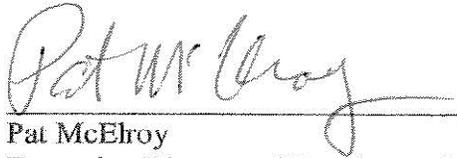


# Manson Community Wildfire Protection Plan

October, 2005

Prepared by  
Chelan County Conservation District  
with assistance from the  
Washington Department of Natural Resources, Chelan County Fire District #5  
United States Forest Service and Concerned Citizens of Chelan County



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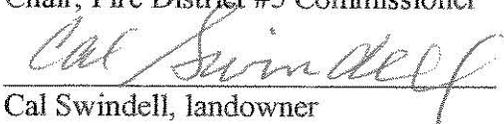
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## **1. INTRODUCTION**

Residents of the Manson area of Chelan County value their homes and the surrounding forestlands (Figure 1). They are concerned about the effects of wildfire on their community. Recent wildfires in the area have prompted local residents, government officials, and fire department personnel to join together to proactively plan and implement actions to protect human life and property, and reduce the risk of future wildfire related disasters.

### **Vision and Goals**

Through the production of a Community Wildfire Protection Plan (CWPP), residents of the Manson area aim to protect their community from the effects of wildfire through outreach, education, strategic planning, and action. They wish to face each fire season confident that they have done all that is humanly possible to prepare for and mitigate the effects of a potential forest fire.

The primary goal of the Manson CWPP is to protect human life, private property, and essential infrastructure and resources through the implementation of fire prevention projects that work to improve forest health and preserve the natural beauty of the area.

In an effort to remain true to the environment that the citizens of the Manson area live in, all options for the utilization of biomass produced from fuels reduction projects will be pursued.

### **Community Awareness**

The Manson community is surrounded by public lands that are largely undeveloped and a source of vegetative fuels (Figure 1). Following the Deer Point Fire in 2002 the local newspaper published a story about the current fire situation in Chelan County with a focus on the Lake Chelan drainage area. In the summer of 2005 the Wenatchee World published a story about the extensive fires over the last 10 years in the Lake Chelan drainage. Residents are very aware of the need to develop a comprehensive wildfire prevention and protection plan. Their energy, input, and guidance have played an essential role in the creation of this CWPP. It is their hope that this document will not only help to protect their community but serve as an example for other communities in the region.

### **Values**

The citizens of the Manson area value their homes, and the privacy and beauty of the surrounding forestlands. They want to improve the safety of their community, and have already conducted work parties to implement fuels reduction efforts around the homes of people who would otherwise be unable to perform the task themselves. Citizens also wish to play an active role in land management decisions affecting adjacent Federal and State lands.

## **2. PLANNING AREA**

### **General Description of the Area**

Residential development on private lands within the Manson area is concentrated in areas along Lake Chelan. The city of Manson is the primary residential development, and the largest. Most homes outside of Manson are separated by large areas of open grass, sagebrush and scattered trees, patches of dense forest, or a mix of grass or brush and orchard.

The Manson CWPP area comprises approximately 36,014 acres. It is located in the north central portion of Chelan County, Washington along the north shore of Lake Chelan (Figure 1). The general area is defined by Cooper Ridge to the north, Lake Chelan to the south, Union Valley to the east and Mitchell Creek and Lake Chelan to the west. The CWPP planning area consists of the wildland/urban interface (WUI), which is defined by Coyote Creek to the northwest (up lake) and Lake Chelan to the south; Grade Creek Road forms the northern border and Swanson Gulch defines the eastern border.

The primary stream flowing through the planning area is Antilon Creek. Besides Lake Chelan, three other lakes exist (Wapato, Roses and Dry). Within the Manson CWPP planning area, about 37% (13,382 acres) of the area is federally owned; state owned lands, compose approximately 5% (1,971 acres) of the area. Private lands account for 58% (21,073 acres) of the 36,426 total acres.

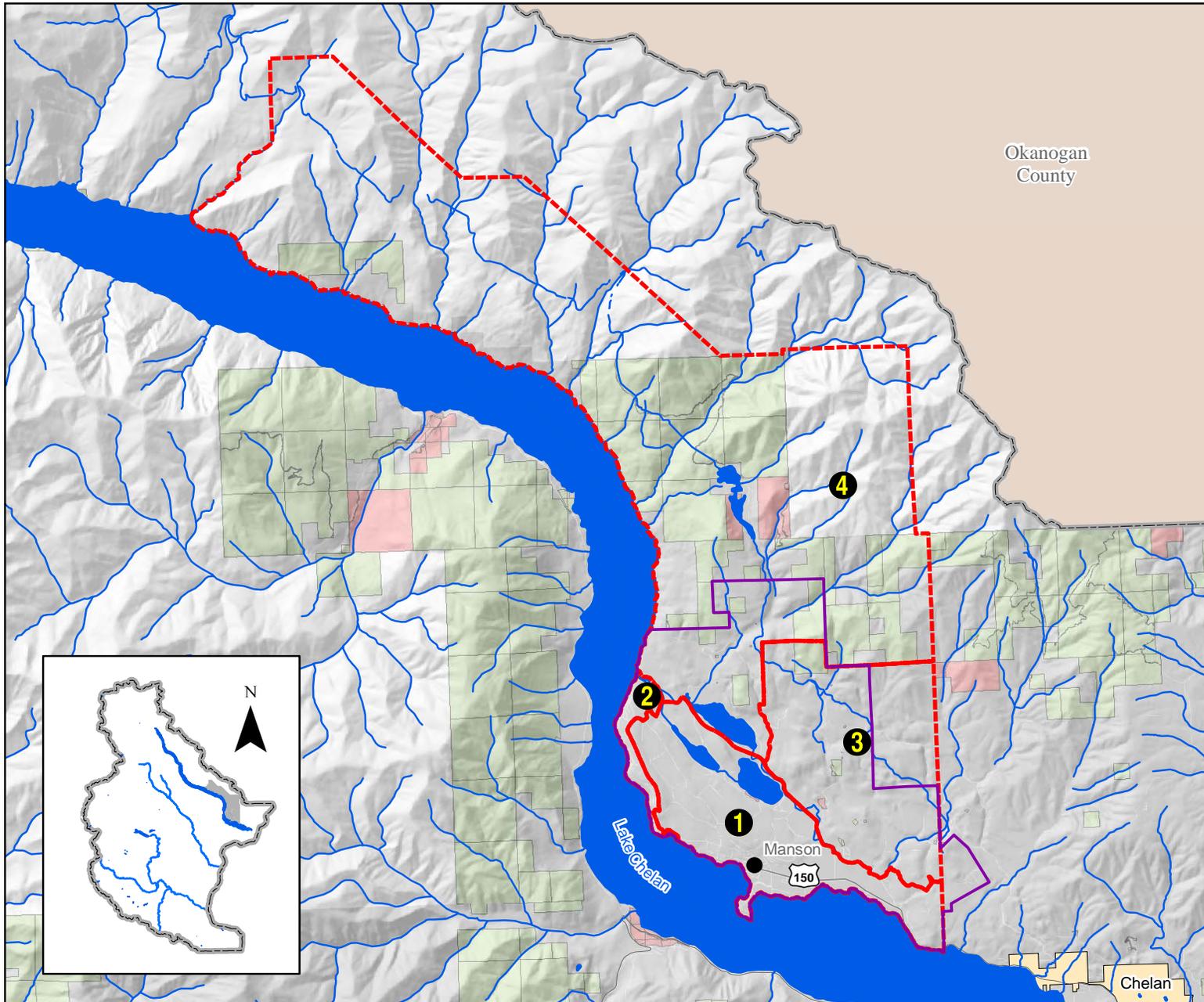
State Highway 150 is the primary artery providing access through the planning area. It is a two-lane highway that travels along the edge of Lake Chelan for several miles. Other main roads in the planning area include Ivan Morse, Grade Creek and Wapato Lake Roads. Many neighborhoods are served by a single access route providing residents with only one way in and out. Evacuation and defense of such areas will be difficult in the event of a fast-moving fire.

Surrounding the town of Manson are loosely grouped communities/developments primarily focused along Lake Chelan. Some of the more developed areas include; Emerson Acres, Greens Landing/Helios Hills, Willow Point, Grade Creek/Johnson Creek and the Wapato Lake Road area. Residential development is largely rural in nature, although areas along the lake tend to be more densely developed. Most homes are either concentrated along the drainage valleys, along the lake or scattered between large areas of open forest, dense forest, grass and brush, and/or among orchards. Relatively few home sites include adequate defensible space. Common areas, or areas within and adjacent to individual homes or communities, are stocked with medium to heavy fuels. Fuel types include grass and bitterbrush beneath pine along the lower slopes, grading to open pine stands, and finally mixed conifer types including mature Douglas fir and grand fir along the ridges and upper slopes.

Homes along the lake obtain domestic water from Lake Chelan. A few developed areas are served by an association-operated domestic water system. All other residents of the Manson area obtain their water from private wells. Power service is distributed via a mix of overhead and underground lines.

# Manson Community Wildfire Protection Planning Area

## Overview of the CWPP Area



### Legend

- Manson CWPP Area
  - Fire District No. 5
  - County Boundary
  - Major Roads
  - Rivers & Streams
- #### Land Ownership
- Federal
  - State
  - Longview Fibre
  - Private & Other

#### Residential Areas

- 1 City of Manson vicinity
- 2 Willow Point
- 3 Ivan Morse Road
- 4 Grade Creek

0 0.5 1 2 3 Miles

Note: CWPP boundary created by USFS, WDNR, and Chelan County Conservation District (CCCD) employees and Manson area residents using topography. Hillshade generated using WDNR 30 meter DEM. All other data provided by Chelan County GIS.

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## **General Description of Existing Neighborhoods**

### **Willow Point –**

The Willow Point area is north of the village of Manson about two miles. It is a residential area consisting of 40 high-value homes, about half of them on the waterfront, with only three vacant lots. The prime feature of the area is a publicly maintained waterfront park that is heavily used during the summer months. Lakeshore Drive and the north shore of Lake Chelan define the area boundaries. Willow Point Road is a dead-end spur, 220 yards long, off Lakeshore Drive leading to and past the Willow Point Park. Some of the waterfront, especially from the Park south, is relatively low-bank. From the Park to the north the waterfront properties gradually become steeper and are termed “high-bank.”

The properties in the Willow Point area are rather densely wooded with pines, firs, cedars, arborvitaes, juniper tams and deciduous trees of several varieties. The hillside properties to the north of Willow Point are covered at ground level with dried grasses, knapweed and bitterbush and forested with Ponderosa pines and scrub deciduous trees.

