maintained a strong statewide program for land use planning. The foundation of that program is a set of nineteen statewide planning goals. The goals express the state's policies on land use and related topics. The program is a partnership among the state and is administered through the Department of Land Conservation and Development (DLCD), and Oregon's cities and counties. Cities and counties implement the requirements of the statewide planning goals through state-approved local comprehensive land use programs.

Planning goals related to WUI fire hazards are Goal 4 – Forest Lands, Goal 7 – Natural Hazards, and Goal 14 – Urbanization. Goal 4 requires local governments to minimize risks associated with wildfire when new dwellings or other structures are allowed in forestlands. Goal 7 requires local governments to develop programs to reduce risks to people and property from a variety of natural hazards, including wildfire. Goal 14 mandates that cities have urban growth boundaries, (UGBs) to provide for urban uses and limit urban-type development on rural resource lands outside of UGBs.

H. Fire Insurance Ratings

The Insurance Services Office (ISO) is an independent, advisory organization that serves insurance companies, fire departments, and others by providing information about risk, including public fire protection in Oregon[5]. They help establish appropriate fire insurance premiums for residential and commercial properties by providing the insurance industry with up-to-date information about a community's fire protection capabilities. The Washington Survey and Rating Bureau (WSRB) provides this service in Washington State.

ISO and WSRB use the Fire Suppression Rating Schedule (FSRS) to review and evaluate the fire fighting capabilities of communities. The rating schedule measures the major elements of a fire suppression system and develops a numerical grade called the Public Protection Classification (PPC). A number from 1 to 10 is assigned - Class 1 represents exemplary public protection and Class 10 indicates that the area's fire suppression program does not meet minimum criteria.

The PPC depends on:

- Receiving and Handling Fire Alarms (10%) – reviews the fire alarm and communications systems including telephone systems, telephone lines, staffing levels, and dispatch systems.
- Fire Department (50%) – reviews the fire protection including the staffing, training, equipment, and the geographic distribution of the fire departments.
- Water Supply (40%) – reviews the water supply system that is available for fire suppression in the community including condition and maintenance of hydrants,

[5] Umatilla County Wildfire Protection Plan, 6/16/05

and an evaluation of the amount of available water compared with the amount needed to suppress fires.

Communities are evaluated based on nationally recognized standards developed by the National Fire Protection Association and the American Water Works Association. The PPC rating can provide a benchmark for fire departments and local officials in measuring the effectiveness of their fire protection services and is an additional tool for planning and budgeting efforts. Virtually all U.S. insurers of homes and business property use ISO's PPC in calculating premiums. In general, communities with superior fire protection services and good Public Protection Classifications have lower fire losses, and typically lower fire insurance premiums than communities whose fire services are not as comprehensive.

VI. Vegetative Conditions

A. Pre-settlement Fire

Prior to Euro-American settlement of the Blue Mountain area, fire was a frequent and influential part of the ecosystem. The Blue Mountains experience a high level of lightning and lightning caused fires. Native Americans frequently burned to hunt, as well as to enhance forage response and habitat. A pioneer traveling in the Blue Mountains in the 1830's reported, "The Indians have fired the prairie, and the whole country for miles around is most brilliantly illuminated." Other early travelers in the Blue Mountains including Bonneville in 1834 report extensive burning by Native Americans.[6] Successful suppression of wildfires began in 1910.

B. Fire Regimes

A natural fire regime is a classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning[7]. Five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant vegetation. The five regimes are:

- Regime I, 0-35 years frequency and low intensity (surface fires most common) to mixed severity (less than 75% of the dominant over story vegetation replaced.
- Regime II, 0-35 year frequency and high severity (greater than 75% of the dominant over story vegetation replaced).

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[6] Agee 1993. Fire Ecology of the Pacific northwest Forests. Covelo, Ca. Island Press. Professor of Forest Ecology. University of Washington, Seattle, WA.

[7] Agee 1993. Fire Ecology of the Pacific northwest Forests. Covelo, Ca. Island Press. Professor of Forest Ecology. University of Washington, Seattle, WA.

- Regime III, 35-100 plus year frequency and mixed severity (less than 75% of the dominant over story replaced).
- Regime IV, 35-100 plus year frequency and high severity.
- Regime V, 200 plus year frequency and high severity.

The following table shows the Fire Regimes in the Mill Creek Municipal Watershed and for the Municipal Watershed plus a three mile area surrounding it[8]:

Fire Regime	Municipal Watershed Acres	Percent	Municipal Watershed plus 3 mile buffer in acres	Percent
I	8,205	40.3	20,293	30.9
II	84	.4	120	.2
III	10,881	53.4	35,456	53.9
IV	95	.5	1,151	1.7
V	1,100	5.4	8,725	13.3
Total	20,365	100.0	65,745	100.0

C. Fire Regime Condition Class

A fire regime condition class (FRCC) is a classification of the amount of departure from the natural fire regime[9]. Three classes have been described[10]:

- Condition Class 1, These areas are within the natural (historical) range of variability of vegetation characteristics including fuel composition, fire frequency, severity and pattern, and other associated disturbances.
- Condition Class 2, Moderate departure from the natural regime of vegetation characteristics. Fire behavior and effects are moderate and risk of loss of key ecosystem components is moderate.
- Condition Class 3, High departure from the natural (historic) regime of vegetative characteristics. Fire behavior and effects are high and risk of loss of key ecosystem components is high.

The definition of condition class includes several components such as; fire frequency, severity, canopy closure, fuel composition, stand structure and species composition. These components are weighted and combined to determine condition class. An area may have missed one or more historic fire intervals but still remain within historic range of fuel and vegetation conditions. In this case a fire would produce effects within the

[8] USDA Forest Service data, 9/2005

[9] Hann and Bunnell, 2001

[10] Hardy, et al., 2001 and Schmidt et al., 2001

historic norm. Should attributes depart moderately or significantly from historic norm, the designation would be CC 2 or CC 3.

D. Fire Exclusion and Fire Regimes

Fire, as a landscape scale disturbance agent, has been excluded from the Mill Creek Watershed for over 100 years. The condition of the fuel bed however, has not remained static. Fire regimes in the watershed can be divided into three groups. There is much spatial transition between groups. The lower elevation group historically had a frequent low intensity fire regime. The historic fire regime in the wide mid-slope group was of mixed frequency and intensity. Both the lower elevation and the mid-slope groups have had their fire regime frequencies altered by fire exclusion. The higher elevation group has a high intensity, infrequent fire regime.

The first group, present at dry lower elevation sites, is composed of scattered populations of ponderosa pine *(Pinus ponderosa)*. The historic mean fire-return interval (MFRI) for pine forests in the Blue Mountains is 15 years.[11] Understory competition has reduced the area dominated by ponderosa pine. These sites are remnants of much larger areas where frequent low intensity fires favored the development and maintenance of fire resistant species. In the absence of fire, pine forests develop a dense understory of brush and mixed conifers. The older pines become susceptible to disease and insect infestations because of moisture competition from the understory. Needle cast and woody debris accumulate on the forest floor. These forests have been converted from a low severity or non-lethal fire regime to one of moderate to high severity. A high severity fire regime is also described as a lethal regime.[12] Fuel Models[13] 2, 8 and 10 are representative of the fuels in the lower elevation sites. The highest severity conditions would occur in Fuel Model (FM) 10.

Douglas-fir *(Pseudotsuga manziesii)* and grand fir *(Abies grandis)* ecosystems make up the second group. This group has the most variety and complexity. At lower elevations it is often found occupying former pine sites. In dry sites frequent non-lethal fire maintained open, park-like stands. Through most of its range this group experiences a mixed fire regime with a MFRI of 23-66 years.[14] Fire exclusion has favored shade tolerant species and dense stands. At the middle and upper extent of its range, the Douglas-fir and grand fir group is transitioning to a homogenous lethal regime. FM 2, 8 and 10 are representative of this group with the highest severity burn conditions

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[11] Agee, JK 1995. Fire in the Blue Mountains: A History, Ecology, and Research Agenda. Washington, D.C. American Forests

[12] Agee, JK. 1998. Landscape Fire Regimes and Their Implications for Wildlife. Presented at Fire and Wildlife Conference. Spokane, WA 1998.

[13] Anderson, H.E. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service, Ogden, UT. GTR INT-122.

[14] Marouka, K.R. 1994. Fire History of *Pseudotsuga menziesii and Abie grandis* in the Blue mountains of Oregon and Washington. University of Washington. Masters Thesis.

occurring in FM10. As the stands represented by FM 8 mature they transition into the fuel conditions associated with FM 10 because of canopy closure, disease, infestations and a growing fuel bed of woody debris. Within the next few decades most of the forested mid-slope areas will have changed from FM 8 to FM 10.

The third group is found concentrated at high elevations in the watershed. This group is dominated by subalpine fir *(Abies lasiocarpa)*. Subalpine fir is almost always killed by fire and is especially susceptible to vertical fire spread given the crown structure of the tree. Extreme fire behavior events are not uncommon in subalpine fir fires. The fire behavior observed in subalpine fir stands can exceed conventional fire prediction outputs.[15] Lethal stand replacement conditions prevail. The MFRI for this regime in the Blue Mountains is 80-110 years.[16] However a fire return interval of 40-50 years has occurred where this group is in transition with the Douglas-fir/grand fir group.[17] FM 8 and 10 best represent this group. High severity burn conditions occur in both Fuel Models of this group.

E. Fuel Type

Grass Fuels- Nearly half of National Forest System lands in the municipal watershed is grass. Grass fuels are represented by Fire Regime (FR) I and Fuel Models (FM) 2 and 3 in the table below (See Appendix C for a description of Fuel Models). These areas have missed several fire return intervals. Much of the grass in the watershed is dominated by native species and falls into CC 1 or CC 2. The presence of invasive plants such as star thistle and cheat grass would move the site toward a CC 3. Grass fuels that have a brush and timber component (Fuel Model 2) would move from CC 2 or CC 3 based on the presence of uncharacteristic ladder fuels, understory, species or fuel bed.

