Lake Cushman Community Wildfire Protection Plan

May 2006

Prepared by
Lake Cushman community members
with assistance from the
Washington State Department of Natural Resources,
Olympic National Park Service,
Mason County Fire District 18, and
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1.0 Motivation

The communities that makes up the Lake Cushman area have great spirit, resolve and willingness to take responsibility for the community's wildfire potential. This community is willing to take a proactive role in preventing fires.

1.1 Recent Fire History

Powerline fire – October 2005. This fire burned about a ¼ acre of brush and small conifer trees in the Tacoma Power transmission lines right of way. The cause was a broken power transmission line. Because of the time of day, local fire protection resources had to request mutual aid from the other Mason County fire protection districts.

Price Lake fire – October 2004. This fire burned about 4 acres of fresh logging slash and downed timber on Washington Department of Natural Resource Trust land. The cause was faulty wiring on logging equipment operating in the area.

Carrol Point – June 2005. This fire burned about ½ acre of brush and timberland along Highway 10l. The cause was a tree falling upon the overhead power lines.

1.2 Past Fire History

Information provided by Tony Cravens, USFS.

Olympic Peninsula Fire History:

The occurrence of wildfires on the Olympic peninsula is closely tied to climate. It appears that the pattern of fires has been as variable as the pattern of past climates. Some periods have had stand destroying fires, others have had almost none. Still other periods may have had a pattern of high fire frequency but low fire intensity. Because of this variability and the many factors involved, one aspect of the fire history of the Olympics seems certain: **one cannot characterize the fire patterns of one period by knowing what it is in another.**

Our earliest evidence of fire in the Olympics comes from a bog in the Hoh river drainage. In a core from this bog, Heusser (1974) noted two layers of charcoal at 3.1 and 3.4 m depth, just below a layer of 6800 year old Mazama ash. These layers are remnants of two fires which appeared to have burned in the lower Hoh River drainage between 7200 and 8700 years ago. They appear to have been large fires since they left behind enough charcoal to still be recognized today. These fires occurred in the early Hypsithermal period when the climate was drier, probably warmer, and less maritime than today. The vegetation of the Olympics at that time was dominated by Douglas-fir, Western Hemlock, Spruce, Alder and Lodgepole Pine (Heusser 1974). The species composition resembles that of northern Idaho today, suggesting that the climate of the Hypsithermal may have been similar to that of the northern Rocky Mountains. The abundance of Douglas-fir also suggests a forest in which fires were common. The vegetation of the Puget Trough was characterized by Douglas-fir, Alder and Oak (Barnosky et al. 1987), suggesting a climate similar to the present day Willamette Valley.

Our knowledge of the fire history increases greatly about 1000 years ago. Prior to that time we can only speculate about fires, based on evidence such as charcoal preserved in bogs and our knowledge of different tree species. For the period of the past 100 years we can study lining trees (Douglas-fir and Western Red Cedar both live to over 1000 years) and refer to historical records to construct a much more detailed picture of the fire history.

Three great burning periods occurred from 1300 to 1750 during the Little Ice Age. The first occurred at the end of the Medieval Optimum and the beginning of the Little Ice Age. This was a very large fire or series of fires which swept Western Washington and burned at least half of the Olympic Peninsula. It occurred in about the year 1308. Douglas-fir trees from this period are mostly 640 to 680 years old. They occur sporadically throughout much of the silver fir zone, especially on cool or moist sites.

The second great burning episode occurred between the years 1448 and 1538, or 450 to 40 years ago. Several fires burned during this time, the biggest one about the year 1508 or about 480 years ago. Remnants of this series of fires occur at mid-elevations or stream bottoms in the Silver Fir or Western Hemlock Zones. Many of the areas that burned during this time are believed to have also burned earlier in about 1308. Also, it is believed that the area covered by these fires was much more extensive than indicated by the present distribution of trees or stands 450 to 540 years old; for much of the area burned during that time also burned during the episode from 280 to 320 years ago. These later fires, therefore

destroyed many of the trees which originated from fires 450 to 540 years ago. This age class is also common in the Cascades of Washington and Oregon.

The last of the three great burning episodes during the Little Ice Age occurred between 287 and 320 years ago. During that time there were two fairly well documented fires or burning episodes, one in about 1668 and the other about 1701. Since the fire about 1701 (287 years ago) was the last of the big fires, we have the best records of its distribution. This fire or series of fires apparently burned more than one million acres on the Olympic Peninsula, and 3 to 10 million acres in Western Washington, Much of the valuable Douglas-fir old-growth, that has formed the basis for the local timber industry, is the result of this great fire.

At the end of the Little Ice Age, there was a period from 1720 to 1850 when there were virtually no large fires on the Olympic Peninsula. The climate was still cool during this time, but it had apparently become wetter. Known fires were small (only a few thousand acres) and were restricted to southerly aspects in drier environmental zones. One such fire in the South Fork of the Skokomish River occurred about 1833 and covered about 3000 acres.