The major fire risks to the area come from the following factors:

- The area up-lake has not had a natural undergrowth burn-off in the last forty years, and as a result has a significant amount of fuel load on and near the ground.
- Several of the houses in the area are vacation rentals with transient residents from outside the desert area, people who are not acutely aware of the potential of a wildfire. As many as 17 people can occupy some of the houses during the rental season.
- There is one fire hydrant on Willow Point Road close to the Park and one on the 530 yards of Lakeshore Drive above Willow Point. Both are served by undersized water mains from the Lake Chelan Reclamation District.
- Access to the homes on the waterfront via Willow Point Road is a fifty-foot right-of-way, much of which is taken up by the bank from the properties above. The actual paving is generally 25 feet wide and in some places down to 17 feet wide. At the Park the marked traffic lane necks down to less than 13 feet. Compounding the accessibility risk is the large number of automobiles, vans, campers and boat trailers that park alongside the road during the summer months when the fire danger is greatest. As many as 55 vehicles have been counted on any given day in the limited parking area and along the road on high park usage days.

Several of the full-time residents/property owners have taken steps to reduce the fire hazard by cutting down excess trees, limbing up others and cutting out the bitter bush and knapweed. Further steps to mitigate the risks should be taken by removing upright arborvitaes and juniper tams close to buildings, and limbing up the trees within 30 feet of the buildings. Also, the parking on Willow Point Road should be limited to the Park side of the road to assure that fire trucks can get through past the Park, i.e., FIRE LANE—NO PARKING THIS SIDE on the up-lake side.

### **Summerset –**

The Summerset Community contains 45 lots, of which approximately 50% have single-family stick built homes and 75% of those house full time residents. Each home must be larger than 1440 square feet. They reside on lots from 8,000 to 17,000 sq. ft. and are serviced by County water, sewer and PUD underground power. The roadways are blacktopped and maintained by the County.

Summerset is located in Manson, on Swartout Road, approximately ¼ mile from the Mill Bay Casino. The land slope is of varying degrees toward Lake Chelan, and is on a previous apple orchard with irrigation capability to each lot site.

The homes are interspersed with vacant lots that, at times, are overgrown with dry vegetation and may pose a fire hazard.

### **“Just for the Sun of It” – area between Helios Hills and Willow Point -**

The waterfront area previously known as “Just for the Sun of It” is a bulk-headed development accessed by Chelan Boulevard, a spur off of Lakeshore Drive. The road is privately maintained and has very little turnaround space. It consists of ten high-value residences, within 30 feet of the water, which are primarily used in the summer season. It is served with domestic water and has one fire hydrant for about 1,600 feet of development. The Reclamation District sewer lines do not serve it. Instead it has its own privately owned septic system in the area uphill from the housing at the waterfront. The surface vegetation on the septic system drain field consists of grass, bitter bush, small and large pines and underbrush. Above this is orchard area. The waterfront beyond this housing to Helios Hills is vacant, unimproved, lightly forested land with considerable fuel load on the ground.

Most of the residences have docks, rafts and buoys. There are numerous other lots yet to be developed.

Down-lake toward Manson from “Just for the Sun of It” are three residences, a camper/trailer and a Reclamation District pump station. Access to these structures is by a narrow, poorly maintained gravel/dirt road. There are no fire hydrants and the only way to protect these structures would be with a fireboat. Beyond that, to the Willow Point area, is undeveloped, lightly forested land with considerable fuel load on the ground.

Above the waterfront, along Lakeshore Drive, are eleven homes, some of which are year-round residences. There are several vacant lots that are being sold off incrementally. This was previously orchard land. Again, this area is surrounded by lightly forested land with considerable fuel load on the ground.

### **Helios Hills –**

Helios Hills is approximately five miles above Manson. It is a residential area with most homes on 70' waterfront lots. Most year round residents reside near the top of the hill on the East side of Chelan Blvd., 300' above the waterfront. Most homes are not occupied year round. A few orchards still remain as buffers, but each year the number of acres in orchard diminishes.

There is a single access route providing residents with only one way in or out. Evacuation and defense would be difficult in the event of a fast moving fire.

The area has steep terrain with large areas of open grass, sagebrush, bitterbrush, and scattered pine trees. Most trees are scattered on the upper slopes.

Utilities are located underground. The Lake Chelan Reclamation District replaced the water main three years ago and added some additional fire hydrants so that there are five located behind the lakefront homes.

### **Pine Crest Area –**

The Pine Crest neighborhood is bordered by Lake Chelan on the west and by Loop Road and Summit Boulevard on the east. To the north is Green's Landing and to the south is the Helios Hills neighborhood. Pine Crest is included in the Willow Point sub area on the map. There are currently 36 residences in the neighborhood, but all of the vacant land has been subdivided into building lots of various sizes. It is very likely that many more residences will be added, especially with a number of great lakeshore and view lots undeveloped. The entire neighborhood is on septic systems, with many residences on the lakeshore using a community drain field located in the "Y" between Kennedy and Kutil Place. Chelan Boulevard, Kutil Place, Pine Crest Place, Kennedy Place and Sunset Place are all dead end roads. Loop Avenue is a loop road that provides another main access point around the Pine Crest area.

Vegetation types within the Pine Crest area range from open stands of mature Ponderosa pine and Douglas fir with bitter brush ground cover to stands of smaller scattered pine and fir. Bunch grass is common in the more open stands. Vegetation is generally thicker in the bottom of draws, north aspect slopes, and around homes that have lush landscaping. Undeveloped lots tend to be weed fields. This is an old orchard that has been removed and is now a weed field. The slopes are generally gentle, but are steep in places.

It would be possible to extend Pine Crest Place with a dirt road emergency exit, if the landowner of the abandoned orchard would allow it. Chelan Boulevard is currently a dead end road, but it might be possible to extend the road into Helios Hills, connecting the two systems and providing escape routes for both neighborhoods.

The Lake Chelan Reclamation District provides domestic, and in some cases, irrigation water to the Pine Crest area. There are five fire hydrants along Chelan Boulevard from Kutil Place to the terminus of Chelan Boulevard just north of Helios Hills. Pine Crest Place has one hydrant and Kutil Place has one hydrant. There is one hydrant serving Sunset Place and one on Loop Avenue above Pine Crest Place. Loop Avenue has hydrants every 500 feet.

### **Grade Creek Road (including Joe Creek) -**

The Grade Creek area is approximately four miles east of the town of Manson. This area is comprised of rural year round residences with acreage ranging in size from four to 47 acres. A few orchards still remain as effective fire buffers.

There are two access routes to Grade Creek Road, Upper Joe Creek Road and Lower Joe Creek Road. Grade Creek Road enters the Joe Creek Drainage as a single access road. Fourth of July Mountain Road accesses two residences and Canyon Ranch Road accesses eleven more residences. Both roads branch off Grade Creek Road. There are nine residences along Grade Creek Road.

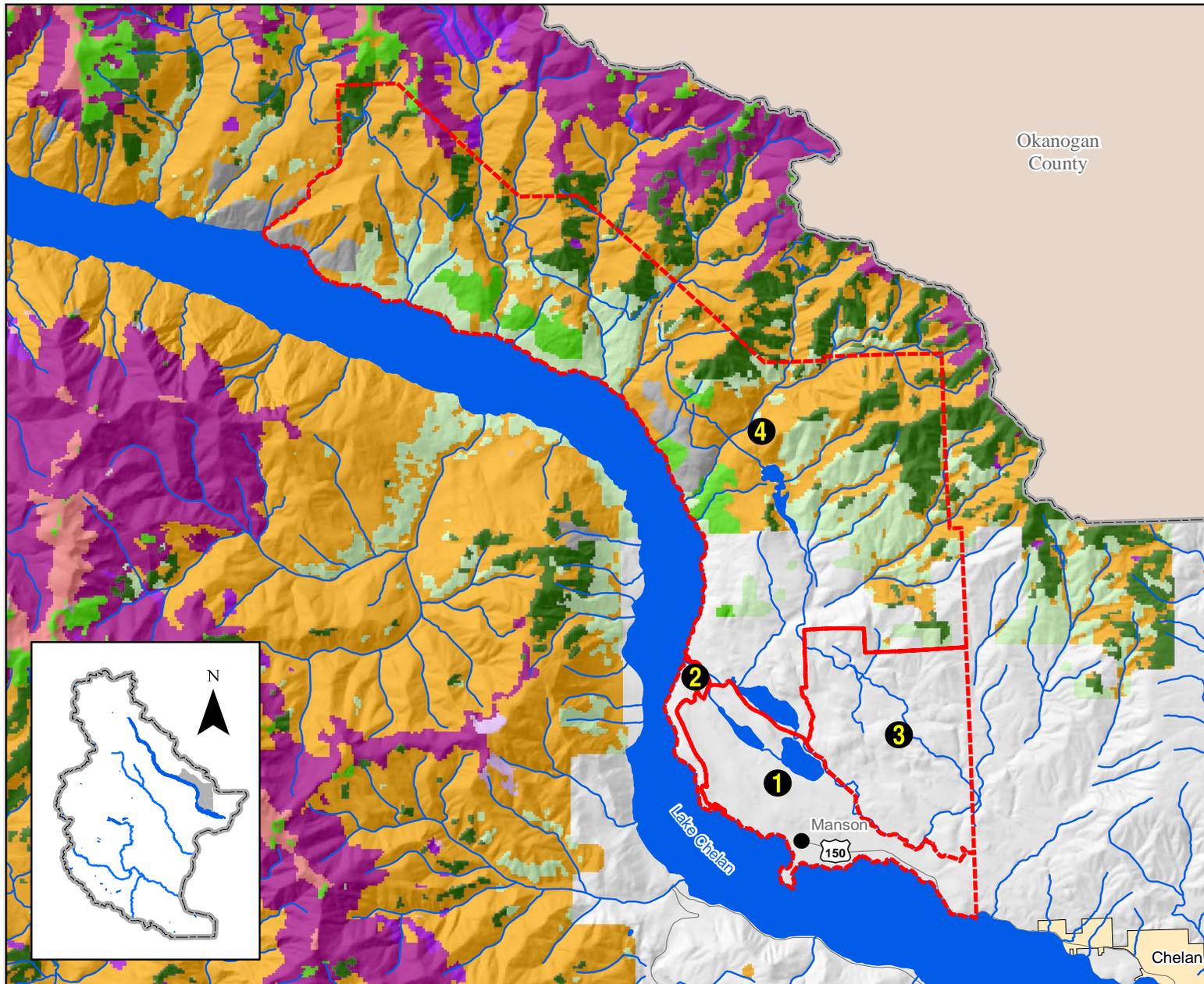
Joe Creek Drainage consists of steep terrain and long areas of open grass and scattered pine trees. The creek bed presently contains dense underbrush and standing trees as a result of the Deer Point fire of 2002. Pockets of dense dead fuel exist along both Upper and Lower Joe Creek roads and along Grade Creek Road. Treatment of these areas would provide safe access and egress in the event of future wild fires.

Utilities consist of telephone, power and irrigation. Irrigation is supplied by Lake Chelan Reclamation District via underground pipes. The irrigation system is most vulnerable to a power failure. The power lines are strung on wooden poles, some located in dense fuel areas. The Deer Point fire of 2002 did cause a power failure due to the combustion of one or more power poles. The value of reliable power is critical to the irrigation water as well as homeowners who are trying to protect their property with domestic well water. Steps to insure uninterrupted power should include periodic removal of fuel and/or the installation of a gravel base around each pole at risk. The telephone system is underground except for junction boxes as needed to serve customers. Several junction boxes did sustain fire damage in the 2002 fire and should also undergo periodic removal of fuel where appropriate.