Brush Fuels- Brush types (FR II and FM 5) in the Blue Mountains are not particularly volatile. In all but the driest years brush is not a significant factor in fire spread. During periods of extreme drought and after the brush loses its leaves in the fall (increasing its live to dead fuel ratio) brush is more of a concern for fire management. Loss of key ecosystem components is minimal to moderate despite having missed 2-3 fire intervals.

Timber Fuels- Sites dominated by timber are found in FR III and FR V (FM 8, 9, 10). In CC 2 and CC 3 timber sites often have uncharacteristic understory and surface fuels. In historically dry sites species composition has changed to favor moister, shade tolerant trees.

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[15] Beighley, M. Bishop, J. 1990. Fire Behavior in High Elevation Timber. Fire Management Notes, Volume 51, Number 2.

[16] Powell, David C. 2000. Potential Vegetation, Disturbance, Plant Succession and Other Aspects of Forest Ecology. Unpublished. Forest Silviculturalist, Umatilla NF.

[17] Agee, JK 1995. Fire in the Blue Mountains: A History, Ecology, and Research Agenda. Washington, D.C. American Forests

FRCC and Fuel Models For Mill Creek							
Fire Regime	Condition Class			Fuel Model	Condition Class		
	1	2	3		1	2	3
I	2,873	5,677	2,009	1	1,183	2,407	
II	302	802	0	2	1,690	3,270	2,009
III	1,488	1,795	3,240	5	302	802	
IV				8	2,662	1,693	
V	1,331	847		9	157	948	67
				10			3,173
Sub total	5,994	9,120	5,249	Sub total	5,994	9,120	5,249
%	29%	45%	26%				
Total			20,363	Total			20,363

VII. Wildfire Risk Assessment

This chapter presents the methodology and results of the Wildfire Risk Assessment for the planning area.

A. Methodology

The planning area was divided into three zones; each zone has similar characteristics from a wildfire risk standpoint. A Wildfire Risk Assessment based on criteria and a rating process established by the Oregon Department of Forestry[18] was completed. The assessment resulted in a rating of Low, Moderate, or High Overall Risk for each zone. The ratings were based on scores assigned to four risk factors. The four factors considered were: Ignition Risk, Wildfire Hazards, Values Protected, and Protection Capability. Each factor has from two to five criteria designed to better describe it. These criteria were given weighted scores established by the ODF. Criteria scores were added giving a total score for the factor. The scores for the factors were then added and used to establish an overall rating of Low, Moderate, or High for each zone. In summary, the assessment used the following process:

- Each zone was assessed separately based on four factors.
- Factors have from two to five criteria to better describe them.
- Each criterion was given a score based how important it was.
- A rating of Low, Moderate, or High was assigned to each factor based on the cumulative scores of the criteria involved.

[18] Identifying and Assessment of Communities at Risk in Oregon, October 18, 2004

- The cumulative scores of the four factors determined the Overall Risk rating of Low, Moderate, or High for the zone.

A fifth factor, Structural Vulnerability, was assessed separately as each state used a slightly different rating system to evaluate it. The following describes the five factors and the scoring system used to rate the communities and zones:

Ignition Risk is the likelihood of a wildfire beginning within a particular area. The assessment for Ignition Risk looks at three criteria; historic fire occurrence (number of fires per 1000 acres per 10 years), density of homes per 10 acres, and other risk factors The rating scores for Ignition Risk criteria are:

Fire Occurrence – per 1,000 acres per 10 years

0-.1	5 points
.1-1.1	10 points
1.1+	20 points

Home Density (homes per 10 acres)

0-.9(rural)	0 points
1-5(suburban)	5 points
5.1+(urban)	10 points

Other Ignition Risk Factors Present in Vicinity (transmission power lines, power substations, active logging, construction, debris burning, slash burning, mining, dispersed or developed camping, off road vehicle use, flammables present, fireworks, mowing grass, woodcutting, railroads, highways, lightning prone areas, arson, schools, business, ranch/farm, dump.)

<8 present	0 points
8-15 present	5 points
>15 present	10 points.

(if railroad present add 5 points to each category)

Ignition Risk Factor Rating(cumulative score of the three criteria)

0-13	Low
14-27	Moderate
28-40	High

Wildfire Hazard is the resistance to control once a wildfire starts. It includes weather, topography, and vegetation (fuel) that adversely affects suppression efforts. The criteria and scoring system for Hazard follows:

Weather (The number of days per season that forest fuels are capable of producing a significant fire event). All communities and zones in eastern Oregon are assigned the maximum score of 40 points by default.

Slope

0-25%	0 points
26-40%	2 points
>40 %	3 points

Aspect

N,NW,NE	0 points
W,E	3 points
S,SW, SE	5 points

Elevation

5000 +	0 points
3,500-5,000	1 point
0-3,500	2 points

Surface Fuels (based on Fire Behavior Fuel Models). Hazard Value 1 or HV1 produces flame lengths up to five feet with little spotting, torching or crowning. HV2 has flame lengths from 5-8 feet with sporadic spotting, torching or crowning. HV3 has flame lengths of over 8 feet with frequent spotting, torching and crowning.

Non-forest	0 points
HV1	5 points
HV2	10 points
HV3	30 points

Aerial Fuels (Crown Fire Potential)

Passive – Low	0
Active-Moderate	5
Independent	10

Hazard Factor Rating (cumulative score of the six criteria)

Low	0-9
Moderate	10-40
High	41-60
Extreme	61-80

Values Protected is the human and economic value associated with communities or landscapes. Protection of life is the number one priority with all agencies and is measured by the density of homes. In addition, the presence of community infrastructure is another consideration.

Home density (homes per 10 acres)

.1-.9 (rural)	2 points
1.0-5.0 (suburban)	15 points
5.1+ (urban)	30 points

Community infrastructure (power substations and corridors, communication sites and facilities, transportation corridors, major manufacturing and utilities facilities, municipal watersheds, fish habitat, watershed hydrology, water storage and distribution, fuel storage facilities, hospitals and health care facilities, landfills and waste treatment sites, schools, churches, community centers, and stores).

None present	0 points
One present	10 points
More than one	20 points

Values Protected Rating (cumulative score of the two criteria)

Low	0-15 points
Moderate	16-30 points
High	31-50 points

Protection Capability includes the capacity and resources to undertake fire suppression and prevention activities. It involves a combination of the capacity of the fire protection agencies, local government and community organizations. A high score represents a high risk/low protection capability.

Fire Response

Organized structural response < 10 minutes	0 points
Inside fire district, but structural response > 10 minutes	8 points
No structural protection, wildland response < 20 minutes	15 points
No structural response & wildland protection > 20 minutes	30 points

Community Preparedness (proven mitigation efforts by the community that will make the fire response effective)

Organized stakeholders group, community fire plan, phone tree, mitigation efforts	0 points
Primarily agency efforts	2 points
No effort	4 points

Protection Capability Rating (cumulative score of the two criteria)

Low	0-9 points
Moderate	10-16 points
High	17-40 points

Overall Wildfire Risk Rating

An overall Wildfire Risk rating for each zone was assigned based on the cumulative scores of the four risk factors (Structural Vulnerability is treated separately because only one zone has structures). The break points for the overall rating are:

Low	0-46
Moderate	47-113
High	114-190

Structural Vulnerability is the likelihood that a structure will be destroyed during a wildfire event. The practices controlled by the landowner within the home ignition zone account for 90% of the likelihood of a wildfire threatening a structure. The three primary criteria involved are construction material, defensible space, and presence of suppression action (access).

Separate surveys for the Oregon and Washington portions of the private lands within the planning area were completed. The ODF completed the survey of the Oregon portion of Mill Creek Road in 2004. With their survey, the Department used a descriptive rating system rather than numerical scores. The following criteria were used

Access - Poor, Fair, Good

Water Source - No, Yes – Stream, Yes – Stream & Well, Yes - Well

Inhabitable (Construction Material)

Red	Combustible Roof and Siding
Yellow	Combustible Roof, Non-Combustible Siding
Green	Non-Combustible Roof and Siding
White	Non-Combustible Roof, Combustible Siding

Containerized Fuel On Property - Yes or No

Defensible Space - Yes or No

Adjacent Fuels

Light	Grasses and Forbs
Medium	Short, Light Brush and Trees
Heavy	Tall, Dense Brush, Trees
Slash	Logs, Branches Stumps

Using the above criteria and ratings, the persons completing the survey made a subjective overall assessment classification for the home of Green, Yellow, or Red.

Green	Structure likely to survive with help from firefighters.
Yellow	Structure may survive with help from firefighters.
Red	Structure may not survive with help from firefighters.

The Structural Vulnerability for structures on the Washington side was completed by the Walla Walla County Emergency Management in 2002. The survey crews used NFPA 1144 criteria as shown in Appendix A. The criteria categories are:

Access - Ingress and Egress, Road Width, Road Condition, Fire Service Access.
Vegetation - Fuel Load, Defensible Space.

Topography - Percent Slope.
Construction Material - Roof, Siding, Setback From Slope.
Fire Protection - Water Source, Distance From Structure.
Utility Placement

Each structure was scored according the point system established (Appendix A) and given a Hazard Assessment Score of:

Low Hazard	<40 Points
Moderate hazard	40-69 Points
High Hazard	70-112 Points
Extreme hazard	112+

B. Assessment of Zones

The following table presents the wildfire assessment considering the factors Ignition Risk, Wildfire Hazards, Values Protected, and Protection Capability for the three zones. Zone 1 is the private land area, Zone 2 is the Mill Creek Municipal Watershed and Zone 3 is the National Forest lands outside of the Mill Creek Municipal Watershed. The factor Structural Vulnerability was considered separately and follows this portion of the assessment.