Beginning in the late 19th century until about 1934 there was a period of high fire frequency in the Olympics. However, the fires were all small compared to fires that burned during the Little Ice Age. These fires were caused by both lightning and humans. They were almost restricted to the Western Hemlock and Sub-alpine Fir zones, and burned on southerly aspects unless there was a high east wind.

The following is a recapitulation of some of the bigger and more significant fires during this period. This information is excerpted from Morris (1934) and Miller (1943).

Fire History Summary

1849 – Great fires burned in the coast range of Oregon, but apparently none occurred in the Olympics.

1864 to 1868 – Many large fires burned in Oregon and Washington in 1864, 1867 and 1868. The Ludlow-Quilcene fire started in slash near Port Ludlow in September 1864 and burned several thousand acres under a high east wind. The fire burned on Mt Walker, Mt. Turner, and the Quilcene Ridge. Most of the area burned in one or two days. Other fires occurred in the area, including Vancouver Island. In 1868, again many fires occurred in Western Washington and Oregon. Much of the area was covered by smoke for extended periods. Apparently little of the Olympic national forest burned in this year, but fires were all around. There was at least one large fire between Olympia and Seabeck (August 13) and others in the San Juans, near Montesano, Snoqualmie, and on Vancouver Island. These fires burned into September, flaring up under east wind conditions. The drought was so severe that summer that heavy thunder showers on September 2 apparently did little to quell the fires. Records taken at the mouth of the Columbia River showed that this was the driest June, July, August and September for the 58-year record up to that time. This appears to have been the worst fire season since the early 1700's. Most of these fires started from land clearing or careless tending of cooking fires.

1885 – The Neilton Burn near Lake Quinault started from right-of-way clearing on "the old Quinault Trail". It burned about 2000 acres.

1890 & 1891 – Several fires apparently burned in the Soleduck valley in the early 1890's. One in Kugel creek burned about 2000 acres. Others occurred in the Bear Creek, Pysht River and Twin Creeks area. In 1890 land clearing fires burned out of control in the foothills near Sequim. Rainfall that next winter was light and at least one of these fires survived the winter by smoldering in rotten logs or stumps. It flared up the next spring and burned toward the south, eventually covering about 30,000 acres on the Quilcene district, mostly in the Dungeness drainage.

1902 – This was another fire year like 1868. Many fires burned throughout Western Washington and Oregon. Much property and at least 16 lives were lost. The biggest of the fires during this summer was the famous Yacoult Burn in the Lewis River. It burned about 250,000 acres. The biggest fire on the Olympic peninsula, the Elma-Humptulips fire, burned near Elma to the Humptulips River mostly on September 11. Both the Yalcolt and the Elma-Humptulips fires burned under high east wind conditions. A small fire appears to have burned near the Tubal Cain Mine. There were perhaps hundreds of fires burning in

Western Washington and in Western Oregon in September 1902. It was perhaps the worst fire year of the last 275 years, being more severe, even, than the fire season of 1868.

1907 – The Great Soleduck Fire burned about 12,800 acres in the Soleduck Valley between Lake Crescent and Bear Creek along the south side of Snider Ridge in the summer of 1907. It started in April when a settler named Cap Muller was burning ferns in a field (a common practice at the time). The fire was not put out, as was also common, and it spread to nearby forest. By July it was burning out of control and threatening other settlers in the Lake Crescent-Soleduck Valley area. Most of the area burned during one afternoon when a strong east wind came up (Morgenroth 1935). Another fire in the same area burned about 3000 acres in 1908.

1910 – Many fires burned in Western Washington and Oregon, but none of any consequence and apparently no fires occurred on the Olympic National Forest. The big fires in this summer occurred in Idaho and Montana.

1916 to 1920 – Many small to moderate fires burned on the forest during these years. Most were logging related fires, although some were caused by lightning. Most of these occurred in the rain shadow of the Olympics. The biggest of these fires were:

Duckabush fire – 4810 acres (1918)
Littleton Fire – 3200 acres (1920)
Slab Camp Fire – 3000 acres (1917)
Dosewallips Fire – 2665 acres (1918)
Canyon Hill Fire – 2170 acres (1918)
Mt. Zion Fire – 2000 acres (1916)

1922 – Duckabush Fire. Another 2000 acres burned in the Duckabush drainage in 1922.

1924 & 1925 – This was another dry period with many fires in the Olympics, mostly in the rain shadow area. The biggest of these fires were:

Green Mt Fire – 9615 acres (1925)
Twin Cree Fire – 9250 acres (1924)
Discovery Bay Fire – 5000 acres (1924)
Snow Creek Fire – 3825 acres (1925)
Snow Creek Fire – 3100 acres (1924)
Phoenix Camp Fire – 3080 acres (1924)
Penney Creek Fire – 1774 acres (1924)

1928 – The Hobi Fire burned 3507 acres near Quinault.

1929 – Many lightning fires were started this year. The forest recorded 85 lightning caused fires. The biggest was the Interrorem Fire which burned 8602 acres in the lower Duckabush and Fulton Creek drainages. Also, 1495 acres burned in the Hamma Hamma drainage.

1930 – This was another year with many lightning fires, 120 on the forest, but none larger than 1000 acres.