Access to a handy source of water for fire pump trucks could be accomplished by installing fire hydrants on the irrigation lines along Upper and Lower Joe Creek and Grade Creek roads. This water system is available from May until mid October which covers the wild fire season. On the lower end of Grade Creek Road there is a spring fed pond that with improvements could be a source of year round water. The advantage to this is that it does not rely on power.

# Manson Community Wildfire Protection Planning Area

## Historic Vegetation



### Legend

- Manson CWPP Area
  - County Boundary
  - Major Roads
  - Rivers & Streams
- #### Historic Vegetation
- Exposed Rock
  - Shrub-steppe or Dry Meadow
  - Upland Meadow
  - Wet Meadow
  - Dry Forest
  - Mesic Forest
  - Wet Forest
  - Grand Fir & Western Hemlock
  - Subalpine Fir
  - Whitebark Pine & Subalpine Larch

#### Residential Areas

- 1 City of Manson vicinity
- 2 Willow Point
- 3 Ivan Morse Road
- 4 Grade Creek

0 0.5 1 2 3 Miles

Note: CWPP boundary created by USFS, WDNR, and Chelan County Conservation District (CCCD) employees and Manson area residents using topography. Hillshade generated using WDNR 30 meter DEM. Vegetation data supplied by USFS. All other data provided by Chelan County GIS.

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### **3. PLANNING PROCESS**

#### **Background**

The enactment of the Healthy Forest Restoration Act (HFRA) of 2003 created opportunities for Counties to participate in community based forest planning and vegetation treatment project prioritization. This landmark legislation includes the first meaningful statutory incentives for the USDA Forest Service (USFS), US Fish and Wildlife Service (USFWS) and the USDI Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuels reduction projects.

In order for communities to take full advantage of this opportunity, a Community Wildfire Protection Plan (CWPP) must first be prepared. The Manson CWPP is meant to conform to the intent and letter of HFRA. Manson is an at risk community of catastrophic wildfire.

The process of developing a CWPP helps communities of Chelan County clarify and refine priorities for the protection of life, property, and critical infrastructure in the wildland-urban interface (WUI). It can also lead community members through valuable discussions regarding management options and implications for surrounding watersheds.

The language of the HFRA provides maximum flexibility for communities to determine the substance and detail of CWPPs and the process used to develop them. Because the legislation is general in nature, Chelan County is providing assistance in the preparation of the Manson CWPP. Currently, CWPPs are being developed on the County Fire District scale in coordination with landowners of the county, and County Fire District staff. Representatives of the USFS and Washington State Department of Natural Resources (WDNR) are providing assistance to the effort. There are nine Fire Districts in Chelan County and the CWPPs being developed for them will form the basis of the Chelan County Wildfire Mitigation Plan.

Updates and edits to the CWPPs developed for Chelan County will be performed yearly and will be coordinated by the Chelan County Conservation District. It is expected that updates will be necessary in order to reflect recent work done to address issues identified in the CWPPs. Another important aspect of these plans will be monitoring the effectiveness of projects implemented under these plans.

The WUI is commonly considered the zone where structures and other human developments meet and intermingle with undeveloped wildland or vegetative fuels. This WUI zone poses tremendous risk to life, property, and infrastructure in associated communities and is one of the most dangerous and complicated situations firefighters face.

Both the National Fire Plan and the Ten-Year Comprehensive Strategy for Reducing Wildland Fire Risks to Communities and the Environment place a priority on working collaboratively with communities in the WUI to reduce their risk from large-scale wildfire.

The HFRA builds on existing efforts to restore healthy forest conditions near communities and essential community infrastructure by authorizing expedited environmental assessments, administrative appeals, and legal review for hazardous fuels projects on federal land.

The Act emphasizes the need for federal agencies to work collaboratively with communities in developing hazardous fuel reduction projects, and it places priority on treatments identified by communities themselves identify in a CWPP.

The HFRA provides communities a tremendous opportunity to influence where and how federal agencies implement fuels reduction projects on federal lands and how additional federal funds may be distributed for projects on non-federal lands. A CWPP is the most effective way to take advantage of this opportunity.

The HFRA requires that three entities must mutually agree to the final contents of a CWPP:

- The applicable local government (County or City),
- The local fire departments, and
- The state entity responsible for forest management.

In addition, these entities are directed to consult with and involve local representatives of the USFS and BLM and other interested parties in the development of the plan. The process is intended to be open and collaborative, as described in the Ten-Year Strategy, involving local and state officials, federal land managers, and the broad range of interested stakeholders.

In the absence of a CWPP, the HFRA limits the WUI to within ½ mile of a community's boundary or within 1½ miles where mitigating circumstances exist, such as steep slopes or the presence of a critical evacuation route. At least 50 percent of all funds appropriated for projects under the HFRA must be used within the WUI as defined either by a CWPP or by the limited definition provided in the HFRA where no CWPP exists.

### **Process and Partners**

In 2005 the community organized themselves to develop a plan to address fuel loads on private lands and educate the landowners of the planning areas about the risk of fires.

Education of landowners in the areas of risk began through one-on-one contact. While in contact with landowners, FireWise recommendations for access, egress, landscaping and defensible space were explained. With these recommendations, we have evaluated all homes in areas of risk for the safety of firefighters to provide structure protection in a wildfire.

Landowners in the Manson area were not the only ones concerned about fire and fuel loads. In 2001 Chelan County received a grant to develop a fire plan that would identify and prioritize fuel treatment efforts in the County. After a few years of inactivity on the grant, Chelan County contracted with the Conservation District to develop a County Fire Plan in 2004. The timing of the County Fire Plan dovetailed well with the efforts and awareness of citizens from throughout Chelan County. Currently, the Conservation District, with assistance from the Chelan County Fire District #5, the WDNR, USFS, utility companies, Emergency Medical Service representatives and property owners, has initiated the development of an overall Community Wildfire Protection Plan for the Manson area. A community meeting was organized and a broad cross-section of stakeholders including citizens, local elected officials, and representatives attended and discussed the feasibility of creating such a plan.

The Manson Community Wildfire Protection Plan is the result of these locally led efforts and partnership between private, local, state and federal interests. The Manson CWPP serves as part of the foundation of the countywide community wildfire protection plan that is currently being developed. By basing the countywide plan on individual CWPP's, such as the Manson plan, the goals, objectives and recommended projects will be developed by and remain specific to each community (See Section 8 Mitigation Action Plan).

#### **4. ASSESSMENT**

##### **Existing Information**

A substantial amount of data is already available from several sources. Primary fire planning information/GIS data used in this plan came from Chelan County Fire District #5 (structure protection plan and evacuation plan, etc.), USFS Chelan Ranger District (large fire history, vegetation information) and WDNR (historic/potential vegetation, topography, fire cause statistics). *Note: Portions of this document include intellectual property of the Department of Natural Resources and are used herein by permission. Copyright 2004, Washington State Department of Natural Resources. All Rights Reserved.*

##### **Vegetation**

The existing vegetation conditions surrounding Fire District #5 are the result of a long history of fires on the North Shore of Lake Chelan. Given this history, much of the project area is currently recovering from these fires. Fire return intervals have not changed, but vegetation and fuel conditions have. Vegetation ranges from shrub steppe in the lower elevations to mixed conifer in the upper elevations located on the US Forest Service lands administered by the Chelan Ranger District.

Across the landscape of Fire District #5 and the adjacent Forest Service lands areas of grass, brush, densely stocked trees, and dead fuels contribute to a landscape vegetation pattern that is conducive to large fire growth.

##### **General North Shore Fire Behavior:**

Wildland fires are the major natural disturbance to vegetative communities on the north shore of Lake Chelan, fulfilling an important role in ecosystem maintenance and development across the landscape. When fires occur in this area, they typically burn rapidly in a down lake direction pushed by winds funneled through the Lake Chelan Valley. Once winds subside, fires typically grow in an upslope direction. In some cases, fires have crossed over either Sawtooth Ridge or Cooper Ridge and burned into the Methow Valley drainage. Within the Forest Service lands adjacent to Fire District #5, as fire spreads to the east pushed by the down lake winds, fire spread is also influenced by the Columbia River. Wind patterns in the eastern most part of the project area tend to cause fires to spread in a northerly or southerly direction. Nearly all of the large fires in the recent past have affected residential areas.

The Forest Service land adjacent to Fire District #5 has experienced several large wildfires during the past 73 years. A total of 131 ignitions have been documented on these lands since 1900, but most have been small.

### **Historical Fire Regimes and Disturbances**

Disturbances are an intrinsic part of ecosystem development. The lands in and around Fire District #5 developed in concert with, and are subject to, a variety of natural, introduced, and altered fire regimes. A fire regime refers to an integration of disturbance attributes including type, frequency, intensity, duration, and extent. Natural disturbances include fires, insects, pathogens, wind throw, weather, avalanches and earthquakes. Introduced disturbances include livestock grazing, mining, timber harvesting, fire suppression, roads, insects and pathogens.

Most pertinent to this document are that natural fire regimes have been altered by management activities including fire exclusion, livestock grazing, and timber harvesting. Ecosystem and landscape composition and structure both result from and influence fire regimes at different spatial and temporal scales. Fire regimes provide a description of the scale, frequency, and severity that fire historically played on the landscape. Fire regimes lend themselves only to broad descriptions of potential fire behavior.

Fire regimes I, II, IV are the predominant regimes in the Manson area. A description of each fire regime follows below.

#### **1. Fire Regime I <35 years non-lethal (mostly forested areas). (Ponderosa pine, Douglas fir and dry grand fir plant associations)**

##### **General Description**

Fire Regime I consists of all plant associations within the Ponderosa pine (*Pinus Ponderosa*) series, Douglas fir (*Pseudotsuga menziesii*) series, and the drier associations within the grand fir (*Abies grandis*) series have been lumped because of similar fire regimes and vegetation patterns. Dry plant associations within the grand fir series are not considered transitional between disturbance patterns of the drier series and those of the more cool and moist series (Agee 1994), and therefore, are more appropriately discussed here.

This regime is one of the most prevalent types in the planning. It occupies sites with precipitation up to 45 inches, but is generally found in areas receiving less than 25 inches or less. The Douglas fir and Ponderosa pine series are the most xeric (dry) on the forest. As soil moisture decreases and soil temperature increases, the vegetation group grades into grasslands or shrub lands of the steppe plant community (Fire Regime II.) Historic fire intervals were less than 35 years and were seldom stand replacement. Local information indicates that historic fire regimes had: less than fifteen years between return intervals; low intensity resulting in ground fires; and that crown fires were not common. These low severity fires covered several thousand acres, with larger burns of 10,000 to 30,000 acres occurring every 10 to 20 years. This plant association likely supported single storied open canopy forest communities inferring continental (hot/dry to warm/dry) climatic conditions. Grasses, forbs, and some low level woody shrubs generally dominated forest understories. Downed woody debris would have been much less than

15 tons per acre and would have been subjected to repeated ground fires and would have been eventually consumed by ground fire. Duff layers would have been less than an inch in depth and in many areas non-existent. Climatic and soil/site features inferred that available soil moisture was limiting and that surface soils were almost always dry during summer months.