Ignition Risk, Wildfire Hazards, Values Protected, Protection Capability

IGNITION RISK		Zone 1	Zone 2	Zone 3
Fire Occurrence (per 1,000 acres per 10 years)				
0-.1				
.1-1.1	10 pts		10	10
1.1-+	20 pts	20		
Home Density (per 10 acres)				
0-0.9 (Rural)	0 pts		0	0
1-5 (Suburban)	5 pts	5		
5.1+ (Urban)	10 pts			
Other factors [19]				
<1/3 present	0 pts		0	0
1/3 - 2/3 present	5 pts			
>2/3 present	10 pts	10		
Ignition Risk Category Rating		**35-H**	**10-L**	**10-L**

[19] Transmission Lines, Power Substations, Active logging, Construction, Debris Burning, Slash Burning, Mining, Dispersed Camping, Developed Camping, ORV Use, Flammables Present, Fireworks, Mowing Dry Grass, Woodcutting, Target Shooting, Military Training Arson, Cultural Activities, Railroad, Federal or State highway, County Road, Camps/Resorts Stables, Schools, Business, Ranch or Farm, Lightning Prone, Dump.

WILDFIRE HAZARDS			
Weather			
Zone 3 40 pts	40	40	40
Slope			
0-25% 0 pts			
26-40% 2 pts	2		
41% + 3 pts		3	3
Aspect			
N,NW,NE 0 pts	1		
W,E 3 pts			
S,SW,SE 5 pts		5	5
Elevation			
5,001+ 0 pts			
3,500-5,000 1 pt		1	1
0-3,500 2 pts	2		
Vegetation [20]			
Non-forest 0 pts			
HV-1 5 pts			
HV-2 15 pts			
HV-3 20 pts	20	20	20
Crown Fire Potential			
Passive-Low 0 pts			
Active-Moderate 5 pts			
Independent-High 10 pts	10	10	10
Hazard Category Rating	**75-H**	**79-H**	**79-H**
VALUES PROTECTED			
Home Density (per 10 acres)			
.1-.9 2 pts		0	0
1-5.0 15 pts	15		
5.1 + 30 pts			
Infrastructure [21]			
None 0 pts			10
One 10 pts			
> One 20 pts	20	35[22]	
Values Protected Rating	**35-H**	**35-H**	**10-L**
PROTECTION CAPABILITIES			
Fire Response			
Structure < 10 minutes 0 pts			

[20] Based on vegetation fuel models. HV-1 (Hazard Value) produces flame lengths up to five feet with very little spotting, torching or crowning, HV-2 produces flame lengths five to eight feet with sporadic spotting, torching, or crowning, HV-3 produces flame lengths of over eight feet with frequent spotting, torching and crowning.

[21] Power substations and corridors, transportation corridors, municipal watersheds, water storage & distribution, fuel storage, health care facilities, landfills/waste treatment, schools, churches, community centers, stores.

[22] Extra score based on the high value of the Municipal Watershed

Protection > 10 minute 8 Pts	8		
Only Wildland Response 15 pts		15	15
No Protection 30 pts			
Community Preparedness			
Prepared/organized 0 pts			
Mainly agency efforts 2 pts	2	2	2
No effort 4 pts			
Protection Capability Rating	**10-M**	**17-H**	**17-M**
Total Risk Rating	**155-H**	**141-H**	**116-H**

C. Discussion

The following is an evaluation of the ratings presented in the above table.

Ignition Risk is the likelihood of a wildfire igniting within a particular zone. Zones 2 and 3 have a Low likelihood of a wildfire beginning when compared with Zone 1. This is because they lack the presence of permanent human occupation and infrastructure development as found in Zone 1. Zone 1 does have considerable development with 316 homes, permanent road systems, transmission lines, camping, ORV use, woodcutting, camps, railroad, farm/ranching activities, etc. These are all factors which could cause a wildfire to begin. Most fires occurring in Zone 1 are human caused while most fires in Zones 2 and 3 are lightning caused. Zone 2 has an even smaller likelihood of a wildfire beginning within because humans are severely restricted from entering. It is important to note that while there is a Low chance of a wildfire beginning in Zone 2 as compared with Zone 1, this should not be confused with the likelihood of a wildfire occurring in the zone. There is a high risk of a wildfire beginning outside of Zone 2 and entering it before it is extinguished. The greatest risk is for a fire to begin in Zone 1 during extreme weather conditions and then travel rapidly into Zone 2.

The following table shows the number of reported fires in the Mill Creek Municipal Watershed from 1970 to 2002[23].

Mill Creek Municipal Watershed

Year	# of fires
1970	1
1971	3
1972	1
1973	1
1975	2
1982	1
1984	1
1987	1

[23] USDA Forest Service Data, 9/2005

1990	2
1991	2
1992	1
1994	1
1996	1
1997	2
1999	4
2002	1

The following table shows the number of fires in the Mill Creek Municipal Watershed plus a three mile area surrounding it from 1970 to 2004[24].

Municipal Watershed and a Three Mile Buffer.

Year	# of fires
1970	4
1971	13
1972	9
1973	2
1974	2
1975	8
1976	1
1977	1
1978	1
1979	2
1980	1
1981	3
1982	2
1984	3
1985	2
1986	3
1987	5
1988	2
1989	5
1990	9
1991	9
1992	3
1994	16
1996	2
1997	3
1998	1
1999	14
2002	6
2004	8

Wildfire Hazard is the resistance to control once a wildfire starts. Weather is a key element and has a lot to do with how a wildfire behaves once ignited. All three zones are

[24] USDA Forest Service data, 9/2005

in an area with high to extreme weather parameters including temperatures, humidity, wind and lack of moisture. Although Zone 1 does experience warmer temperatures and dryer conditions overall as compared with Zones 2 and 3, all three zones received the highest possible rating for weather.

Slope is an important factor when considering wildfire rate of spread. Fires on steep slopes burn faster as compared with fires on more gentle slopes. A fire on a 30 percent slope will burn twice as fast and with longer flame lengths as compared with one on a level surface. All three zones have areas with steep slopes but the percent slopes are more severe in Zones 2 and 3, which accounts for their higher rating under this criterion.

Aspect affects moisture and vegetative conditions and thereby affects wildfire behavior. Zone 1 is generally a northwest facing aspect which is rated low from a wildfire effect standpoint. Zone 2 has generally a southwest aspect and Zone 3 is generally southeast facing. Both of these aspects result in dryer conditions and were assigned the highest ratings allowed for the criterion. It is noteworthy that within all zones there is a variation of aspects and micro-climate situations.

Elevation affects the type of climate conditions existing on a particular area. Higher elevations are generally cooler with more moist conditions and are considered a lower wildfire hazard as compared with lower elevation areas. Zone 1 is situated, for the most part, at a lower elevation as compared with Zones 2 and 3. Therefore, it is scored higher in the rating system.

Vegetation is often the most important consideration regarding resistance to control a wildfire. This criterion is rated on the basis of flame lengths produced by a fire and the likelihood of crowning, spotting and torching. All three zones received the highest score for this criterion because they all generally have vegetation which could result in flame lengths longer than eight feet in length with frequent spotting, torching and crowning. Fire Regime Condition Class is generally a good measure for resistance of control. Fuel Models are descriptions of the fuel types that are used in surface fire behavior modeling and the Fire Behavior Prediction System (FBPS). The following table shows Fire Regime Condition Classes and the number of acres in the Municipal Watershed by Fuel Models.[25] A description of the fuel models is in the Appendix C.

FRCC and Fuel Models For Mill Creek

Fire Regime	Condition Class			Fuel Model	Condition Class		
	1	2	3		1	2	3
I	2,873	5,677	2,009	1	1,183	2,407	
II	302	802	0	2	1,690	3,270	2,009
III	1,488	1,795	3,240	5	302	802	
IV				8	2,662	1,693	

[25] Umatilla National Forest data. 12/2005

V	1,331	847		9	157	948	67
				10			3,173
Sub total	5,994	9,120	5,249	Sub total	5,994	9,120	5,249
%	29%	45%	26%				
Total			20,363	Total			20,363

Values Protected include home density and the amount and type of infrastructure. Zone 1 has a considerable number of homes and was scored on the moderate scale for this criterion while Zones 2 and 3 have no homes and received no points. There is considerable infrastructure in Zone 1 including transportation and power corridors, a municipal water distribution line, and a hydro-power facility; it received the maximum score for this criterion. Zone 3 has several trails and forest roads plus a campground; it was given a score of 10 points. Zone 2 has a unique value associated with it in the form of a Municipal Watershed upon which the City of Walla Walla depends. Although it is difficult to compare the value of this with those on the other zones, it was given an arbitrary high score since it represents a tremendous value to the 30,000 residents of the City of Walla Walla. Zone 2 also has a fire lookout associated with it. Importantly, all three zones contain valuable fish habitat and watershed hydrology values which could be adversely affected by a large and destructive wildfire.

Protection Capabilities involves Fire Response and Community Preparedness. Under Fire Response, Zone 1 is served by two organized Fire Districts but the response time varies according to the location of a particular home site. Many homes have a response time of more than 10 minutes. Zones 2 and 3 are protected by the Forest Service. Since Zone 2 is without roads, initial attack is normally from smoke jumpers or helicopter assisted crews. Zone 3 is mainly un-roaded as well, although there is minimal road access to a small portion of the zone. Response time for both Zone 2 and 3 is usually more than 10 minutes.

Structural Vulnerability - Oregon

This section is a discussion of the results of a survey by the ODF of 99 lots with home structures on the Oregon portion of the Mill Creek Road area. It includes the Mill Creek Road, China Canyon Road, Neotoma Lane, Straw Spring Lane, Emigh Lane, and Reynolds Drive. The assessment factors considered are Access, Water Source, Construction Material, Containerized Fuel, Defensible Space, and Adjacent Fuels.

Access Of the 99 lots surveyed, 43 had poor, 40 fair, and 16 had good access. The surveyors evaluated ingress and egress, road width, road condition, fire service access, and street signs. The Mill Creek Road, with 53 lots surveyed, had 11 which rated as poor. The China Canyon Road and Emigh Lane showed the greatest concerns. The China Canyon Road had 19 out of 21 surveyed lots in a poor condition while the Emigh Lane has all three lots in a poor condition. The entire Mill Creek Road is essentially a one ingress and egress road. There is a primitive road which could provide a second means of access but would be of a limited value during an emergency situation. Limited

access affects the ability of response vehicles to access homes and also impacts the evacuation of residents during an emergency.

Water Source Most of the lots surveyed have a source of water, 94 of 99. About one-half of these have both a well and use of a stream. On China Canyon Lane, 17 of 21 lots had only stream water available. With a few exceptions, water source is not a big concern for residents of the surveyed homes on the Oregon side. However, the loss of power during an emergency situation would affect the availability of well water.