1932 – The Hamma Hamma fire started from logging and burned 2165 acres.

1933 – A few small fires burned on the Forest.

1939 – The Deep Creek Fire burned 13,000 acres of which 3460 acres were on the Olympic National Forest.

1942 – Two fires burned in the Bear Creek-Calawah River area and covered 5844 acres.

1951 – The Great Forks Fire, also called the Port Angeles-Western (PAW) Fire covered about 33,000 acres (18,500 acres on the Olympic National Forest). In August, a fire started along the Port Angeles-Western right-of-way. The fire was contained, but by September 19th it flared up again. By the morning of September 20th it was raging out of control, carried by a strong east wind. At 2:30PM everyone in the town of Forks was ordered to evacuate. The town was thought to be doomed. By evening the wind shifted, and an oncoming low pressure system helped stop the fire at the outskirts of town. Over 30 buildings were burned, including one mill, a motel and 28 houses (Smith 1976, Campbell 1979).

1952 – At least two fires burned in the Bear Creek-Deadman Creek area, and covered about 16,000 acres. This was the last big fire to occur on the Olympic National Forest.

Since 1952 the Olympic National Forest has averaged less than 300 acres of fire per year. The worst years were 1975 and 1984 when 1003 and 1016 acres burned. These were the result of escaped prescribed fires under east wind conditions. Although fire fighting techniques have certainly improved since the early years, the two main reasons for these decades of low fire occurrence are: 1) greatly improved fire prevention and detection, as most of the severe fires were man-caused and therefore preventable and 2) a change in the summer precipitation pattern. During the decades of the 1910's and 1920's, for example, summers were less than 2 inches of precipitation were common. During the period from 1952 to 1991, there were only two years with summer (June, July, and August) precipitation less than 2 inches. There is a marked difference between the summer precipitation pattern during the period when there were extensive fires on the Forest and the summer precipitation pattern during the more recent times when relatively few acres burned.

The pattern of past fires also correlate with plant associations and vegetation series. In the colder moister associations, fires appear to have been much less frequent than on drier or warmer types. An analysis of the reconstructed fire pattern showed that the Sitka Spruce, Silver Fir and Mountain Hemlock Zones had much less acres burned than the Western Hemlock, Sub-alpine Fir or Douglas-fir zones. During the last 340 years, only 30 percent of the area of the Silver fir or Mountain Hemlock zones had burned, while 128 percent of the Western Hemlock zone burned. The fire return period for the Sitka Spruce, mountain Hemlock and Silver fir zones for the last 800 years were 900, 844, and 629 years, respectively. These relationships reflect the environmental differences between different groups of associations even at the series level. Excluding managed activity areas suggest that the occurrence of wildfires in the future will vary by plant association or vegetation series.

1.3 Changing Landscape

An argument could be made that logging related fires in this area are a thing of the past due to improved practices, careful regulations and changing land use. An argument could also be made that because of the changing nature of land ownership in this area and the greater density of people living here, the risk of fires is actually greater. Many wildfires are human caused, suggesting that more fire prevention and education awareness programs are needed. Fire occurrence is affected by the risks present, dry weather and the resulting low fuel moisture conditions. This is a matter of concern, and should be considered in this Community Wildfire Protection plan.

The character of the homes in the Lake Cushman area of concern are as varied as the land ownership objectives; there are homes valued at over one million dollars as well as simple recreation sites.

1.4 Climate

A fire danger web page from http://www.wrh.noaa.gov/sew/fire/olm/eastwnds.htm provided the following information about fire danger in Western Washington.

"In Western Washington, strong east winds have long been associated with high fire danger. Historically, some of the largest, most destructive wildfires in Western Washington were caused by strong east winds that fanned slash burns (intentionally set fires associated with land-clearing operations) into uncontrolled wildfires. While there are numerous synoptic weather patterns that can produce strong offshore flow, the ones most critical (in terms of high fire danger) occur in late summer and early fall at the end of our normal, summertime, drying cycle. When surface high-pressure systems are situated to the north and northeast of Washington, moderate to strong northeast to southwest pressure gradients develop across

the state. When this condition exists, our normal, marine-type climate is interrupted by an invasion of a very dry and sometimes cool, continental air mass.

Strong east winds seldom occur in July or the first half of August in Western Washington. However, weak offshore flow during this period will block marine air from moving to the interior lowlands. The result is hot, dry weather over the interior lowlands, the Cascades, and the higher elevations of the Olympics, but coastal lowland areas remain rather cool with night and morning low clouds, partial afternoon clearing, and fairly high relative humidity.

In the late summer or early fall, surface high pressure systems moving southeast out of British Columbia can actually intensify as they reach the northern Rocky Mountains. In these cases, east to west pressure gradients actually increase across Western Washington over the period of several days. Warm surface temperatures resulting from adiabatic, downslope warming off the Cascades will cause the California thermal trough to expand north along the Oregon-Washington coastline. When pressure gradients across the Cascades reach 8 millibars or more, east winds of 40-60 mph can be expected in east, windprone drainages or through terrain gaps in the Cascades and the Olympics. Afternoon temperatures along the coast will soar to nearly 100 degree while relative humidity drop to between 10 and 20 percent.