### **Historic Conditions**

The historic landscape was dominated by an uneven-aged park-like structure, composed of small (<1 acre) even-aged clumps of trees. Large, old (250-400 years) trees tended to dominate the landscape with continuous herbaceous understories. Open, park-like stands once dominated by Ponderosa pine have been replaced with dense stands of immature Ponderosa pine, Douglas fir and grand fir. Exclusion of fire has allowed microclimates to change becoming more favorable for the shade tolerant species, inhibiting regeneration of Ponderosa pine.

Riparian areas, northerly aspects, and other mesic (moist) sites were the exception to the open, park-like landscape. Growing conditions are better on mesic sites allowing Douglas fir and grand fir to become established in the understory faster during the fire-free interval. A variety of stand structures and species compositions would have been present depending on the frequency and severity of fire.

Prior to Euro-American settlement, the primary disturbance within dry forest types of the planning area was frequent, low intensity ground fires of natural and anthropogenic origin. Fire-return intervals within Ponderosa pine, warm/dry Douglas fir, and warm/dry grand fir series ranged from 7 to 33 years. Frequent fires kept fuel levels low, prevented the establishment and growth of thin-barked, shade-tolerant species, and perpetuated early seral species, particularly Ponderosa pine. Frequent under burning resulted in open, park-like stands with one or two canopy layers and discontinuity between tree crowns and ground fuels. Scattered large, open grassy areas on thin soils were almost as distinctive as the park-like stands of Ponderosa pine (Hessburg and others 1994).

Insects and pathogens played a role in these simplified forest ecosystems, contributing to the development of important wildlife habitat, nutrient cycling, and stand and landscape-level diversity. Historically, insects and pathogens within dry forest types operated at the individual tree or small patch level. Insects and pathogens acted in concert with fires to reduce stand density. Trees scorched, but not immediately killed, by low intensity ground fires were susceptible to attack by pine engraver beetles and Douglas fir beetles. Armillaria root disease killed small numbers of trees weakened by overcrowding, drought, or fire. Fire scars provided infection courts for decay organisms, which in turn created conditions favorable for macroinvertebrate wood decomposers, especially carpenter ants. Freshly killed trees were soon invaded by woodborers that provided forage for woodpeckers and created tunnels that facilitated the entry of other wood-decomposing agents. Parasitic dwarf mistletoes were kept in check by the fire regime. Heavily- infected trees were likely to torch as ground fires climbed into the crowns of infected trees on resinous stems, dead branches, and brooms.

Western pine beetle was the most important disturbance agent, besides fire, in historical dry forest types. Large, old Ponderosa pines are the preferred host of the western pine beetle. Beetles killed lightning-struck trees, trees infected with root diseases, and trees unable to resist

attack because of age or competition-induced stress. During periodic droughts such as occurred during the 1920s and 1930s, forests dominated by large Ponderosa pine sustained outbreaks of this insect. Ponderosa pine snags provided nesting habitat for cavity excavators and secondary cavity users. Birds and other insectivores exploited the insects within beetle-killed trees. When they fell, these snags became habitat to other vertebrates and decomposers. Log longevity in historic pine forests is not known, but frequent fires probably consumed many, if not most, within several decades.

Under historic fire regimes, defoliators, root diseases and dwarf mistletoes played minor roles in the dry forest types on the Eastern Washington forests, especially when considered at landscape scales. The importance of these disturbance agents increased in more mesic areas within the dry forest group where longer fire-return intervals allowed late successional host species to establish and grow.

### **Current Conditions**

Portions of this forest group consist of high-density Ponderosa pine, Douglas fir, and/or grand fir. Stands may or may not be multi-layered. Layering is often a function of past partial-cut timber harvest. In places where the overstory was not logged, a scattered overstory of primarily Ponderosa pine is competing with a dense, small diameter, even-aged understory of Ponderosa pine, Douglas fir, and/or grand fir. In the northern portion of the Swauk Watershed, for example, one study found that approximately 95% of the Ponderosa pine was less than 12 inches in diameter with an average age of 65 years.

The other portion of this fire regime is low density, with a somewhat park-like structure. It should be noted that mapped low-density stands may under-estimate the actual amount of park-like structure (see historic discussion below). Many sites, both high and low density, are experiencing high rates of bark beetle or density related mortality.

During the past century, pre-settlement fire regimes were radically altered in the dry forest types. Grazing, first by cattle, and then sheep, began as early as the 1840s and continued into the present century. Grazing substantially reduced fine fuel levels, and probably was more important than actual suppression activities in excluding fires from dry forest ecosystems early in this century. Extirpation of native cultures and the concomitant elimination of Native American ignitions as well as routine suppression of natural and human-caused fires allowed forest development to proceed further along successional trajectories.

Fire has been excluded from many dry forest types, from three to over ten times historic fire-return intervals. On the driest sites, Ponderosa pine density has increased substantially over historic levels. Small pines that would have been killed by the historic fire regime have proliferated into dense, stagnating stands. Elsewhere, in the absence of frequent ground fires, seedlings of shade-tolerant, but less fire-tolerant species such as Douglas fir and grand fir established and grew beneath the pine overstory. Historical fire refugia provided one source of seeds for the expansion of later-successional species into areas previously dominated by Ponderosa pine. Conversion of single canopy park-like forests of pine to multi-layered, dense forests dominated by later-successional species were accelerated in stands where selective

harvesting removed overstory pine and released the younger cohort of Douglas fir and grand fir growing in the understory.

Dense multi-layered forests dominated by grand fir and Douglas fir are far more susceptible to bark beetles, defoliators, root diseases, and dwarf mistletoe infestations than were the park-like pine stands they replaced. Susceptible host species are vertically and horizontally connected across landscapes, and occur on sites that have a high probability for initiating and sustaining outbreaks. While insects and pathogens have usurped the role previously played by fire in cycling biomass and nutrients, they are less efficient in this capacity than fires. Increased insect and pathogen activity has elevated snag and log recruitment over historical levels; excluding fires increases log retention rates. A dry climate and the coarse soil structure characteristic of many dry forests prevent rapid decomposition allowing the accumulation of woody debris, and elevating fuel levels within the dry forest types.

Insects and pathogens historically provided fine-textured structural diversity within dry forest ecosystems typified by this fire regime. Now, insects and pathogens are the primary disturbance agents within many of these ecosystems, setting the stage for the inevitable return of fire, albeit within a different regime: one in which entire landscapes will be burned with moderate to high severity.

Restoring stands that supported late-successional species will take many decades, and in some cases, late-successional habitat may not be fully restored for over a century.

Contrary to what might be expected, reductions in the numbers of large Ponderosa pine have not decreased the mortality associated with western pine beetles; mortality may, in fact, be increasing over historical levels. Many sites now have far greater numbers of small Ponderosa pine than historically existed. Because of the high tree numbers, moisture competition is high and as a result many of these dense small stands are of poor vigor. This makes them susceptible to beetle infestation and once the infestation gets a foothold in the small, low vigor trees they often attack and kill healthy large Ponderosa pine still present in the stand. Western pine beetle is now the most common tree-killing beetle in second growth Ponderosa pine stands on the Wenatchee National Forest. Pole and small saw timber-sized trees, especially those in dense stands, are affected; these trees are important for future replacement of the large, old Ponderosa pine removed by past selective harvesting and those killed in the 1994 fires.

Douglas fir beetle attacks have also become more frequent. Trees defoliated by the western spruce budworm and Douglas fir tussock moth are especially susceptible to attack by this insect. Some of the most serious damage occurs in riparian areas, putting these sensitive ecosystems at increased risk to future fires, and reducing the presence of large, live Douglas fir, an important habitat component of riparian ecosystems.

## **2. Fire Regime II <35 years stand replacing (grassland and shrublands). (Shrub-steppe community)**

### **General description**

This fire regime is generally found below, or as small inclusions within Fire Regime I, usually related to topographic changes and located mostly in deep canyons on south and west aspects.

Grassland/shrubland sites are not capable of supporting a forested community. A few conifer trees may exist in isolated micro-sites sufficient to support limited forest community development. Canopy closure is generally less than 10% where trees exist. The climax shrub communities of the Eastern Cascades provide diversity to the landscape as part of a vegetative mosaic.

Historic fire intervals necessary for a stand replacing fire in mountain grasslands/shrublands were less than 35 years. Local information indicates that stand replacement fire intervals in these grass/shrub lands was less than 15 years. Historic fire severity would be low due to fire timing when most grass communities would have already completed their annual growth cycle and were likely already semi dominant resulting in little damage to these communities. In most cases the fires served to invigorate resprouting and also supported seed germination of many plant species. Downed woody debris was very uncommon and was less than 5 tons/acre. Coarse woody debris would have been subjected to repeated low intensity ground fires. Surface organic layers ranged from non-existent to over two inches in depth comprised almost entirely of decaying grass roots. Surface soil colors reflect the influence of herbaceous communities and are generally darker than adjoining forest soils. Climatic and soil/site features inferred that available soil moisture was always limited and that surface soils were almost always dry during most of the summer months. Moist stress would have been an important ecological process strongly influencing vegetation form and patterns.

The Potential Natural Vegetation (PNV) series that are associated with Fire Regime II are Ponderosa pine/Shrub-steppe; Douglas fir with some Ponderosa pine/Shrub-steppe; and Douglas fir and Ponderosa pine/shrub-steppe with some grand fir.

Climax shrublands are communities where a shrub species are the dominant plant form, whereas grasslands are dominated by grass species. In the planning area, bitterbrush, sagebrush and buckbrush are the most widespread shrub species and bluebunch wheatgrass, blue wild rye and Idaho fescue are the most widespread grass species.

### **Historic Conditions**

Under historic conditions, vegetation within this fire regime was predominantly native bunch grasses, and balsamroot, the direct result of frequent fires. Shrub species were likely confined to more mesic (moist) sites such as draws or more northerly exposures, gradually spreading over the landscape until the next fire burned over the site once again resetting the successional clock to the native grasses.

### **Current conditions**

Current vegetation within the shrub steppe community is a direct result of how recent the past fire disturbance has been. Those areas where fire has been excluded for more than 35 years are

dominated by antelope bitterbrush whereas those that have burned more recently are dominated by native bunch grasses, balsamroot and to some extent cheat grass, a non-native species. It is also likely that fire exclusion has allowed Ponderosa pine to develop in greater numbers within the shrub steppe community than would have occurred historically. This fire regime is covered with shrub species, predominately bitterbrush, due to fire exclusion.

### **3. Fire Regime IV 35-100+ years stand replacing. (Subalpine Fir Group and Whitebark Pine Associations)**

#### **General Description**

This fire regime covers a wide range of conditions in the Hardy Fire Regimes. These fires were historically stand replacing and less than 1,000 acres, with larger fires averaging between 1,000 and 2,000 acres. This allows managers to describe conditions that appear important to local conditions, but maintains the integrity of the original five fire regimes presented by Hardy.