Structure Construction Material This portion of the survey looked at the type of material used for roof and siding material. Of the 99 homes surveyed, 39 were rated as Green which meant they have non-combustible roofs and siding, 48 were White meaning they have non-combustible roofs with combustible siding, and 12 were red with both a combustible roof and siding. There appeared to be no clear pattern of where the Red rated homes were, they were scattered throughout the surveyed area.

Containerized Fuel This criterion looked at the presence or absence of propane, gas, or other fuel storage on the property. Of the homes surveyed, 76 had none, 22 had containerized propane, and one had gas, diesel and propane. The residents on Mill Creek Road had a larger proportion of containerized fuel on their property as compared with the other roads.

Defensible Space This is based on the distance of treated vegetation from the structure. Of the 99 homes surveyed, 50 were judged to have a suitable defensible space while 49 did not. Three road systems in the surveyed area have concerns from a defensible space standpoint: China Canyon Lane, Neotoma Lane, Reynolds Drive.

The Oregon Department of Forestry is currently funding some defensible space work for Oregon homes in Mill Creek. The work is being done under a 2004 National Fire Plan grant. About 25 homes have signed up for the program. Homeowners agree to treat hazardous fuels on their property according to standards established by the ODF. Individual grants vary between $210 to $580, depending on the amount and type of hazard fuels on the property.

Fuel Characteristics Surveyors rated vegetation near the homes as light, medium, heavy, and slash. Of the homes surveyed, 58 had heavy fuels, 31 medium, and only 2 were classed as light. Four roads had serious concerns because of the percent of homes with heavy fuels: China Canyon Lane had 19 of 21 homes, Neotoma Lane - all seven homes, Reynolds Drive had five of six, and Emigh Lane had all three homes.

Summary There are serious wildfire hazards on a significant number of homes surveyed on the Oregon portion of the Mill Creek Road area. The greatest concerns are with access, defensible space and fuel conditions. The China Canyon Lane, Neotoma Lane, Reynolds Drive and Emigh Lane road systems are of special concern for these criteria.



Mill Creek Home

Structural Vulnerability – Washington

A total of 217 homes on the Washington side of the planning area were evaluated for Structural Vulnerability as part of the overall Wildfire Risk Assessment. Of these, 17 were rated as Extreme, 164 were consider High, 35 were Moderate, and only one was rated as a Low hazard. The surveyed area was broken into two units with the northern unit encompassing the Spring Creek, Seaman, Biscuit Ridge, and Lewis Peak area and the south unit being Mill Creek Road. The northern unit had a total of 84 homes surveyed of which 13 were rated Extreme, 61 were High and 10 were Moderate hazard. The Mill Creek Road unit had 133 homes surveyed of which 4 were Extreme, 103 were High, 25 Moderate, and 1 was a Low hazard. The northern unit had a higher proportion of homes in the High and Extreme categories as compared with the Mill Creek Road unit.

The following discussion considers results from both the north and south units combined:

Access

Ingress and egress is a concern for most of the homes surveyed. Of the 217 homes surveyed on the Washington side, only three were considered to have more than one means of evacuation during an emergency situation. As noted previously, nearly everyone living in the planning area could be in a life threatening position during a wildfire situation. There is potential for roads to be blocked preventing escape and for firefighting equipment to be prevented from gaining access to save homes because of these situations.

Means of Access was rated by examining several criteria. Road width and condition were considered. Of the 217 homes surveyed, 105 have roads which were less than 20 feet wide and 13 homes were on roads rated as "other than all season." For fire service access, 154 homes were located on roads less than 300 feet long with no turnarounds and 31 had no turnarounds and were more than 300 feet long. Street

signage was good with 209 homes having signs and only eight were without. The total score for access resulted in 20 homes being rated as Extreme Hazard, 94 as High Hazard, 92 as Moderate and only 11 with a low Hazard rating.

Vegetation was rated by focusing on two criteria, Vegetation Type and Defensible Space. Fuel models were considered to determine Vegetative Type. Two homes were considered to be in a slash situation, 113 had heavy fuels, 83 had Medium fuel loads, and 19 were Light.

For Defensible Space, 137 homes were rated as Extreme Hazard with hazard vegetation within 30 feet of their structure. Fifty three were a High Hazard, 23 were moderate and only four were considered as Low Hazard.

The combined rating for the Vegetation category was:

Extreme Hazard	102 homes
High Hazard	48 homes
Moderate Hazard	40 homes
Low Hazard	27 homes

Building Construction considered construction materials and set backs from slopes of more than 30 percent. Of the 217 homes surveyed, only 19 had non-combustible/fire resistive siding, eaves and decks. For house location, 128 were located within 30 feet of a 30 percent or greater slope. Considering roofing material, 15 homes had wood/cedar shakes and considered as Extreme Hazard, 111 had composite roofs and were rated as Moderate Hazard and 91 had metal covering and were called Low Hazard. Overall for Building Construction, 95 homes were considered as Extreme, 80 were High, 31 Moderate and just 11 were called Low Hazard.

Fire Protection includes water source, organized response, and fixed fire protection. More than half of homes surveyed (131) had some source of water source but only one of these was a pressurized system. Ninety six homes had no available water for fire protection purposes. Ninety of the homes were located more than five miles from a fire station and none of the 217 homes surveyed had a sprinkler system. The combined rating for Fire Protection was;

Extreme Hazard	96 homes
High Hazard	21 homes
Moderate Hazard	24 homes
Low hazard	76 homes

Topography considers the percent slope homes are located on. It is a very important consideration since fire burns with a faster rate of spread as the percent of slope increases. Homes in the surveyed area were rated as follows:

Extreme Hazard (>41 % slope)	15 homes

High Hazard (31-40% slope)	53 homes
Moderate Hazard (21- 30 % slope)	61 homes
Low Hazard (10-20& slope)	48 homes
Minimal Hazard (<9% slope)	40 homes

Utilities Placement involves the placement of gas and electric utilities. A Low Hazard rating would have both utilities underground, only nine homes met this standard. Homes with one utility underground were rated as High Hazard, 196 met this standard. An Extreme Hazard situation would have both utilities above ground, 12 homes met this rating.

VIII. Mitigation Measures

This section establishes the Wildland Urban Interface (WUI) boundary and presents a strategy consisting of action projects designed to accomplish the goals as displayed in Step 2 of Chapter II.

A. Wildland Urban Interface Boundary (WUI)

A WUI is an area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a community wildfire protection plan[26]. It is the zone where structures and other human development meet and interact with undeveloped wildland or other vegetative fuels. The June 16, 2005 Umatilla Community Protection Plan (http://www.oregon.gov/ODF/FIRE/FirePlans.shtml) established a WUI for the Mill Creek/Government Mountain area. That WUI includes the entire Oregon portion of this planning area. This Mill Creek Community Wildfire Protection Plan incorporates that WUI and adds the remaining portions of this planning area in Washington as a WUI. To clarify, the entire planning area for this planning effort is considered a WUI.

B. Mitigation Strategy

This section includes the projects designed to accomplish the goals for this planning effort as displayed in Step 2 of Chapter II. It incorporates the projects from the Umatilla County CWPP which apply to this planning area. Where appropriate, Best Management Practices will be used in the implementation of projects to minimize impact to affected resources. Projects are described for the three planning zones.

Zone 1

This zone consists of the privately owned land in the planning area. It is mainly lower elevation lands and contains many homes and vacation structures.

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[26] Healthy Forests Restoration Act of 2003.

Project # 1 - County Fire Siting Standards
Priority - High

Umatilla, Walla Walla, and Columbia Counties should review and revise their fire siting standards for new home development and remodeling with the goal of establishing:

- Consistent standards between the three counties.
- Standards which meet, or exceed, those in the National Fire Siting Code with emphasis on providing adequate access for fire fighting apparatus and evacuation, water source, and defensible space.
- Strong and consistent enforcement policies.

Project #2 – Defensible Space
Priority - High

Seek opportunities to reduce heavy fuel loads in close proximity to structures. Apply for grants through the National Fire Plan and other grant programs to assist homeowners with the cost of completing defensible space around their homes. In the absence of funding assistance, work with homeowners to show the importance of completing this effort on their own. Provide technical assistance to identify how defensible space can be achieved and maintained. Project specifics include:

- Seek funding to continue the defensible space assistance project begun for the Oregon homes by the ODF. Place priority on homes on China Canyon Lane, Neotoma Lane, Reynolds Drive, and Emigh Lane.
- Seek funding to expand defensible work by home-owners on the Washington side of the planning area. Place high priority the 137 homes identified in the home survey as Extreme or High Hazard from vegetation.
- Use NFPA 1144 Standards for establishing defensible space around home sites.

Project # 3 - Update Washington Home-site Assessments for Structural Vulnerability
Priority - High

The home survey for Structural Vulnerability for homes on the Washington side of the planning area was completed in 2002. There is a need to complete a follow-up survey on the home sites to reflect changes since the original survey. Use the NFPA 1144 criteria and standards. Continue to update the Oregon survey as needed.

Project #4 – Improve Access for Fire Fighting Equipment and Evacuation
Priority - High

There are several roads in the planning area with limitations for fire fighting access and evacuation purposes. In some situations, it would be dangerous for fire fighting crews to bring vehicles and equipment close enough to try to save structures during a wildfire situation. Evacuation is a concern as most homes have only one means of ingress and

egress. To mitigate these defects, the following should be undertaken by the respective counties:

- Evaluate access roads and prescribe specific mitigating measures for each. Concentrate on concerns for adequate road width and proper turnarounds.
- Place priority on those roads in Oregon which were rated as poor, especially the China Canyon Road and Emigh Lane. In Washington, place priority on the 20 homes rated as extreme and 94 rated as high hazard for fire apparatus access.