Synoptic patterns, which result in high fire danger across Western Washington due to strong, offshore flow, can be broken into two main categories. The two synoptic patterns are 1) the Pacific High with post-frontal, east winds, and 2) the Northwest Canadian High with post-frontal, east winds. The main differences between the two categories are the source region of the surface high-pressure systems and the time of year each one occurs. The Pacific High pattern occurs most frequently in July while the Northwest Canadian high is most frequent from late August through mid-October. ”

Synoptic - relating to or displaying conditions (as of the atmosphere or weather), as they exist simultaneously over a broad area
Adiabatic - occurring without loss or gain of heat <*adiabatic* expansion of a body of air>

2.0 Area of Concern

The area defined by the Lake Cushman community is essentially one large, contiguous forest of more than 10,000 acres. The east side and west side are separated by Lake Cushman and North Fork of the Skokomish River. A wildfire on the east side of Lake Cushman could easily endanger the entire east side area and any of the over 1,000 homes or structures. The west side of lake Cushman is not within a designated fire protection district. Additionally, all structures on the west side have off-grid utilities, if any. The Lake Cushman east side and west side Wildland Urban Interface areas have independent fire dangers. A fire on the west side is not likely to spread across the lake to the east side and vise versa. However, a fire on the north end of the lake, in the Staircase area, may come unchecked down both sides of the lake. In all areas wildfire has the opportunity to be spread by ground or through the crowns of the trees, or both.

2.1 Lake Cushman Firewise Council

The origin of the Lake Cushman Firewise Council resulted when several concerned residents of the Lake Cushman neighborhoods were inspired by Firewise presentations. These neighborhoods have joined together with local, state and federal advisors to create this Community Wildfire Protection Plan. Community meetings involving a broad selection of representatives from the local fire department, Mason County Fire Marshal, Washington Department of Natural Resources, U.S. Forest Service, and property owners have been held with a focus on the feasibility of creating such a plan. (Appendix 1 provides information about collaborating organizations)

2.2 Neighborhood Descriptions

In the 10,000 acres that are within the Lake Cushman community boundaries, there are over 3000 different parcels and more than 1000 homes. The majority of these parcels are organized into twenty-four established neighborhoods. Each neighborhood has a slightly different flavor and history, but when it comes to wildfire risk the neighborhoods realize we are all in this together. What follows is a brief description of the neighborhoods.

2.2.1 Lake Cushman divisions 1-19 (see maps in section 2.4 for layouts and location)

Division 1: This division is bisected by State Highway 119 (SR119). A community water front park is included.

Division 2: 142 lots located at the north end of Lake Cushman. It is bounded on 1 side by Lake Cushman.

Division 3: 194 lots located at the north end of Lake Cushman. It is bounded on 1 side by Lake Cushman.

Division 4: 151 lots located at the north end of Lake Cushman. It is bounded on 1 side by Lake Cushman.

Division 5: 136 lots located on the east side of SR119. Lake Cushman Maintenance Company (LCMC) office is located in this division along SR119.

Division 6: 160 lots located on the west side of SR119. It is west of LCMC office.

Division 7: 172 lots located on the west side of SR119 adjacent to division 6. 5 holes of the golf course are in this division.

Division 8: 203 lots located on the west side of SR119. Tacoma Power transmission lines and SR119 border this Division. 4 holes of the golf course are in the center of this division.

Division 9: 124 lots located along a private road on the west side of SR119. It is in a lower area adjacent to Lake Kokanee. This division has only a single road access. There is a community park in this division.

Division 10: 201 lots on the bluff at the south end of Lake Kokanee. A transmission line right-of-way transects this division.

Division 11: 41 lots adjacent to Lake Cushman. The division is in a narrow band between SR119 and Lake Cushman.

Division 12: 175 lots south of Lake Kokanee. It is bounded on one side by a transmission line right-of-way.

Division 13: 10 lots adjacent to Lake Cushman road.

Division 14: 62 lots at the south end of Lake Cushman. There is a community park in this division.

Division 15: 9 lots along Lake Cushman road.

Division 16: 150 lots located south of Lake Kokanee. A transmission line right-of-way transects this division.

Division 17: 130 lots located south and adjacent to division 7. It is along the east shore of Lake Kokanee.

Division 18 (blocks 1,2 & 3): Blocks 1 & 2 => 136 lots, block 3 => 65 lots.

Division 19: 59 lots surrounding Lake Standstill. Mason County Fire District Station # 18-1 is in this division.

2.2.2 Lake Cushman Eastside

Lake Cushman East-side division consists of 6 blocks on Dow Mountain: Block 1 => 14 lots, block 2 => 42 lots, block 3 => 27 lots, block 4 =>13, block 5 =>9, block 6 => 72 lots. These are nominal 5-acre lots. No utilities service the area. These lots are in steep terrain (>30% slope).