#### **o Subalpine Fir Group**

The subalpine fir series extends from mid-elevation, generally above 4,900 feet, to upper timberline, and is one of the coolest and moistest of the forested zones. Cool summers, cold winters, and development of deep winter snow packs are more important factors than total precipitation in differentiating this vegetation group from lower forested zones.

Although subalpine fir is inferred as the climax dominant tree species, Engelmann spruce is considered of equal value within this series. Engelmann spruce is best developed on the more moist habitats within this series. Lodgepole pine is an important component of many seral stands, especially those burned within the last 100 years.

#### **o Whitebark Pine Associations**

This vegetation group is generally found on upper slopes, ridge and mountain tops on exposed sites at the highest elevations where upright tree growth is possible. It is included with Fire Regime IV due in part to its proximity to the subalpine fir plant association. This entire plant association is highly dependent on fire. As moisture increases nearing the crest of the Cascades it is replaced by mountain hemlock and/or subalpine fir. Subalpine larch (*Larix lyallii*) is sometimes associated with whitebark pine (*P. albicaulis*) but is often on more northerly aspects. Both species are frequently deformed (because of the harsh environment) forming krummholz (twisted wood) stands. However, whitebark pine is less tolerant to high snow pack than subalpine larch (Williams and Smith 1991). Whitebark pine is one of the only trees capable of establishing on sites without shelter from other trees (Williams and Smith 1991), a trait that obviously allows them to occupy the highest, harshest environments.

This fire regime appears to duplicate the Hardy Fire Regime IV. However it is designed to capture those lodgepole stands that tend to remain in an early seral condition, due to fires often occurring more frequently than 100 years. These areas tend to be located above drier sites where fires occurred more frequently and burn into these stands. This is referred to as the “dry site connection”. These forest communities inferred strong continental (cool/moist) or inland maritime (warm/moist) climatic conditions. Grasses or low-level shrubs generally occupied

forest understories. Downed woody debris is common ten or more years after a fire event, and range from 15 to 25 tons/acre. Coarse woody debris subjected to the next fire is consumed. Duff layers ranged from a low of .5 inches to 1.5 inches dependent upon fire interval. Climatic and site features inferred that available soil moisture exceeds total vegetation requirements but the surface soils were normally dry during part of the summer months.

## **Historic Conditions**

### **○ Subalpine Fir Group**

Successional development played an important role in this series, due largely to longer fire intervals. Fire tends to kill all the tree species in these forests. Western larch and lodgepole pine were common early seral dominants. Seed availability would determine which species would reestablish. More shade tolerant species, e.g. subalpine fir and Engelmann spruce, would follow. Replacement may take more than two centuries. Often, another stand replacement fire occurred before the replacement sequence was complete.

Landscape pattern would have been highly variable both in space and time. Forest patch sizes resulting from disturbance were generally small with a few large patches (1 to 50+ acres). Moderate intensity burns probably greatly influenced the structural development of these subalpine fir stands. Low or moderately intense fires which occurred between stand replacement events would spread from adjacent drier community types, often killing 10-50% or more of a stand and creating openings for understory development. With moderate intensity fires, mid-successional stands could develop layered structures more rapidly than by successional processes alone. This means that the landscape probably contained more layered stands (late-successional structure) than single-storied stands (mid-successional).

Historic fire regimes varied within subalpine fir forests. Generally, fires in subalpine fir forest types were infrequent (over 100 years) and intense, resulting in complete stand-replacement on over 70 percent of the burned area (Agee 1990). Stand-replacing fires initially homogenized landscapes; over time, the activities of pathogens and insects provided fine-scale diversity and heterogeneity. At intervals of less than 200 years, stand-replacing fires in the subalpine fir series favored even-aged stands of lodgepole pine; return intervals greater than 200 years often reduced the presence of lodgepole pine and favored early dominance by Douglas fir and western larch. Douglas fir was favored on warmer, drier plant associations; western larch was less common north of the Entiat River. Subalpine fir is very intolerant of fire; mortality is high even when fires do not crown; however, the low branches of subalpine fir and its associated canopy lichens often carried fires into the canopy, which increased fire extent.

Once established, lodgepole pine tends to perpetuate. Mountain pine beetles attack mature stands of lodgepole pine; mortality is high. Outbreaks of mountain pine beetle create substantial fuel loads that lead to stand-replacing fires, and a cyclic successional trajectory that perpetuated both vegetation pattern and associated fire regime. Lodgepole pine dwarf mistletoe probably led to increased fire intensity in infected stands. The serotinous cones of lodgepole pine provided a competitive post-fire establishment advantage. Even in stands that contained small amounts of lodgepole pine, stand-replacing fires favored pine regeneration and, potentially, future successions of pure lodgepole pine.

Subalpine fir forests existed under a wide range of conditions; departures from the general fire regime existed. Where subalpine fir was bounded downslope by dry Douglas fir forests, such as on the Chelan Ranger District, Entiat Ranger District, Stehekin Valley and in the vicinity of Mission ridge, the fire regime included more frequent, less intense fires. Low and moderate intensity fires originating in dry Douglas fir stands burned into subalpine fir forests and only became stand-replacing when fuels and weather conditions were favorable. Mortality from these fires was patchy, favoring more shade-tolerant Douglas fir, subalpine fir, and spruce. Trees scorched or scarred by low and moderate intensity fires became susceptible to insects and pathogens.

Fire extent in subalpine fir forests was a function of weather patterns and landscape patchiness. Strong winds drove fires until fuels were exhausted, often at the upper treeline. In some areas, subalpine fir forests consisted of groups of trees (islands) surrounded by talus or other substrates that did not promote stand-replacement fires. In such instances, fires killed some groups of trees and left others. Historic fire return intervals in subalpine fir forest were not always long. In a study in the central Washington Cascades much shorter (15 - 40 years) fire return intervals in subalpine fir forests have been documented. In some instances, shorter intervals occurred because mortality from one fire fueled the next fire.

#### ○ **Whitebark Pine Associations**

Fire frequency in whitebark pine series tended to be more frequent than in the subalpine series. Where large stands existed the composite fire return interval was about 30 years. Fires were of high severity and intensity. Regeneration was largely from seeds that are cached by Clark's nutcrackers.

The portion of various structural stages under "natural" conditions within this series is unknown. Diverse topography, continuous distribution of krummholz stands, and slow growing conditions make it difficult to describe successional patterns. Whitebark pine may have been more common throughout the upper portions of some river basins as a result of relatively frequent fires in other vegetation types. Whitebark pine is successional to subalpine fir and mountain hemlock. Fires occurring on sites which are subalpine fir and mountain hemlock climatic climax would favor whitebark pine. Once this species was present, fires could have been more frequent maintaining whitebark pine indefinitely. The scenario described is similar to the Ponderosa pine dominated fire climax communities in the dry forest group (see above).

Historically, stand-replacing fires in upper-elevation subalpine fir and mountain hemlock forests maintained seral whitebark pine stands. Seeds cached by the Clark's nutcracker gave the species a competitive advantage in colonizing the interior of large burned areas. On sites where the combination of cold, wind, and late-summer drought precluded the formation of closed forest, open stands of climax whitebark pine occurred. Although upper slopes and ridges in the whitebark pine series were frequently struck by lightning, fuels were sparse, limiting the extent of historic fires. The fires that were ignited by lightning in 1994 provide an example of the pattern of storm activity where this series occurs. Lightning strikes that killed individual trees and small clumps were probably more common than ground fires. Fire return intervals are not known for whitebark pine ecosystems in Eastern Washington.

A number of insects attack whitebark pine; mountain pine beetle is the most important, although regeneration can be affected by several associated cone worms. Historically, whitebark pine was not susceptible to most pathogens. Small trees can be killed or sustain mechanical damage from rodents or bears. Abrasion by wind-driven ice crystals sometimes causes extensive damage to open-grown trees.

## **Current Condition**

### **○ Subalpine Fir Group**

The current condition of the subalpine group is likely not much different than historically. Some logging has occurred in this forest series, but not extensively. Not enough time has passed during the period of fire exclusion to affect areas that experience long fire return intervals.

Fire regimes in subalpine fir forests have been less impacted by fire control and harvesting than those in the grand fir, Douglas fir, and Ponderosa pine series. During the last two decades of the previous century and into the first part of this century, sheep grazing substantially reduced fire fuels. In some areas the reduction in understory vegetation was severe enough to cause soil erosion. In the late 1800's many subalpine fir stands experienced fires that resulted from the historic practice of shepherders firing pastures as they left in the fall. Except on the Entiat Ranger District, there has been a substantial reduction in the number and extent of stand-replacing fires within subalpine series forests. These stands continue to age; landscape-scale fires have replaced few. Early and mid-seral landscapes are being gradually lost. As stands age, they become more susceptible to insect attacks. Mountain pine beetle preferentially attacks the largest individuals of lodgepole pine, which are replaced by shade-tolerant fir understories.

Subalpine fir forests adjacent to successional-advanced dry forests are at risk to high intensity fires originating in the dry forests and spreading upslope into the fir forests. Fire penetration into fir forests will be exacerbated where insect and diseases have created elevated amounts of snags and logs.

### **○ Whitebark Pine Associations**

Most stands likely consist of older age classes with little regeneration. This condition is likely associated with fire exclusion and, as a result, stands are limited in extent. Whitepine blister-rust is present in some locations.

Whitebark pine is the climax species on only a small portion of its range; under historic fire regimes, whitebark pine dominated early and mid-successional stages within high-elevation, dry subalpine fir plant associations. The whitebark pine forest type appears to be declining in the Washington Cascades. Possible reasons for this decline include infection by white pine blister rust, a disease introduced from Europe in 1910 that has caused extensive mortality in five-needle pines in North America. There is at least one report of blister rust mortality in an eastern Cascades whitebark pine forest as early as the 1930s. Recent aerial surveys indicate substantial beetle and blister rust mortality in areas that probably support whitebark pine.

Other causes of whitebark pine mortality include attack by mountain pine beetles, mechanical damage by black bears and rodents, and the successional transition to subalpine fir that occurs in the absence of fires.

Neither the extent nor the severity of whitebark pine decline is known; in fact almost nothing is known about the whitebark pine resource in the Washington Cascades. Studies of this species have focused on populations in the northern Rocky Mountains. Whitebark pine in the Rocky Mountains is more extensive and connected than populations in the Washington Cascades. If the precipitous declines that have been documented in Rocky Mountain whitebark pine populations are occurring in eastern Washington, the effects of this decline might be worse since Eastern Cascades populations are smaller and more spatially isolated. Information about the whitebark pine resource in the Eastern Cascades is needed to determine if, and how rapidly the whitebark pine type is decreasing. Insect and disease problems within the whitebark pine type should be surveyed, including interactions between different disturbance agents within the whitebark pine type. The relative effects on whitebark pine mortality of blister rust, bark beetles, bear damage, rodent damage, and advancing succession need to be determined in order to ascertain the sustainability of whitebark pine habitat.