Project #5 – Reduce Hazard Fuels
Priority - High

Seek opportunities to reduce hazard fuels on private property beyond defensible space guidelines:

- Construct shaded fuel breaks along the sides of roads on the Mill Creek Municipal Watershed perimeter.
- Construct shaded fuel breaks along roads with homes in Mill Creek. Place high priority on China Canyon Lane, Neotoma Lane, Reynolds Drive, Emigh Lane.
- Encourage hazard fuel reduction measures on private lots in the Mill Creek drainage with priority on the 115 homes rated as extreme or high in Washington and the China Canyon Lane, Neotoma Lane, Reynolds Drive and Emigh Lane in Oregon.
- Maintain travel corridors and cut-banks to minimize available fuels in the form of weeds and brush.

Project # 6 – Reduce Existing Structural Material Hazards on Homes
Priority - High

Work with homeowners with structural wildfire hazards to encourage them to change to more fire safe conditions. Educate home owners about structural material hazards and what materials are recommended to make home more fire-safe. Place priority on the 12 homes in Oregon with combustible roofs and siding and the 95 in Washington rated as extreme from a structural material standpoint. Address future structural material hazards during the update of the county fire siting standards (see project #1).

Project # 7 – Education, Prevention and Community Outreach
Priority - High

The following projects should be accomplished to help homeowners become better prepared to avoid serious effects from wildfires:

- Firewise Workshops sponsored by the Washington DNR and coordinated with ODF will be scheduled and held in the spring of 2006. These workshops should be conducted at a site on Mill Creek; they should be repeated each year.

- Distribute written material such as the Living With Fire newspaper.
- Conduct events to coordinate with the Oregon and Washington Wildfire Awareness Week each year (usually in May). Utilize the Media Toolkit developed by the Oregon State Fire Marshall's Office.
- Conduct house-to-house prevention visits and promote defensible space and other hazard reduction ideas.
- Continue to implement Public Use Restrictions to address human-caused ignitions.
- Promote safe debris burning activities.
- Install and maintain an information kiosk.
- Evaluate the Oregon portion of the WUI for SB-360 implementation.

Project # 8 – Evacuation Plan
Priority - Moderate

Complete an evacuation plan for private homeowners in coordination with the Fire Districts #4 and #8.

Project # 9 – Communication Networks
Priority - Moderate

Develop communication networks in neighborhoods. Encourage the creation of Neighborhood Associations which can take a leadership role in establishing phone tree networks, fire prevention programs and other activities designed to keep residents informed and involved with fire safety issues.

Project #10 – Upgrade Fire District #4 & #8 Equipment
Priority - High

Seek funding sources including the Rural Fire Assistance (RFA) and Volunteer Fire Assistance (VFA) for Fire Districts #4&8 to upgrade fire fighting equipment and for training.

Project # 11 – Emergency Response Projects
Priority - Moderate

The following projects are designed to make emergency responses by appropriate agencies more efficient:

- Create and strengthen mutual aid agreements between the Fire Districts and the Washington DNR, ODF, and the Forest Service.
- Maintain easy to read house numbers on all homes within the planning area.
- Develop water sources and agreements with landowners to use existing sources for fire use as appropriate.
- See also Projects # 4 & 7.

Project # 12 – Underground Public Utilities
Priority - Moderate

Work with PP&L to evaluate and prioritize above ground electric utilities for wildfire hazards. Determine which lines should be buried and seek funding to accomplish. Remove hazard trees near all above ground power lines. Update the county zoning code to avoid future problems with above ground power lines.

Project #13 – Fire Regime Condition Class
Priority - Moderate

Determine and map Fire Regimes and Fire Regime Condition Classes for private lands in the planning area.

Project #14 - Emergency Water Permits for Wildfire Suppression Needs.
Priority - Moderate

Establish a process for agencies to obtain an "Incidental Take Permit" which would allow firefighters to withdraw waters from Mill Creek by pump to fight a wildfire. This would not be part of a surface water permit.

Zone 2

This zone is made up of the Mill Creek Municipal Watershed.

Project # 1 – Hazard Fuel Reduction Pilot Project
Priority - High

The City of Walla Walla will conduct a hazard fuel reduction pilot project on its 720 acre and 100 acre parcels in the south portion of the Municipal Watershed. The scope of this active management project will be determined following a survey of the vegetation, a limnology study to establish the relationship between forest conditions, hydrology and bank runoff to Mill Creek from the affected drainages and drafting of a forest management plan. Potential measures for hazard fuel reduction include commercial and non-commercial timber harvest, thinning, brush removal and prescribed burns. Long term monitoring will be conducted to evaluate the success of the project.

Project #2 – Trail Access on National Forest Lands for Fire Suppression Purposes
Priority - High

The Forest Service will evaluate reopening existing trails in the watershed for fire access. The proposal is to maintain approximately 40 miles of trails annually to a standard suitable for fire fighter foot travel to and from the Mill Creek area for fire suppression purposes.

Project # 3- Increase Water Capacity and Helicopter Access to Deduct Springs Pond.
Priority - High

The pond at Deduct Springs holds enough water through the dry season to be a water source for fire engines as well as helicopters during initial attack. Currently the pond's water is accessible to engines but helicopters have limited access. Excavating the pond to increase its depth would enlarge its water holding capacity. Removal or topping of trees around the pond would allow helicopters with buckets to access water. It is expected the capacity will remain limited to initial attack support; demands of extended attack fires would exceed the springs recharge capacity. A project feasibility study would determine viability of the proposal.

Project #4 – Filtration Plant for City Water Intake on Mill Creek
Priority - High

The City of Walla Walla, with support from and in cooperation with other agencies/organizations, will seek support and funding to construct a filtration plant for its municipal water supply system from the Mill Creek Municipal Watershed

Project #5 – Wildfire Prevention Actions
Priority - High

This project continues the current wildfire prevention measures in place, and strengthens them as appropriate.

- Continue the existing cooperative agreements between the City of Walla Walla and the Forest Service.
- Expand forest management and silviculture efforts in the watershed based upon pilot project results and best available science.
- Maintain funding for the Table Rock lookout.
- Continue patrols by the Forest Service and City of Walla Walla for fire prevention and trespass purposes.
- Keep entry permit requirements.
- Maintain signage on the perimeter of the Municipal Watershed to prevent trespass.
- Continue the current policy of aggressive suppression of all wildfires in and near the Municipal Watershed.
- Emphasize fire prevention with visitor contacts for people using the Municipal Watershed under permitted purposes (elk hunting) and for recreation use along the perimeter.

Zone 3
Zone 3Z
This zone includes National Forest lands outside of the Mill Creek drainage. It includes portions of the Wenaha Tucannon Wilderness.

Project # 1 – Shaded Fuel Breaks on Forest Roads
Priority - High

Maintain recently constructed shade fuel breaks on Forest Roads 65 and continue them along Forest Road 64 (Municipal Watershed perimeter roads). These roads provide an opportunity to stop a wildfire approaching the Municipal Watershed from southwest, southeast, and an easterly direction.

***Project #2 – Hazard* Fuel Reduction**
Priority - Moderate

Seek opportunities to do hazard fuel reduction work on National Forest lands to the south and southwest of the Mill Creek drainage (outside of the Wenaha-Tucannon Wilderness).

Project #3 - Table Springs Prescribed Burn
Priority - High

This proposed project is four miles south of Mill Creek Watershed. Burning fuels accumulations in this area would begin the ecosystem restoration process. Wildfires burning in the area after treatment would burn with less intensity thus reducing ecosystem damage and improving suppression opportunities. The burn project is 4,500 acres. Implementation would depend on results of an environmental analysis.

The following table summarizes the priority, time-frame, and responsibility for project implementation.

	Priority			Time----------Frame				Responsibility		
Project	H	M	L	Immediate	Near-Tem	Mid-Term	Long-Term	State	Local	Fed
Zone1 #1	X				X	X			X	
Zone 1 #2	X			X	X			X	X	
Zone 1 #3	X			X	X	X		X	X	
Zone 1 #4	X			X	X	X			X	
Zone 1 #5	X			X	X	X	X	X	X	
Zone 1 #6	X			X	X	X			X	
Zone 1 #7	X			X	X			X	X	
Zone 1 #8		X			X				X	
Zone 1 #9		X			X				X	
Zone 1 #10		X		X	X			X	X	
Zone 1 #11		X			X			X	X	X
Zone 1 #12		X				X	X		X	
Zone 1 #13		X		X	X			X	X	
Zone 2 #1	X				X	X			X	
Zone 2 #2	X				X	X	X		X	X
Zone 2 #3	X				X					X
Zone 2 #4	X				X	X	X	X	X	X

Zone 2 #5	X				X	X	X	X	X	X
Zone 3 #1	X				X	X				X
Zone 3 #2		X			X	X	X			X
Zone 3 #3	X				X	X				X

IX. Continuing Actions

This section establishes the continuing actions associated with maintaining the Community Wildfire Protection Plan as a valid, accurate and applicable document.

As stated in the introduction, the purpose of the plan, once implemented, is to reduce the effects to the City' municipal water supply and to private property from any fire which might occur in the planning area. Completion of the plan will help make the city, county and rural fire districts eligible for grant funding from the National Fire Plan and other programs. These grants would be used to treat hazard fuel situations and to better prepare residents for wildfires that may occur.

The CWPP Steering Group, under the direction of the City of Walla Walla Public Works Director and County of Walla Walla Emergency Management Coordinator, will hold periodic meetings and discussions to address hazard fuels, forest health, roadless area designation, emergency/fire team ingress and egress, listed ESA species, water quality, mitigation of wildfire effects and other associated issues. Minutes of the meetings will be taken and made part of the CWPP record as an addendum.

Projects listed in the plan have been identified for grant funding; however, these projects will need to be evaluated, at a minimum, at the beginning of each grant cycle or when there is a change in the condition or designation of the planning area due to a wildfire or other natural or man caused phenomenon. As new projects are identified they will be added to the CWPP as an addendum.

Ongoing Action – Assessment of Hazard Fuels In Watershed and Potential for beneficial Actions

The CWPP Steering Committee, at the request of the City of Walla Walla and in cooperation with the Forest Service, State partners and others, will continue to be alert for changes in conditions or technology that may change the value of undertaking hazard fuel reduction projects within the Mill Creek Watershed. At present the Steering Committee concludes that active projects within the watershed itself would:

- Be costly and not the most effective use of taxpayer funds;
- Still leave the watershed at risk of large fires;
- Still leave the City needing a filtration facility;
- Still leave unaddressed the most significant wildfire risks, which would come from outside the watershed.