2.2.3 Lake Cushman Westside

Lake Cushman west-side division consists of 3 blocks on the west bank of Lake Cushman. These lots are in steep terrain (>30% slope).
Block 1 =>42 lots, block 2 => 33 lots, block 3 => 23 lots.

2.2.4 Lake Cushman Resort & Campground

Lake Cushman resort has 12 cabins, 13 RV sites & 46 tent sites with day use area. Lake Cushman Campground has 82 campsites and accommodation for group camping.

2.2.5 Sunrise Resort

Dow Creek Resort is near and provides access to the 10-mile long Lake Cushman. The campground offers every kind of outdoor activity, from hunting and fishing to golf and water skiing.

2.2.6 Proposed developments

Parkerville (north end of Lake Cushman) may be developed into Mt Washington Estates.
650 acres between Hoodsport and Lake Cushman division 16 may be developed.

Table 1: Summary of Lake Cushman Community Neighborhoods

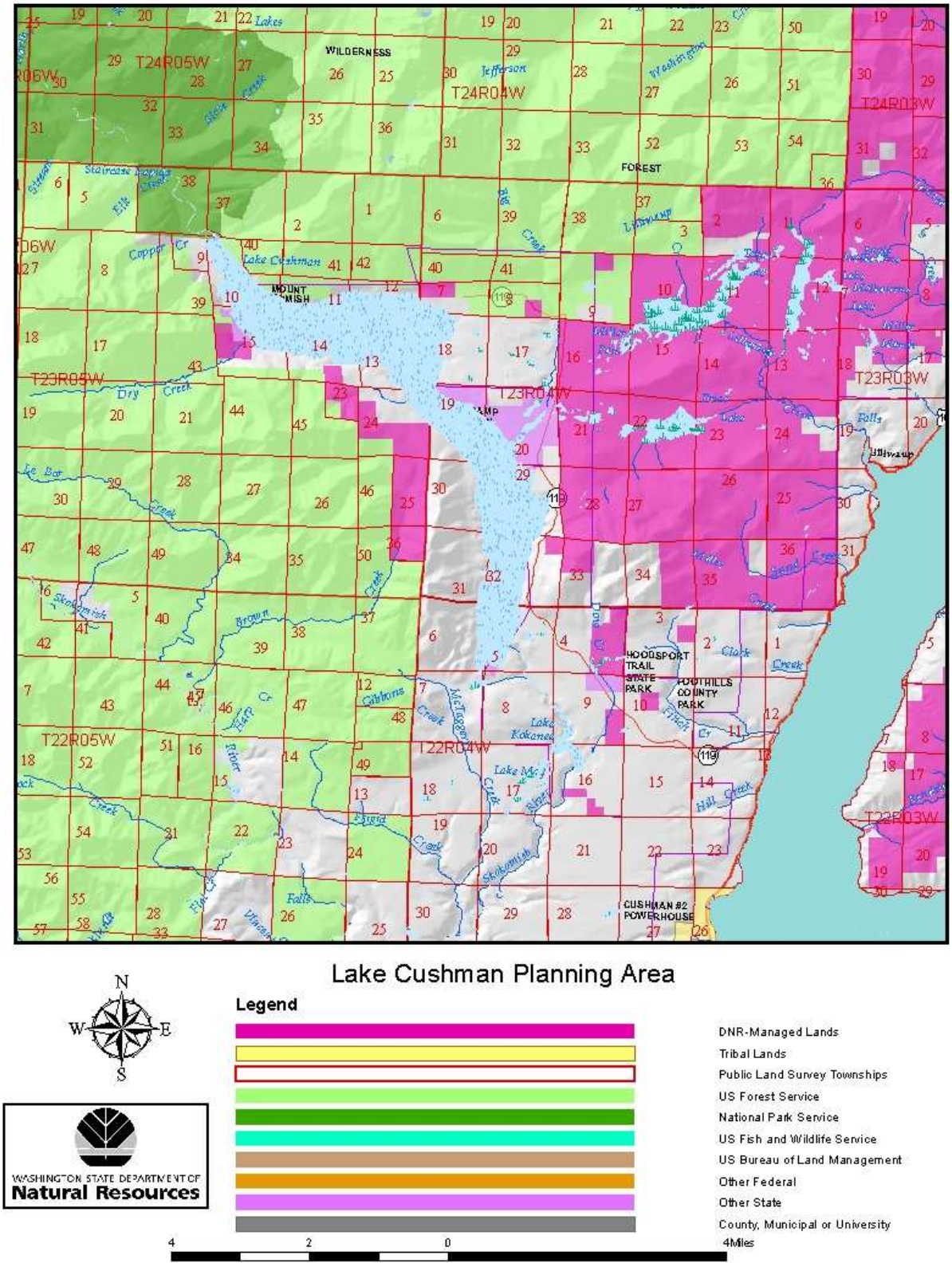
Neighborhood	Access	Hydrant availability	Water access
Division 1	Asphalt Roads		Public water
Division 2,3,4	Asphalt Roads		Public water
Division 5-8,11,14-19	Asphalt Roads	Yes	Public water
Division 9,10,12,16	Asphalt Roads		Public water
Lake Cushman Resort	Asphalt Roads		Private well
Sunrise Resort	Gravel Roads		Private well
Lake Cushman East Side	Gravel Roads	None	Private well
Lake Cushman West Side	Gravel Roads	None	Private well