### **Summary**

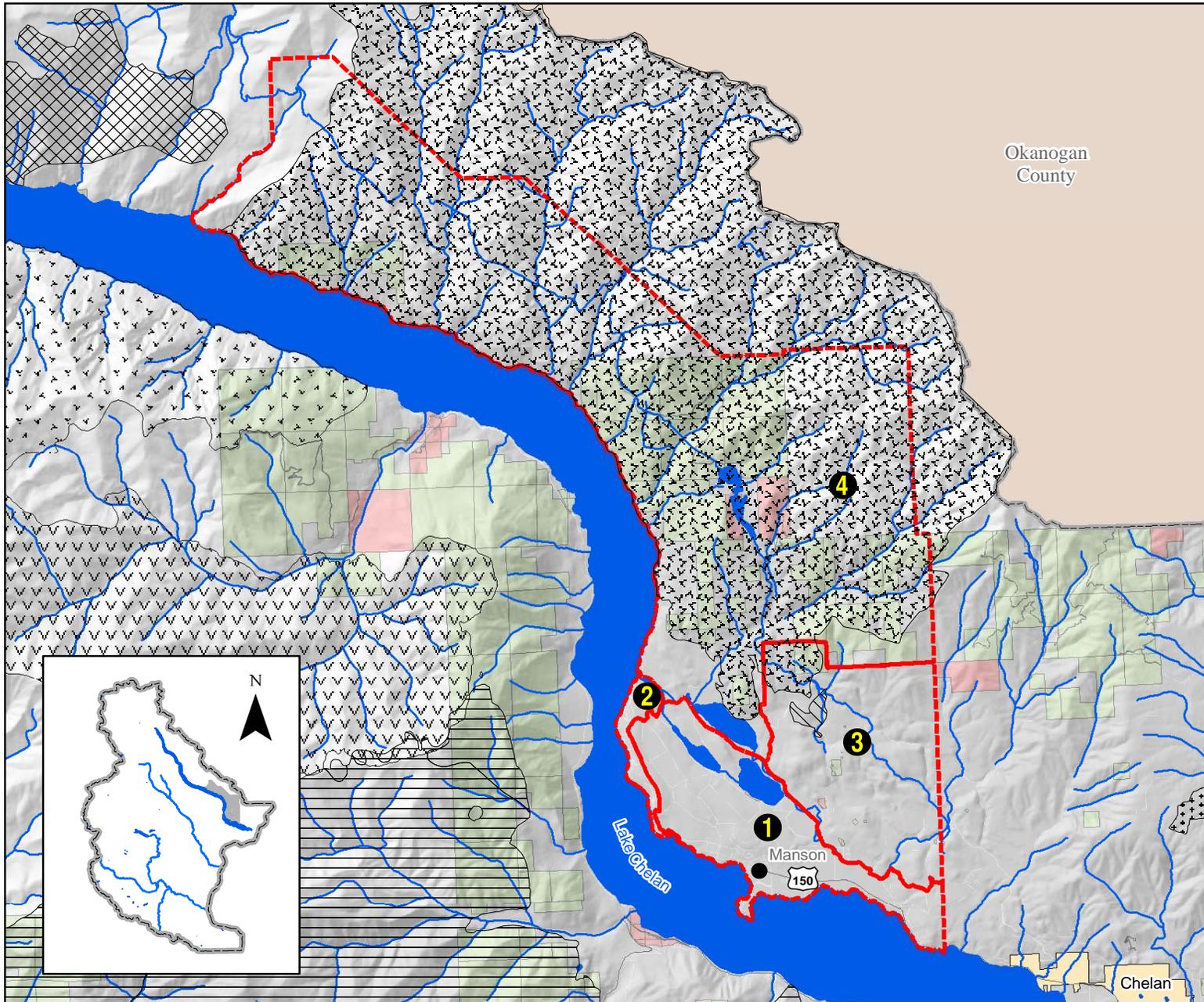
The vegetative, topographic, and geomorphologic conditions of the landscape tell a story of how disturbance historically shaped the landscape. Recent experience tells how fire behaves across this part of the landscape. The topography and climate of the Lake Chelan Basin interact to create a history of large fires that move rapidly and with great intensity across the landscape. These recent fires are likely to be outside of the range of “typical” disturbance regimes. Nonetheless, the fire regimes on the landscape suggest that past fires, though not as intense, were likely to have been as large and as fast moving as the fires we observe today on the north shore of Lake Chelan.

<b>Fire Name</b>	<b>Year</b>	<b>Approximate Acreage Burned *</b>	<b>Cause</b>
Unnamed Fire/s	1970	105,645	Unknown
Tyee Creek	1994	134,501	Lightning
Rex Creek	1994	40,626	Lightning
Deer Point	2002	42,247	Recreation
Pot Peak	2004	17,185	Lightning
Deep Harbor	2004	29,985	Lightning

\* - USFS statistics

# Manson Community Wildfire Protection Planning Area

## Major Fires 1970-2004



### Legend

Manson CWPP Area

County Boundary

Major Roads

Rivers & Streams

### Major Fires 1970-2004

Tye (1994)

Rex Fire (2001)

Union Valley (2001)

Deer Mountain (2002)

Deer Point (2002)

Deep Harbor (2004)

Pot Peak (2004)

### Land Ownership

Federal

State

Longview Fibre

Private & Other

### Residential Areas

1 City of Manson vicinity

2 Willow Point

3 Ivan Morse Road

4 Grade Creek

0 0.5 1 2 3 Miles

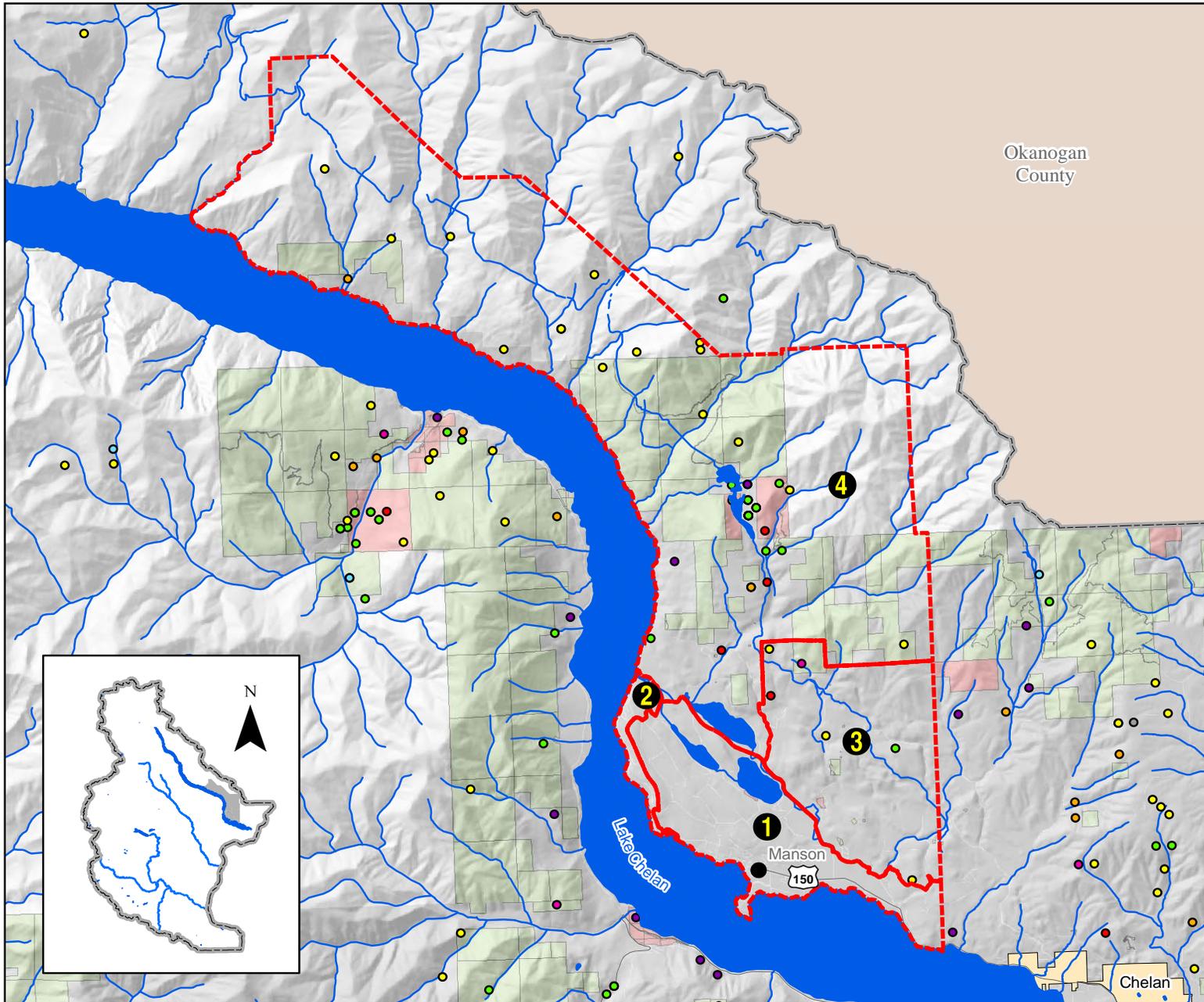
Note: CWPP boundary created by USFS, WDNR, and Chelan County Conservation District (CCCD) employees and Manson area residents using topography. Hillshade generated using WDNR 30 meter DEM. Fire history data supplied by the USFS. All other data provided by Chelan County GIS.

Map created by the CCCD. The CCCD does not warrant, guarantee, or accept any liability for the accuracy or completeness of any data. Map prepared for presentation purposes only.



# Manson Community Wildfire Protection Planning Area

## Reported Fire Starts & Causes 1970-2003



### Legend

- Manson CWPP Area
- County Boundary
- Major Roads
- Rivers & Streams

### Fire Starts & Causes 1970-2003

- Children
- Debris Burning
- Incendiary
- Lightning
- Logging & Equipment Use
- Railroad
- Recreation
- Smoker
- Miscellaneous

### Land Ownership

- Federal
- State
- Longview Fibre
- Private & Other

### Residential Areas

- 1 City of Manson vicinity
- 2 Willow Point
- 3 Ivan Morse Road
- 4 Grade Creek

0 0.5 1 2 3 Miles

Note: CWPP boundary created by USFS, WDNr, and Chelan County Conservation District (CCCD) employees and Manson area residents using topography. Hillshade generated using WDNr 30 meter DEM. Fire data supplied by WDNr and USFS. All other data provided by Chelan County GIS.

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### **Fuels/Hazards**

The WDNR has classified the Manson area as a ‘high risk’ Wildland/Urban Interface community. Past activities such as logging and fire suppression have altered the normal fire regime, stand species composition and forest health. Dense, overstocked stands of trees are increasing the fire hazard in the Manson CWPP area. Additionally, recent previous fires have left many dead standing trees across the landscape that pose a fire hazard. Many stands of Ponderosa pine are dominated by trees less than 18 inches in diameter. Pockets of trees are being affected by mountain pine beetle and/or fir engraver infestations further increasing fuel loads (WDNR GIS). Trees often have contiguous crowns and adjacent ladder fuels, and tall underbrush also predominates on the landscape. All of these variables provide a continuous fuel profile that can create conditions for an intense and fast moving fire.