If conditions change, and projects within the watershed appear to increase in value, then initiation of a project feasibility study will be considered again.

The Forest Service will notify the City of suppression actions that may affect the watershed. In the event of a large fire with potential to affect the municipal watershed, the City of Walla Walla would participate in fire management through a unified command that includes its fire services agencies: Rural District 4, Washington Department of Natural Resources and Oregon Department of Forestry. The City could also designate agency representatives, liaisons and resource advisors to participate in incident planning.

X. Appendix

Appendix A - Mill Creek Fuel Treatment Considerations and Options

January 24, 2005,
Updated December 7, 2005

Background

The Mill Creek watershed is approximately 22,000 acres and has been maintained as a municipal water supply since 1918. The USDA Forest Service manages approximately 90% of the lands upstream of the water intake. To benefit water quality, most activities other than fire suppression and monitoring have been excluded. City water quality to a great degree depends on clean water at the intake because the water delivered to the consumer remains unfiltered. The municipal water supply is vulnerable to the effects of disturbance from management activities and natural events such as floods, landslides and wildfires. The watershed is also a designated roadless area and supports habitat for several federally listed species under the Endangered Species Act, including Canadian lynx, Mid-Columbia steelhead, and bull trout.

In conjunction with the development of a community wildfire protection plan (CWPP) the Walla Walla Ranger District has been asked by David Blair to assess treatment options inside the watershed. Treatment options inside the watershed are limited by rugged topography, existing vegetation and fuel complexes, risk considerations and water quality standards.

Because of these considerations, the Forest Service believes the greatest opportunity for effective treatment lies along the watershed boundary. Treatments located along the boundary could be designed to prevent or slow a fire that threatens to enter the watershed. Boundary treatments, coupled with aggressive wildland fire prevention, detection, and suppression is recommended as the most realistic and effective strategy for dealing with wildland fire risks in the Mill Creek Watershed.

Treatment Options within the Watershed

Even though the Forest Service recommends against treatments within the watershed, to be responsive to the City's request, a list of possible actions that could be taken within the watershed follows:

Treatment options within the Watershed to reduce hazardous fuels include biomass removal, thinning, mechanical mastication and prescribed fire. To make a credible start at reducing the wildfire potential in Mill Creek 4,000-7,000 acres of the watershed would have to be treated. Due to rugged topography and minimal access inside the watershed, fuel treatment cost and risk would be significantly higher than many places.
Biomass Removal- Whole tree removal is one way of reducing hazardous fuels. This is done with either timber sales or stewardship contracts. Timber sales are dependent on

profitability. Stewardship contracts, which often require significant funding, can be effective when there are compelling reasons to accomplish bio mass removal and a timber sale is not feasible.

The cost of biomass removal is closely tied to transportation. Slope and concerns for water quality preclude building roads in the watershed. Removal of materials would need to be by helicopter. Costs vary with the scale of the project, the treatment, the species removed, the size and soundness of the material, flight distances, market fluctuations, etc. A preliminary estimate is that biomass removal could cost in the $5,000-6,000 per acre range, after realizing about $2,000 an acre for merchantable material. There would be significant impacts on residents along the haul route from truck and helicopter traffic. Depending on scale, the project could take several years to implement, and would include appropriate environmental planning and public comment.

Dead trees that would break apart in transport would remain in the watershed, and these rotten logs along with small diameter materials would be left as fuel. The area treated would likely have the appearance of a "seed tree cut", where a few scattered large trees would remain, or a clear cut. The stands treated would most likely be towards the top of the watershed. These spruce and subalpine fir stands are still in their natural cycle relative to fires; they have yet to miss a fire interval. The work would be considered "fire hazard reduction," not ecosystem restoration. If the project was planned as a commercial timber sale, the Chief of the Forest Service would need to approve the work, since decisions to work in inventoried roadless areas are controversial and often litigated.

Fuel Hazard Reduction Thinning- Thinning treatments would consist of hand cutting small diameter material and then piling, and burning. Chainsaws are used to cut trees and brush, which are then stacked in piles. The piles are allowed to dry, usually requiring one or more years, and then burned. Steep slopes and the deteriorated condition of much of the material can make operations unsafe and infeasible. Significant fuel would likely be left scattered on the landscape.

Costs could exceed $3,000 an acre. Prescribed burning requires accepting significant risks (see prescribed burning below).

Mechanical Mastication- Treatments using ground based equipment have little or no application in the Mill Creek Watershed due to slope. Mechanized equipment is not effective on slopes greater than 30%. Over 90% of the watershed is steeper than 30%. Mechanized equipment disturbs surface soils potentially creating erosion.

Prescribed Fire- Prescribed fire under controlled conditions can be used as an effective treatment method to reduce fuel loadings. Multiple entries would be required to accomplish fuel treatment objectives. Prescribed fire is most effective in forest types having light existing fuels. Where fuels are heavy or in higher elevations, the risk to the residual forest increases.

Burning on steep ground in heavy fuels poses a significant risk of escape. Surface disturbance from an escaped prescribed fire would be comparable to the ecosystem damage caused by wildfire.

Costs for prescribed burning are currently running $140 an acre. Second entries could cost an additional $140 per acre, and would be necessary to remove fuels from vegetation killed in the first prescribed burn. In order to implement the burns, it would be necessary to have a weather window of appropriate conditions, which could be a long wait!

Comparisons - The following table compares potential treatments in Mill Creek:

	Fuel Reduction Objective	**Unintended Effects**		**Treatment Cost* per acre**
		Potential for	**Consequences of**	
Biomass Removal	Removes sound medium and large diameter material	Low	Moderate	$5,000
Thin/Pile/ Burn	Reduces small and medium diameter material (to 6")	Moderate (Escaped burn)	High	$3,000
Mechanical Mastication	N/A	N/A	N/A	N/A
Prescribed Fire	Reduces all size class material in fire adapted stands	High (Escaped burn)	High	$140 (per entry)

* Costs are in 2004 dollars.

Water Quality Standards and Risk Considerations- Drinking water quality standards are administered by the Washington Department of Health. The City of Walla Walla has indicated a reluctance to support low risk projects such as in-stream monitoring activities for fish habitat studies (see attachment) which have no measurable effect on water quality. The Forest Service is concerned that landscape scale projects could trigger water quality issues that do not meet the Health Department standards. Excluding ground disturbing activities from the watershed is consistent with past management practices dating to 1918 and is solidly based in the Cooperative Agreement between the City and the Department of Agriculture.

Detection, Suppression, Boundary Treatments, and Access

Fire Detection and Suppression- Fires in the Mill Creek Watershed have the highest priority on the forest for suppression response. Since 1970 no fire has exceeded 10 acres in the watershed. Suppression responses are rapid despite the access difficulties of the terrain. A typical response in 2004 occurred on a fire in the Wenaha-Tucannon Wilderness that burned to within a half mile of the watershed. The fire was detected shortly after noon. By sunset rappellers, smokejumpers, hand crews, engine crews, overhead, a helicopter, two light air tankers and a heavy air tanker had responded. All of these resources were obtained through the Interagency Dispatch Center in Pendleton.

The primary detection device is a lookout established at Table Rock. The lookout has a sight field of much of the watershed and surrounding area. During periods of high risk, aerial surveillance is launched. Mill Creek Watershed and its surrounding area are given the highest priority for local aerial detection. A secondary source of detection is the Watershed Patrol Officer who patrols the watershed perimeter daily.

Based on comments in 2004 from adjacent property owners, the Forest Service completed a sight picture analysis on an alternative lookout location. The proposed location affords an excellent observation point for topography not seen from Table Rock. The proposed location could be included in the Watershed Patrol Officer route.

Boundary Treatments- Over the years, the Forest Service has implemented several projects that help protect Mill Creek from fires approaching from outside the watershed. The Walla Walla Timber Sale completed in 2004 has established a shaded fuel break along the Tiger Canyon Road from Tiger Saddle to the Skyline Road. The design of a shaded fuel break reduces fire spread and contributes to control efforts by providing an initiation point for suppression actions. It also improves egress during a fire for fire fighters and the public.

At a meeting with representatives of the City and involved citizens it was suggested that improving access along the watershed boundary would help during a fire. In response to this suggestion the Forest Service has cleared brush and fallen trees to improve travel along the Skyline Road. More extensive treatments along the road may be a possibility.

Other Treatments- Another possibility would be clearing trails not currently maintained within the Mill Creek Watershed. A preliminary estimate is that It would cost approximately $35,000 to open these trails to foot traffic. After the initial work, annual maintenance could run in the neighborhood of $18,000 a year. Clearing these trails would improve access to fires and also create escape routes for fire crews.

Conclusion

There is no way to guarantee that landscape scale activities within the watershed would be risk free, or that these activities would preclude a wildland fire event. In the absence of a filtration or storage system sufficient to protect the water system from ground disturbing activities, the Forest Service is uncomfortable conducting projects that could result in water quality issues.

We strongly recommend that the best opportunity for protecting the watershed lies along the Forest boundary to prevent a lightning or human caused fire from spreading into the municipal watershed. Coupled with this is a commitment to an aggressive wildland fire prevention, detection, and suppression strategy closely coordinated with the City and other cooperating agencies.