2.3 Lake Cushman Community Defined Geographically

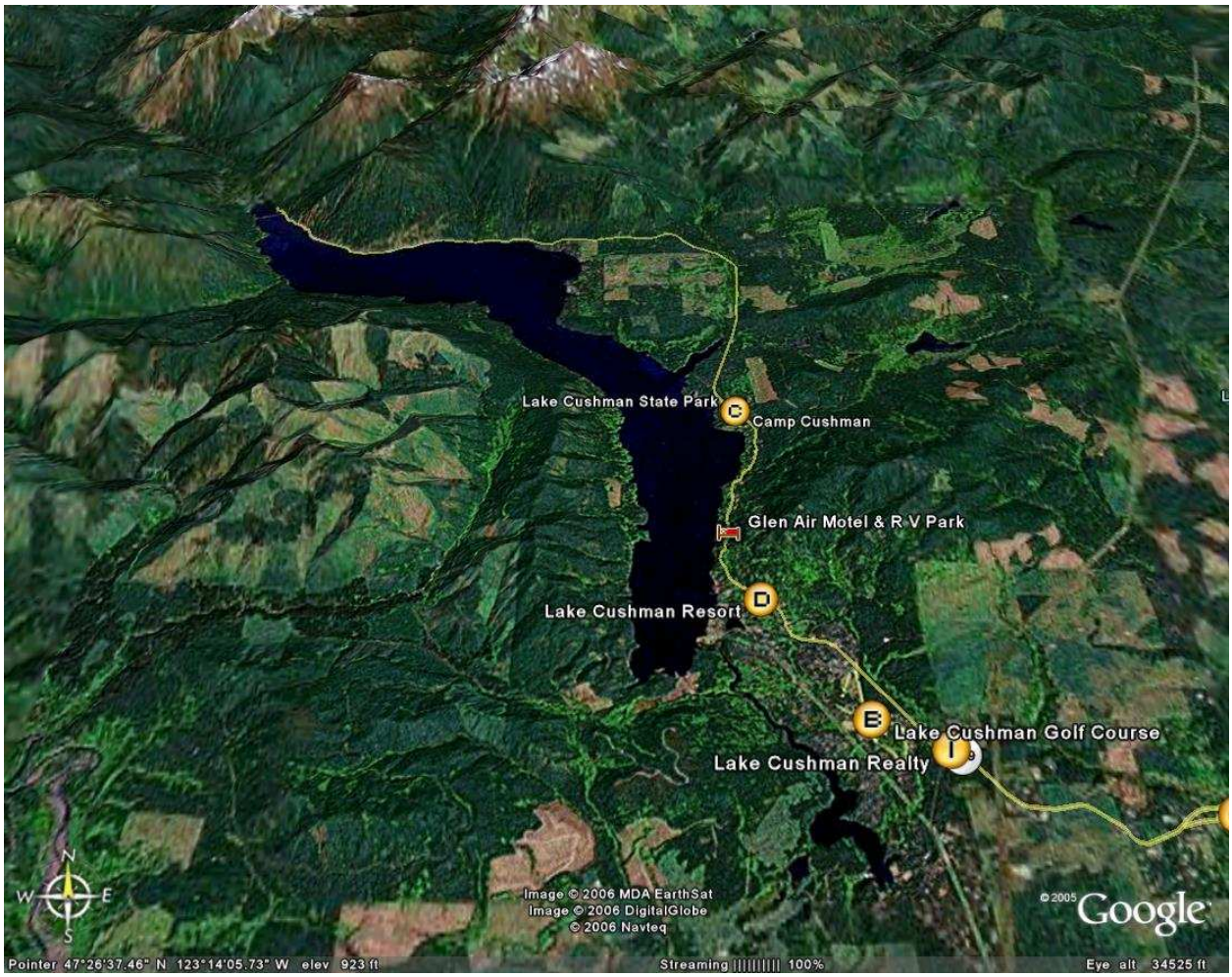
Using topographic maps and aerial photos, the group defined an area that would be most affected by wildfire. It was determined there are few natural features that would serve as fire break boundaries. The wildfire urban interface is defined as 2 miles from the outer edge of Lake Cushman developments. See Figure 1 – (next page) Lake Cushman Planning Area.

NOTE: GIS data is available from Mason County.