### **Protection Capabilities**

Chelan County Fire District #5 provides fire protection for about 18 square miles of private lands in the Manson area. They are also responsible for providing initial attack response to state and federal lands in the area per an interagency agreement. The WDNR and USFS are the primary agencies responsible for management of wildland fires on public lands in and around the Lake Chelan area. The WDNR collects a “fire tax” from landowners north of Wapato Lake Road and is primarily responsible for responding to structure fires in this area.

The objective of the Manson structure protection plan is to safely and efficiently manage resources to protect human life, property, essential infrastructure and resources in the event of a wildland fire. Strategic decisions should take into account the following tactical considerations:

1. Identify that a fire is in an area of high risk. (i.e. heavily forested pockets, steep grassy slopes). Fire may move rapidly through these areas with torching, crowning and spotting.
2. Initiate evacuation to identified homeowner group.
3. Some homes would require maximum effort to defend, requiring prompt activation of this plan and the need to triage structures.
4. Access to area subdivisions is described as “one way in, one way out”. Traffic control and apparatus staging and placement must be carefully considered.
5. Chelan County Fire District #5 and its cooperators cannot assemble enough structure protection resources to simultaneously protect all residential structures in some of the identified areas of risk. Successful defense will require that homeowners provide defensible space and fire resistant landscaping.
6. Resources from the state and federal wildland cooperators will be necessary to implement the strategies described in this CWPP.

### **Structural Vulnerability**

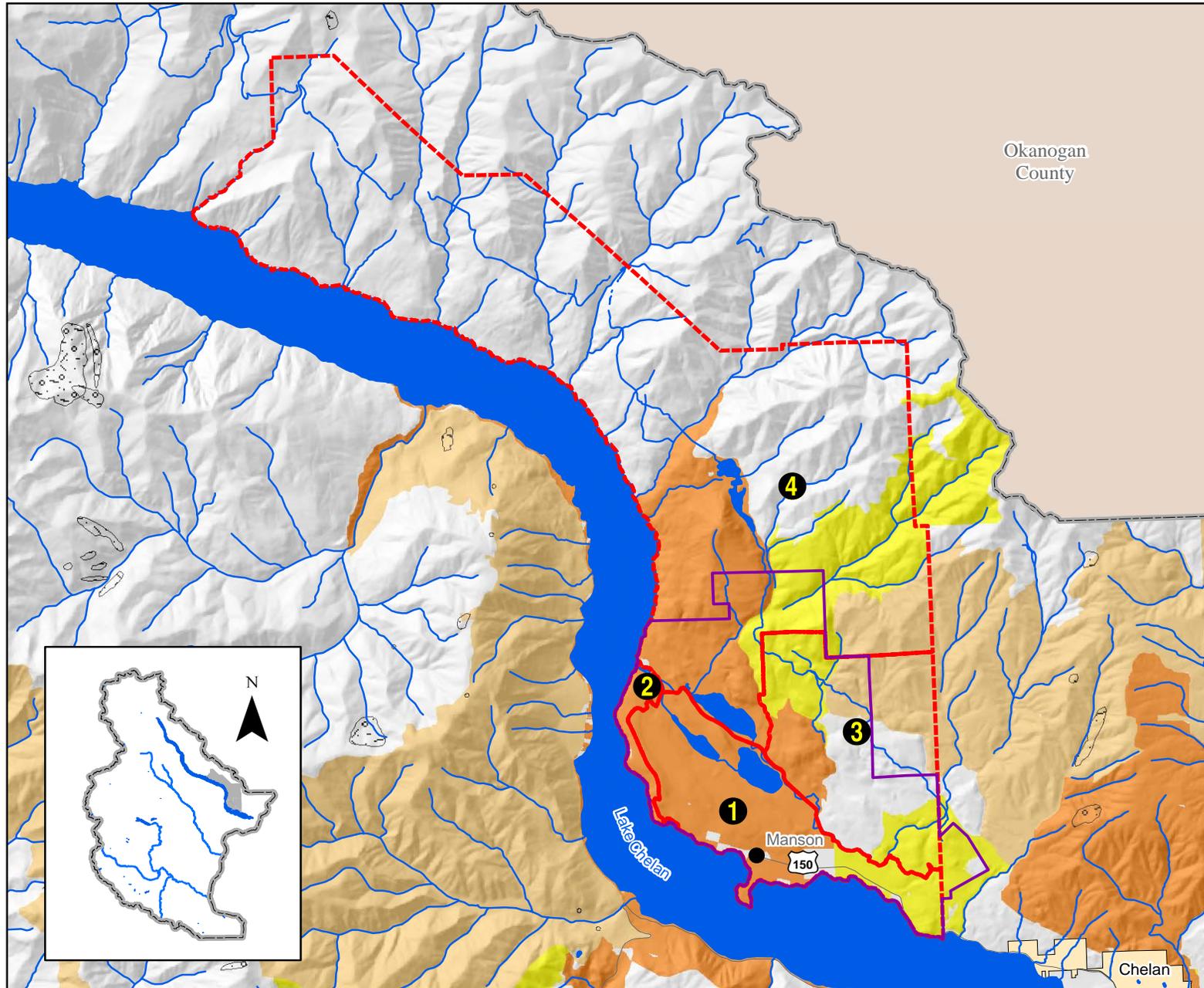
Residences within the Manson area are widely diverse with different types of threats that pose a risk to the private lands. Accessibility, topography, and the surrounding vegetation all contribute to structural susceptibility to fire. Actions implemented in the Mitigation Action Plan portion of this document primarily address improving the ability of structures to be defended in the event of a wildfire.

### **Key Contacts**

<b>Organization</b>	<b>Contact</b>	<b>Phone Number</b>
RiverCom		911 or (509) 663-9911
Chelan County Fire District #5	Morgan Picton <i>Board President</i>	(O) (509) 687-6360
	Arnold Baker <i>Chief</i>	(O) (509) 687-3222 (C) (509) 670-2775
Chelan County Sheriff	Mike Harum <i>Sheriff</i>	(O) (509) 667-6851 (C) (509) 630-1700
Wenatchee River Ranger District United States Forest Service (USFS)	Marsh Haskins <i>Fire Management Officer</i>	(509) 682-2576
Central Washington Interagency Committee Center (CWICC)		(O) (509) 884-3473
Chelan County P.U.D.		(O) (509) 663-8121 (E) (877) 783-8123

# Manson Community Wildfire Protection Planning Area

## WDNR Insect & Disease Aerial Survey and Fire Risk Assessment Data



### Legend

- Manson CWPP Area
- Fire District No. 5
- County Boundary
- Major Roads
- Rivers & Streams
- 2003 Insect & Disease Survey
- 2004 Fire Hazard Assessment**
- Extreme fire hazard
- High fire hazard
- Moderate fire hazard
- 2000 Fire Risk Assessment**
- High fire hazard
- Moderate fire hazard

### Residential Areas

- 1 City of Manson vicinity
- 2 Willow Point
- 3 Ivan Morse Road
- 4 Grade Creek

0 0.5 1 2 3 Miles

Note: CWPP boundary created by USFS, WDNR, and Chelan County Conservation District (CCCD) employees and Manson area residents using topography. Hillshade generated using WDNR 30 meter DEM. Insect & disease aerial survey data and fire risk assessment data provided by WDNR. All other data provided by Chelan County GIS.

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## 5. RISK EVALUATION

An area risk assessment was completed by WDNR (NFPA-299 [upgraded to 1144] area risk assessment) that grouped the area rather than analyzing risk to individual structures. The fire risk assessment for the Manson area ranked the area as high.

### Access

SR150 is the main emergency evacuation route into and out of the area. It is oriented in a Northwest-Southeast direction with outlets in both directions. Secondary roads that provide access include Ivan Morse Road, Grade Creek/Johnson Creek, Emerson Acres, Upper & Lower Joe Creek, Helios Hills/Green's Landing, and Wapato Lake Road. These roads are generally paved two-lane loops (with the exception of Emerson Acres). Primitive one-way dead ends unsuitable for fire equipment also are scattered throughout the area.

The main secondary roads provide additional access through the planning area and would be used by homeowners in the event of an evacuation to get people out.

Road access to Emerson Acres has been identified as a potential concern in the event of a wildfire. Roads are limited due to the influence of drainage topography (steep slopes).

### Evacuation

The Chelan County Sheriffs Office is the responsible agency in charge of evacuation. The Manson area will need to be evacuated early in the case of an approaching fire. Evacuation may be a level 3 (mandatory) depending on fire conditions and trigger points. Each incident will provide unique challenges and require a coordinated effort.

### Staging Areas for Command Post & Tactical Resources

Should communities in the Manson area be threatened by a wildfire, Chelan County Fire District #5 will provide first response. Additional resources are available in the county as well as additional state and federal response units. Tactical resources and command posts may be operated from the following locations

- ⊕ Chelan County Fire District #5, Station 1  
250 West Manson Boulevard  
(509) 687-3222
- ⊕ Chelan County Fire District #5, Station 2  
2010 Wapato Lake Road  
(509) 687-9041
- ⊕ Manson High School  
1000 Totem Pole Road  
School Office (509) 687-9585  
Manson School District #19 Superintendent's Office (509) 687-3140

### **Water Supplies**

Water supplies in the Manson area include a very extensive network of fire hydrants. In addition, four lakes (Lake Chelan, Wapato, Roses and Dry) and 5 “air cans” (connection points from existing pressurized irrigation pipe) exist in the area. Two 1 million gallon and a 1.25 million gallon water tower provide water to the hydrants. All of the fire hydrants and air cans are gravity fed, so water will not be lost in the event that power is lost during a wildfire.

### **Fuel Breaks and Safety Zones**

An immediate primary treatment goal in the Manson CWPP area is the areas around homes.

The safety zones identified in the Manson area are generally considered to be between Lake Chelan and Wapato Lake Road. Fruit orchards and scattered homes in this part of the planning area are not as susceptible to fire as the areas between Wapato Lake Road and forest lands. Currently, Manson High School is the primary safety zone. The Wenatchee Valley Humane Society (WVHS) will work with landowners to find a safe location for livestock and domestic animals. WVHS is located at 1474 S Wenatchee Ave. in Wenatchee, WA and can be reached at (509) 662-9577.

Safety zones will be approved by the Incident Commander or his designee and may change upon fire conditions.

## **6. CURRENT ACTIVITIES**

### **Protection Measures**

Chelan County Fire District #5, the WDNR, and the USFS are responsible for providing initial attack response in the event of a wildfire in the Manson area. Mutual aid will be supplied by other Chelan and Douglas County fire districts when needed.

### **Education**

Chelan County Fire District #5 has recently hired a person to provide education/outreach to homeowners in the District. In addition to providing information to landowners, the employee is also performing fire assessments (NFPA Form 1144) of homes. As part of collecting this information he also provides information to homeowners on how they can reduce the threat from wildfire to their home and property.

### **Existing Procedures**

Landowners have organized a landowner committee in an effort to set priorities and spearhead fire prevention and protection activities in the planning area. Many homeowners have begun to take measures to protect their property by reducing fuel loads on their property and maintaining defensible space.