Appendix B - NFPA 1144 Standards

WUI Survey Criteria
National Fire Protection Association Standard (NFPA 1144)
(Formally NFPA 299)

A	Subdivision Design	Points
1	Ingress & Egress	
	Two or more in/out	0
	One way in / out	7
2	Primary Road Width	
	Greater than 24ft	0
	Between 20 and 24 feet	2
	Less then 20 feet	4
3	All Season Road Condition	
	Surfaced, grade < 5%	0
	Surfaced, grade > 5%	2
	Non-surfaced, grade < 5%	2
	Non-surfaced, grade > 5%	5
	Other than all-season	7
4	Fire Service Access	
	< = 300ft, with Turnaround	0
	> = 300ft, with Turnaround	2
	< = 300ft, No Turnaround	4
	> = 300ft, No Turnaround	5
5	Street Signs	

	Present [4in (10.2 cm) in size and reflectorized]	0
	Not present	5
B	**Vegetation (Fuel Models)**	
1	NFDRS fuel models	
	Light (Grasses, forbs, sawgrasses and tundra.)	5
	Medium (Light brush and small trees)	10
	Heavy (Dense brush, timber and hardwoods)	20
	Slash (Timber harvesting residue)	25
2	Defensible space	
	More than 100ft (30.48m) of treatment from buildings	1
	More than 71 - 100 ft of treatment from buildings	3
	30 - 70ft of treatment from buildings	10
	Less than 30ft	25
C	**Topography**	
1	Slope	
	Less than 9%	1
	Between 10 and 20%	4
	Between 21 and 30%	7
	Between 31 and 40%	8
	Greater than 41%	10
D	**Additional Rating Factors**	
1	Topography that adversely effects wildland fire behavior	0 - 5
2	Areas with a history of higher fire occurrence	0 - 5
3	Areas of unusually severe fire weather and winds	0 - 5
4	Separation of adjacent structures	0 - 5
E	**Roofing**	
1	Construction Material	
	Class A roof [metal, tile]	1
	Class B roof [composite]	3
	Class C roof [wood shingles]	15
	Not rated	25
F	**Existing building construction**	
1	Materials (predominant)	
	Noncombustible siding/deck	0
	Noncombustible siding/wood deck	5
	Combustible siding and deck	10
2	Setback from Slopes > 30%	
	More than 30 ft to slope	1
	Less than 30 ft to slope	5

	Not Applicable	0
G	**Available Fire Protection**	
1	Water Source availability (on site)	
	500 gpm (1892.7 lpm) hydrants <1000ft (304.8m) apart	0
	250 gpm (1892.7 lpm) hydrants <1000ft (304.8m) apart	1
	More than 250 gpm non-pressurized, 2hrs	3
	Less than 250 gpm non-pressurized, 2hrs	5
	No hydrants	10
2	Water source availability (off site)	
	Sources within a 20 min round trip	1
	Sources within a 21 - 45 min round trip	5
	Sources > 46 min round trip	10
H	**Utilities (Gas and Electric)**	
1	All underground utilities	1
	One underground, one above ground	3
	All above ground	5
I	Totals for subdivision	
	Point totals	
	Low Hazard < 39 points	
	Moderate Hazard 40 - 69 points	
	High Hazard > 70 points	

Appendix C - Management Direction for the Mill Creek Municipal Watershed

(From the Umatilla Land and Resource Management Plan)

F2 MILL CREEK MUNICIPAL WATERSHED - UNDEVELOPED

GOALS

PROVIDE WATER AT A LEVEL OF QUALITY AND QUANTITY WHICH, WITH PRIMARY TREATMENT BY THE MUNICIPALITY, WILL RESULT IN A SATISFACTORY AND SAFE POTABLE WATER SUPPLY.

DESCRIPTION

The management area applies to all land in the Mill Creek Municipal Watershed above the intake, located in Section 12, Township 6 North, Range 37 East, W.M. The area was established as a municipal watershed by a cooperative agreement between the City of Walla Walla and the Secretary of Agriculture on June 26,1918 (USDA Secretary 191 8). The watershed, comprising 21,740 acres, is located in Oregon and Washington.

DESIRED FUTURE CONDITION

Natural vegetative conditions will occur throughout the watershed. Riparian areas will be in natural condition except where activities associated with culinary water supply development occur. The watershed will not be grazed by domestic livestock. Administrative and recreation access will continue to be restricted to meet water quality goals. The quantity and quality of surface waters shall be maintained or enhanced and will be suitable for culinary use by the City of Walla Walla after treatment

MANAGEMENT AREAS STANDARDS AND GUIDELINES

RECREATION

Special big game hunts are allowed by permit for the purpose of protecting water quality. Other recreation activity is not allowed. Off-highway vehicle use is prohibited.

VISUAL

Meet Partial Retention visual quality objectives.

CULTURAL

Meet Forest-wide Standards and Guidelines.

WILDLIFE

Meet Forest-wide Standards and Guidelines.

Dead and down tree habitat will be managed to provide or maintain 80 percent of the potential population level for all primary cavity excavators and maintained for other cavity users.

FISH

Meet Forest-wide Standards and Guidelines.

RANGE

Livestock grazing is not permitted

TIMBER

No scheduled timber harvest activities are permitted. Firewood cutting is not permitted.

WATER

Provide water at a level of quality which meets Federal and state standards, and which, with primary treatment by the municipality, will result in a satisfactory and safe potable water supply.

Water resource management shall be conducted as follows:

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1. Administer cooperative agreement with the City of Walla Walla;
2. monitor water quantity and quality;
3. administer area closure and provide a watershed rider;
4. administer permit system to control entry;
5. cooperate with Oregon Department of Fish and Wildlife and Washington Department of Wildlife on permit system:
6. coordinate with the Washington Department of Health; and
7. sanitary regulations will be observed by persons who occupy or are employed in the watershed.

SOIL

Meet Forest-wide Standards and Guidelines.

MINERALS

Lands within the watershed are withdrawn from all forms of location, entry, and patent under mining laws, and from disposition under laws pertaining to mineral leasing.

LANDS

As opportunities arise and as needed, acquire watershed lands to improve overall watershed management.

Meet Forest-wide Standards and Guidelines for lands and land uses.

TRANSPORTATION

Construction of transportation facilities is not permitted. Maintain existing trails.

FIRE

The area is high priority for control of wildfires. The appropriate wildfire suppression response should emphasize control strategies.

If retardant is needed for any reason, only water will be used. Tractor use will not be permitted on slopes of over 50 percent or within riparian areas. Fire suppression activities may require restoration and/or other mitigation to maintain water quality and quantity.

If catastrophic conditions occur, rehabilitation practices may be used all rehabilitation activities will be directed toward protecting or improving water quality, quantity, and timing. Projects will be coordinated with the City of Walla Walla.

FUELS

Use of prescribed fire is permitted outside the riparian influence zone where needed to improve watershed conditions or reduce significant risk of watershed damaging wildfire. Prescribed burns are designed, located and scheduled to minimize risk of short term degradation of water quality.

PESTS

Use integrated pest management (IPM) principals and strategies in managing insects and diseases to meet management objectives. Management of insects and diseases (including suppression activities) is permitted, in coordination with the City of Walla Walla, to prevent unacceptable damage in the watershed. The preferred method is use of biological controls.

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GENERAL
If conflicts occur between direction in Management Area D2, Research Natural Area, and direction for the Mill Creek Municipal Watershed, Management Area F2 requirements will prevail in order to meet municipal watershed objectives.

Appendix D - Fuel Models Represented in the Mill Creek Municipal Watershed

Fuel Models are descriptions of the fuel types that are used in surface fire behavior modeling and the Fire Behavior Prediction System (FBPS).

Fuel Model 1

In Fuel Model 1 areas, grasslands and Savanna are represented along with stubble, grass –tundra, and grass-shrub combinations. Annual and perennial grasses are included. Fire spread is governed by fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly. Very little shrub or timber are present, generally less than one-third of the area. Total fuel load of dead and live fuels is about .74 tons per acre.

Fuel Model 2

Open shrub lands and pine stands generally fit this model. Clumps of fuels may be present that generate higher fire intensities and may produce fire brands. Fire is surface

fires and spread is primarily through the fine herbaceous fuels, either curing or dead. Total live and dead fuel load is four tons per acre.

Fuel Model 5

This fuel model is made up of mainly brush species which are about two feet high. Fire is generally carried by the surface fuels made up of litter cast by shrubs and the grasses or forbs in the under-story. Fires are not usually intense because the surface fuel loads are light, about 3.5 tons per acre of dead and live fuels.

Fuel Model 8

This fuel model has closed canopy stands of short needle conifers or hardwoods that have leafed out; little undergrowth is present in the stand. Fires are slow burning with low flame lengths, although an occasional heavy concentration may cause a flare up. Only under severe weather conditions would fuels pose a serious fire hazard. Total live and dead fuel load is about five tons per acre.

Fuel Model 9

Long needle conifer stands and hardwood stands are typical. Concentrations of dead-down woody material contribute to possible torching, spotting, and crowning. Fires run through surface litter faster than with fuel Model 8 and have longer flame lengths. Total fuel load of live and dead fuels is about 3.5 tons per acre.

Fuel Model 10

Any forest type may be representative if heavy down material is present. Examples include insect or disease ridden stands, wind-thrown and over-mature stands with dead-fall, and aged light thinning or partial-cut slash. Crowning, spotting, or torching may be frequent leading to fire control difficulties. Fires burn with greater intensity than with other timber litter models. Total live and dead fuel load is about 12 tons per acre.

Appendix E: Acronyms/Glossary

CWPP – Community Wildfire Protection Plan
DNR – Department of Natural Resources
EOC – Emergency Operation Center
EOP – Emergency Operation Plan
EMS – Emergency Management Services
FEMA – Federal Emergency Management Agency
FMO – Fire Management Officer
FMZ – Fire Management Zone
FRCC – Fire Regime Condition Class
GIS – Geographic Information System

HAZMAT – Hazardous Materials
HFRA – Healthy Forest Restoration Act
HIVA - Hazard Identification & Vulnerability Analysis
HV – Hazard Value
ISO – Insurance Service Organization
MFRI - Mean Fire-Return Interval
NFP – National Fire Plan
NFPA National Fire Protection Association
ODF – Oregon Department of Forestry
ODF&W – Oregon Department of Fish and Wildlife
ORV – Off Road Vehicle
RFA – Rural Fire Assistance
VFA – Volunteer Fire Assistance
UGB – Urban Growth Boundary

Canopy: The stratum containing the crowns of the tallest vegetation present, (living or dead) usually above 20 feet.
Combustion: The rapid oxidation of fuel in which heat and usually flame are produced. Combustion can be divided into four phases: pre-ignition, flaming, smoldering, and glowing.
Conflagration: A raging, destructive fire. It is often used to connote a fire with a moving front as distinguished from a fire storm.
Control a fire: To complete control line around a fire, any spot fire there from, and any interior island to be saved; burn out any unburned area adjacent to the fire side of the control lines, and cool down all hot spots that are immediate threats to the control line, until the lines can reasonably be expected to hold under foreseeable conditions.
Cooperating agency: An agency supplying assistance including but not limited to direct tactical or support functions or resources to the incident control effort (e.g. Red Cross, law enforcement agency, telephone company, etc.).
Crown fire: A fire that advances from top to top of trees or shrubs more or less independent of a surface fire. Crown fires are sometimes classed as running or dependent to distinguish the degree of independence from the surface fire.
Dead fuels: Fuels with no living tissue in which moisture content is governed almost entirely by absorption or evaporation of atmospheric moisture (relative humidity and precipitation).
Debris fire: In fire suppression terminology, a fire spreading from any fire originally ignited to clear land or burn rubbish, garbage, crop stubble, or meadows (excluding incendiary fires).
Extreme fire behavior: Extreme implies a level of fire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following is usually involved: high rate of spread, prolific crowning and/or spotting, presence of fire whirls, strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment and behave erratically, sometimes dangerously.