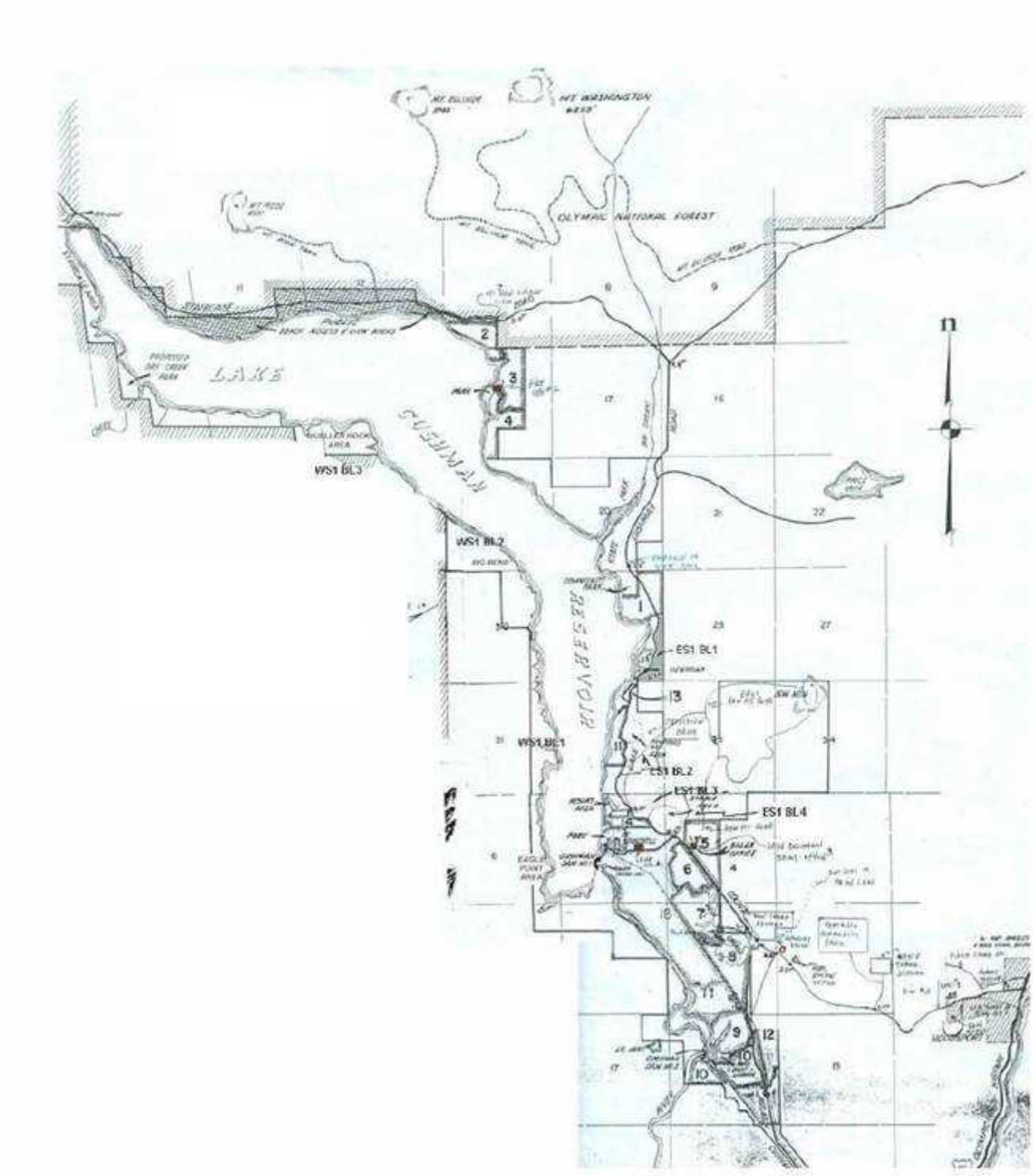
NOTE: Community members can identify features and provide waypoint data sets to the county for inclusion in their GIS database.



Map 1. Lake Cushman Planning Area. Note Wildland urban interface boundary is 2 miles from the outer edges of the Lake Cushman developments that surround the lake.



Map 2: “Google Earth©” of Lake Cushman planning area.



Map 3: Lake Cushman division locations. Map has no scale. Divisions are indicated by numbers 1-20. Eastside & Westside divisions are also indicated (ES1 & WS1).

3.0 Firewise Community Assessment

Charley Burns, Fuels Reduction Specialist for the Washington State Department of Natural Resources on August 3, 2005, performed a fire risk assessment. It showed that Lake Cushman is a "high risk" fire area. Appendix 6 shows the NFPA Form 299 – Wildfire Hazard Severity Form Checklist that was utilized for the assessment.

Table 2 shows the format that will be used to summarize the fire risk evaluation results.

Table 2. Firewise Neighborhood Assessment Results

Lake Cushman Communities	**Score**	**Notes**
Division 1	82	
Division 2	100	
Division 3	100	
Division 4	100	
Division 5	91	
Division 6	78	
Division 7	79	
Division 8	79	
Division 9	100	
Division 10	87	
Division 11	110	
Division 12	87	
Division 13	88	
Division 14	87	
Division 15	101	
Division 16	91	
Division 17	77	
Division 18.1 & 18.2	82	
Division 18.3	72	
Division 19	77	
Westside #2	117	
Eastside #1		Not evaluated

Other communities	**Score**	**Notes**
Lake Cushman Resort	107	
Camp Cushman	102	
Govey Road	123	
Sunrise Resort		Not evaluated

Score Risk Assessment

<39 Low Risk
40 – 69 Moderate Risk
70 – 112 High Risk
>113 Extreme Risks

4.0 Collaboration

The Lake Cushman community is collaborating with state, county, city and local fire districts. Table 3 provides general information about the collaborators. Appendix 1 provides additional information about this group.