The Forest Service also is currently conducting fuels reduction activities in the planning area (see Manson CWPP Area Planned Projects, page #34)

### **Project Proposals**

No projects identified in the Mitigation Action Plan portion of the Manson CWPP are currently pending for funding. However, projects identified in the Manson CWPP Planned Projects, Page #34 are expected to be undertaken by the Forest Service over the course of the next several years. Grant funding will be pursued to address issues identified in the Mitigation Action Plan portion of this document.

### **Coordination with Public Agencies**

In order to maximize the fuels reduction work planned for private land, it would be desirable for complementary projects to take place on adjacent Forest Service managed lands in and adjacent to Manson CWPP planning area. Specifically, the Environmental Assessment for the Antilon to Alta (A to A) Ecosystem Restoration (2003) identified fuels reduction work to be implemented in adjacent to the Manson CWPP area. In fact, the Forest Service is planning to implement Timber Stand Improvement (TSI) projects in the next several years that are essentially thinning projects. The location and sequence of these project areas are identified in the Manson CWPP Planned Projects, Page #29. While landscape scale treatments have been previously undertaken and are currently in progress in some areas, opportunities exist for future additive treatments. The CWPP is recognized as the instrument necessary to organize and educate the public to further encourage and suggest the design of such future projects. In addition, there is the potential for cooperative projects with WDNR and other agencies to achieve CWPP goals.

### **Landowner Committee**

A single landowner committee was established during the development of the Manson CWPP. The landowner committee provided the bulk of feedback from community members during the development of the plan. Committee members decided to concentrate on several issues in the plan, which included: education and outreach, fuels reduction, and improved protection capabilities.

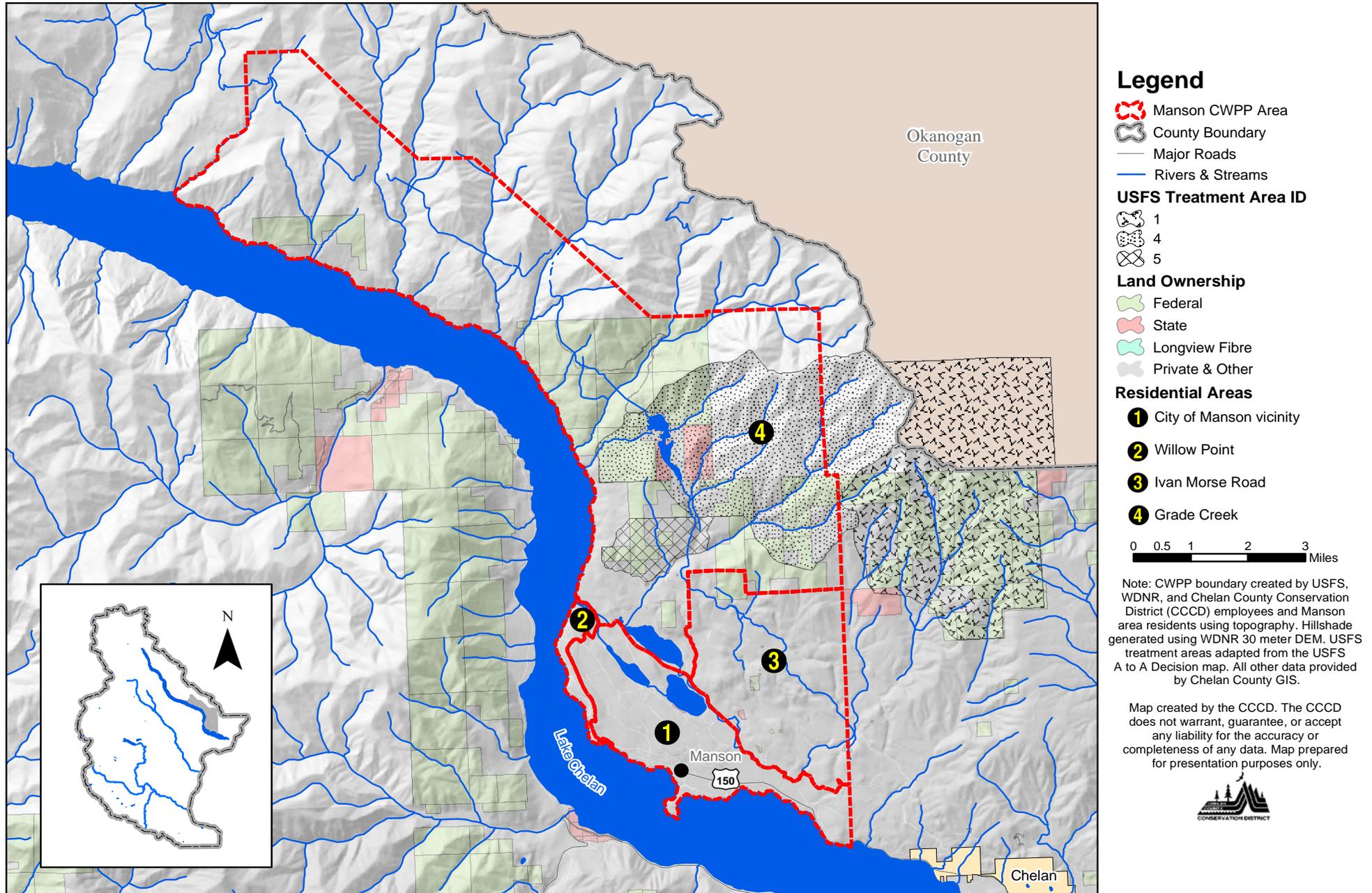
### **Mapping Project**

Chelan County Fire District #5 mapped many of the homes in the burn area prior to the Deer Point Fire in 2002. That information contained GPS location and an icon of a home in red, yellow and green. The three colored home icons represented a Safety Factor for Firefighters to defend the homes in the passing front of a wildfire. The 2002 mapping project was done in an inexpensive version of software with few options and limited accessibility from other users. The map was found to be extremely useful in selection of Structure Protection Strike Team objectives.

In 2005, Fire District #5 purchased ArcView software to have more options and compatibility with RiverCom Dispatch Center, the Chelan County Geographic Information System (GIS) database and Incident Management Teams that frequently manage the area's large fires. The Fire District has kept the same icon system with added features. A user can select a home icon to access the NFPA 1144 data as a layer under the map. One attribute will be the ability to select an area or zone (Joe Creek or Zone 3), and have all 1144 data compiled. Fire Command personnel will have instant access to assess the impact of an approaching wildfire.

# Manson Community Wildfire Protection Planning Area

## USFS Planned Project Areas Within or Adjacent to the CWPP Area



Education and outreach was identified as one of the most important tools to be included in the plan. It was recognized by the landowner committee that landowners will need to be informed of the need and means of how to “FireWise” their property. In addition, education and outreach on fire issues will reach people who visit but may not live in the planning area. Several items were identified as a means to get fire information out to the public (See 8. Mitigation Action Plan, page 33). The objective of this portion of the plan is to provide information to landowners and visitors to increase knowledge and understanding of fire related issues. Some things considered to accomplish this include hosting future “FireWise” presentations and workshops and work to support the volunteer firefighter program.

The steering committee agreed that an individual’s own space/home comes first and then the general landscape. All landowners will be encouraged to work to create a defensible space around their own homes, but financial assistance should be provided to assist those landowners that do not have the funds or ability to do it all on their own. Defensible space is the first priority of the plan. Then, the general area or protecting bigger chunks of land by creating sensible shaded fuel breaks would come next. While the shaded fuel breaks maybe the first line of defense and should be pursued for implementation, the scale of this work will not return the immediate benefits that come from creating defensible space (or “FireWise” practices) around individual homes. Creating defensible space and maintaining it to protect structures will provide a type of “back-up” if in the future fire escapes the shaded fuel breaks. The most important thing about the shaded fuel breaks is that they follow the topography of the land and do not stop and start due to public/private ownership. The location should be based on terrain, fuel conditions, etc. and the treatments should take place where needed regardless of ownership.

## **7. PLAN MAINTENANCE**

The landowner committee will assist with investigating and prioritizing on-the-ground wildfire prevention and protection projects in the Manson area. In general, projects will be prioritized based upon their location in the planning area. The focus will be on projects in neighborhoods contained within the planning area and work outward toward adjacent public lands.

The landowner committee will be responsible for monitoring existing projects and proposing and prioritizing future projects aimed at wildfire prevention and protection in the Manson area. Members of this subcommittee will take on the task of coordinating with outside groups and agencies to investigate, write, and submit future grants. This group is also responsible for partnering with appropriate agencies to review and update this CWPP at least once a year under the direction and assistance of the Chelan County Fire District #5 and the Chelan County Conservation District.

## **8. MITIGATION ACTION PLAN**

There are three main categories of mitigation actions identified by members of the Manson CWPP committee. These categories include fuels reduction, education and outreach, and improving protection capabilities in the WUI area. Natural vegetation and habitat restoration

activities are incorporated into fuels reduction projects. Recommendations are organized into categories and listed in order of priority.

- **Fuels Reduction**

1. Implement “FireWise” recommendations within 200 feet of all private homes and essential infrastructure. Actions include the establishment of defensible space, adequate turn-around space for emergency equipment, and clear consistent address signs.
2. Create 200 foot wide shaded canopy fuel breaks on private land adjacent to Grade Creek Road. The objective of the proposed project is to help reduce the potential of a wildfire moving from public to private lands and vice versa. Particular attention will be placed on public lands adjacent to the northern side of the planning area.
3. Develop and maintain a safe area, shelters, and staging location in the Santana Ranch Road area.
4. Solicit the Forest Service to continue current fuels reduction activities and encourage similar activities on other Forest Service lands adjacent to private ownership within the CWPP area as risk assessment and prioritization process continues.
5. Develop and maintain additional safe areas, shelters, and staging locations as identified.
6. Encourage adjacent landowners and agencies to perform complementary treatments on their land by being more involved in the public planning process and inviting neighboring private landowners to participate in “FireWise” workshops.

- **Education and Outreach**

1. Conduct risk assessments of individual structures and essential infrastructure, identify recommendations for implementation and provide information to landowners.
2. Compile essential “FireWise” information and distribute it to landowners in and adjacent to the Manson area. Information presented should cover landowner responsibilities and residential security options (i.e. creating defensible spaces and fire breaks, “FireWise” construction materials, etc.), and individual preparedness (i.e. how to create a Personal Emergency Action Plan, what to do and what not to do in the case of a wildfire, etc).

- **Improving Protection Capabilities**

1. Address County Road issues at Willow Point. County regulations need to be enforced to allow for access into and out of the Willow Point area.

2. Purchase portable pump for use on new Chelan County Sheriffs boat. Specifically, the pump would be available for fire fighting at lake front homes.
3. Upgrade Chelan County Fire District #5 radio system.
4. Upgrade the water supply at Willow Point in coordination with the Lake Chelan Reclamation District to allow for a fully functioning fire hydrant.
5. Develop a resident/volunteer quarter Fire Station to reduce emergency response time.
6. Develop a seasonal hydrant for the irrigation system on Grade Creek Rd. The irrigation system in place provides a good pressurized water source. A rock slide a few years ago removed the “air can” fire port originally developed for the system.