Fire cause: For statistical purposes fires are grouped into broad cause classes. The nine general causes used in the U.S. are lightning, campfire, smoking, debris burning, incendiary, machine use (equipment), railroad, children, and miscellaneous.
Fire damage: Detrimental fire effects expressed in monetary or other units, including the unfavorable effects of fire-induced changes in the resource base on the attainment of organizational goals.
Fire danger: Sum of constant danger and variable danger factors affecting the inception, spread, and resistance to control, and subsequent fire damage; often expressed as an index.
Fire hazard: A fuel complex, defined by volume, type condition, arrangement, and location that determines the degree of ease of ignition and of resistance to control.
Fire management plan: Statement, for a specific area, of fire policy, objective, and prescribed action; may include maps, charts, tables, and statistical data.
Fire prevention: Activities, including education, engineering, enforcement and administration, which are directed at reducing the number of wildfires, the costs of suppression, and fire-caused damages to resources and property.
Fire risk: The chance of fire starting, as determined by the presence and activity of causative agents
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.
Fuel treatment: Manipulation or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control (e.g., lopping, chipping, crushing, piling and burning).
Fuel type: An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.
Fuel Model: Fuel Models are descriptions of the fuel types that are used in surface fire behavior modeling and the Fire Behavior Prediction System (FBPS).
Ground fire: Fire that consumes the organic material beneath the surface litter ground, such as a peat fire.
Hazard: A fuel complex defined by kind, arrangement, volume, condition, and location that forms a special threat of ignition and resistance to control.
Initial attack: The actions taken by the first resources to arrive at a wildfire to protect and property, and prevent further extension of the fire.
Ladder fuels: Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.
Mutual aid: A system wherein two or more fire departments, by prior agreement, operate essentially as a single agency to respond routinely across jurisdictional boundaries to render mutual assistance in combating fire emergencies.
Prevention: Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuel hazards (fuels management).
Rate of spread: The relative activity of a fire in extending its horizontal dimensions. It is expressed as rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the

information. Usually it is expressed in chains or acres per hour for a specific period in the fire's history.
Retardant: A substance or chemical agent which reduces the flammability of combustibles.
Suppression: All the work of extinguishing or confining a fire beginning with its discovery.
Surface fire: Fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation.
Surface fuel: Fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants.
Wildfire: A fire occurring on wildland that is not meeting management objectives and thus requires a suppression response.
Wildland/Urban Interface: The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Appendix F: Notes from Public Meetings

Comments from January 26, 2006 public meeting at the Fire Station #45 for the Mill Creek CWPP and from the January 31, 2006 public meeting at the City of Walla Walla City Hall:

The city should place the CWPP project list on the city web site. Hal agreed to do so.

SB-360 sounds like a "bonehead move". It is not in the spirit of cooperation. David King explained that SB-360 is completely separate from the Mill Creek CWPP planning process. It does not fine homeowners for not treating fuels . Landowners have always been responsible or liable for suppression costs if they start a fire through negligence. SB-360 is meant to be an education effort whereby landowners can self certify that they have met the intent of the legislation, which is to have them develop a defensible space around their structures. Land owners who don't self certify could be liable for suppression costs up to $100,000 if a fire starts on, or comes from, their property. ODF is in the process of implementing SB-360 in Umatilla County and they are still meeting to determine how it will be applied.

Quest needs to be included along with PP+L for the project which addresses the need to place power-lines underground.

When a fuels reduction project involving the use of helicopters is considered, landowners should be grouped to improve the economics of the project.

The Washington DNR will soon have cost share money for fuels reduction work on private or state owned lands in the Mill Creek planning area. This money would not be for projects already completed. ODF has some money left for that type of work as well.

A roster of contractors who can do fuels reduction work should be developed and maintained.

When the plan is completed, the city will continue to have meetings with agency representatives and interested citizens as part of the effort to implement it.

Grant money for fuel reduction through the National Fire Plan (NFP) is applied for in January/February. Selections are made in April but the money is not available until the fall of the following year.

The main Mill Creek Road presents serious concerns for safety during a fire emergency. The CWPP needs to assure this road is included in a project which would serve to improve it for evacuation purposes, and for firefighting vehicle access. Hal and Rocky have been discussing this issue and have some ideas for improving the road. FEMA may be a source for funds to help improve the road.

A Hazard Mitigation Plan exists for Umatilla and Walla Walla Counties. The CWPP fits under these plans.

There are cattle watering tanks at the top of Black Snake. These tanks could be replaced with larger tanks and serve as a water source for fire suppression purposes. The landowner would be willing to install the larger tanks if the government would purchase them.

Can grant money for wildfire mitigation be used to help replace a cedar shake roof of a privately-owned home? It was felt this would be lower priority for available grant money, if permitted. It is important to get the development standards in place first.

There is a problem presented by people using 4-wheelers in the forest and leaving unattended campfires. Could grant money be used to increase forest patrols?

There is a need for more patrols in the Mill Creek area by the Sheriff's Deputy. Hal said he would brief the County Commissioners about that situation.

ODF representatives said they have been working with insurance representatives to find incentives for homeowners to reduce wildfire hazards.

The City of Walla Walla is studying the possibility of doing fuels reduction work on city-owned lands in the Municipal Watershed. The Forest Service competes for fuel reduction money for National Forest lands surrounding the Municipal Watershed. These would all involve funds separate from those available for the private lands in Zone 1 of the CWPP planning area.

The Forest Service has completed fuels reduction work on the Tiger Canyon Road. They would like to do similar work on the Skyline Road. They will study the possibility of

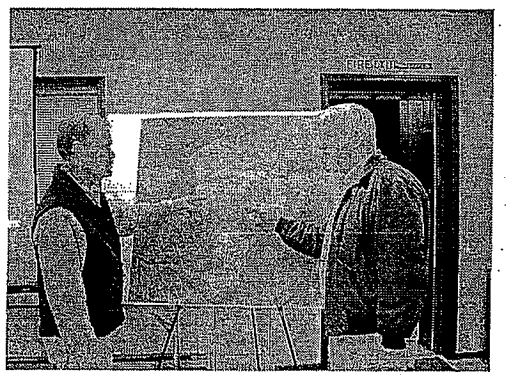
increasing the water holding capacity of Deduct Springs so it can be better used during a wildfire suppression activity.

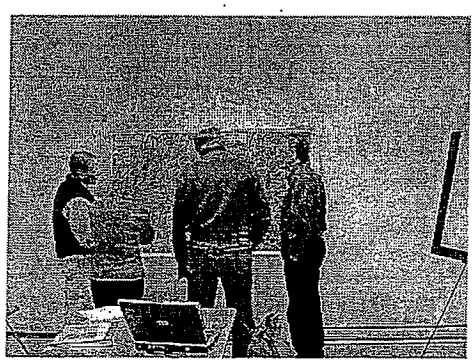
Doing fuels reduction work in the CWPP planning area will not eliminate the possibility of a wildfire, but it will hopefully serve to prevent extreme fire behavior so fires that do occur will be easier to control.

The Rocky Mountain Elk Foundation is interested in the Municipal Watershed condition and may be able to provide some funds for fuels management which would in-turn serve to improve elk habitat.

It was suggested to put a mitigation project which would allow an emergency "incidental take" permit for state and federal wildfire protection agencies for emergency water withdrawal from Mill Creek to fight a fire. This permit would allow firefighters to withdraw waters from Mill Creek by pump that is not part of a surface water right/permit to fight a fire. It was determined by the Steering Group that the state and federal agencies already have this authority to use waters from Mill Creek for fire fighting emergencies. Oregon has this authority under ORS 537. There is a question when the fire fighting efforts shift from initial attack and control to extended mop up. Once that happens, then the process may gray a bit with the definition of "emergency." However, as long as the agencies seem that an emergency exists, they have the authority to use the waters from Mill Creek.







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Signature Page

The contents of this Mill Creek Community Wildfire Protection Plan have been agreed upon and endorsed by the Board of Walla Walla County Commissioners, Umatilla County Commissioners, Walla Walla City Council, District Forester of the Northeast Oregon District for Oregon Department of Forestry, Executive Director of Regulatory Programs for the Washington State Forester, and the Fire Chief for Fire District #4. This plan is not legally binding as it does not create or place mandates or requirements on individual jurisdictions. It is intended to serve as a planning tool for fire and land managers and to provide a framework for those local agencies associated with wildfire suppression and protection services to assess the risks and hazards associated with wildland urban interface areas and to identify strategies for reducing those risks. This is a working document to be reviewed by members of the Mill Creek Wildfire Protection Steering Committee and updated as necessary.

Dominick Elia
Mayor, City of Walla Walla

3/22/06
Date

David G. Carey
Chairman, Board of County Commissioners,
Walla Walla County

3/27/06
Date

Emile Holeman
Umatilla County Commissioner

3-27-06
Date

John M. Buckman, Northeast Oregon District Forester
Oregon Department of Forestry

3/27/06
Date

Pat McElroy, Executive Director Regulatory Programs
Washington State Forester

4/5/06
Date

Rocky Eastman
Fire Chief, Fire District #4

3/27/06
Date