Table 3: Lake Cushman Community list of Collaborators

Collaborator	**Type**
Fire District 18	Emergency Response
Mason County Fire Marshal	County Government
Washington State Department of Natural Resources	State Government
US Forest Service	Federal Government
Lake Cushman Maintenance Company	Private organization
Lake Cushman Resort	Private company
Sunrise Resort	Private company
Lake Cushman Firewise Council	Non-profit

5.0 Community Wildfire Planning Committees

Building on the spirit and enthusiasm to be proactive regarding fire prevention in the community, areas of Firewise focus were identified and relevant committees were formed. The purposes of the committees are threefold:

1. To provide an opportunity for neighborhood members to share their expertise or interest relative to fire prevention;
2. To provide input to the Lake Cushman Community Wildfire Protection Plan;
3. To provide public education opportunities for the Firewise program through neighborhood networking opportunities.

Three primary committees were formed with the task of drafting an achievable action plan relative to their committee area of focus. What follows are the action plans created by the following committees: Emergency Response/Evacuation Committee, Education and Public Relations Committee and Fuel Reduction Committee.

5.1 Emergency Response/Evacuation Plan

The Emergency Response Committee is working with the local fire department (Fire District 18) to determine what property owners should do during various emergencies. Once a plan is created, they will communicate this information to property owners.

1) Define neighborhood area boundaries:
   a) Identify property owners in each neighborhood area –
      i) Lake Cushman Maintenance Company (LCMC) maintains an updated list of property owners.
   b) Update GIS data set for property improvements –
      i) Structures, roads & trails.
      ii) Fire hydrants
2) Define Emergency Response Plan:
   a) Collect contact information for people in each neighborhood area.
   b) Identify Area Leaders / Block Captains for each area who will be responsible for contacting people in their area.
   c) Establish emergency response plan or, minimally, a phone tree plan for each area –
      i) Communicate area plan to appropriate property owners.
      ii) Develop back-up plan for communication if telephones are down.
      iii) Prepare people for evacuation in steps per statewide guidelines.
      iv) Define appropriate contacts for communication with professional emergency responders.
3) Define evacuation plan:
   a) Identify access roads in each neighborhood area –
      i) Specify type of road, width.
      ii) Identify potential hazards in specific disaster scenarios.
   b) Identify potential alternates for emergency ingress/egress or firebreaks –
      i) Existing trails, old roads or clearings.

ii) "Opportunity points" where minimal clearance with bulldozer or backhoe could create quick access.

c) Identify short-term "safe areas" to harbor people and animals in case evacuation is not possible.
   i) Identify minimal support systems (water, sanitation, and so on) for "safe areas" for a two-day minimum.

d) Define evacuation plan for each neighborhood area –
   i) Contacts with emergency agencies to communicate information and to establish evacuation guidelines.
   ii) Temporary rendezvous location outside of threatened area.
   iii) System to assure everyone is "checked out".
   iv) Logistics to evacuate people and animals.
   v) Logistics to notify "all clear" and to facilitate re-entry into homes.
   vi) Consider an evacuation drill, at least for one or two divisions: experiences to be conveyed to everyone to minimize problem areas in case of a real disaster.
   vii) Communicate outline of evacuation plan to all residents so everyone knows what to expect.

Emergency Access

Encourage property owners to attach a Knox box to any locked gate (a Knox box is a special box that is only accessible to firefighters and emergency personnel. Gate keys and combinations may be securely left in the box to allow access through gates for emergency personnel). See Appendix 2 for more information about obtaining a Knox box

5.2 Education and Public Relations Plan

Educate property owners about the various things they can do to reduce the risk of wildfires.

To reach the greatest possible number of people, a variety of educational methods will be used. This will include presentations by recognized authorities, written material targeted to the property owners, and resource information that will be readily available.

Presentations

The education committee is attempting to determine the appropriate number of meetings/presentations for the property owners without overloading the property owners or duplicating existing efforts. A lot of information is currently available from various county, state and Firewise sources. However, there is a need for site-specific information.

The Education committee is suggesting three presentations. These may consist of the following:

- Winter – Fuel reduction, thinning and pruning, and the related permit process
- Spring – Firewise defensible space
- Fall – Burning permits or related topic

Mailers

To provide homeowners with written material that could also serve as reference, the Education committee suggests the creation of a "welcome basket" consisting of information gleaned from county, state and federal sources (Firewise and other organizations). This package would be sent to all current homeowners and to new property owners as property ownership changes.

In addition, the education committee suggests that there are two annual mailings. For 2006 those mailings would consist of the following.

- Spring – Emergency Response, Fire Hazard
- Fall - burn permit information; may be annual mailer

Web site

To provide a reference resource, the Education Committee suggests the creation of a web site. The web content would echo much of the content that was in the presentations and the mailings, as well as links to

other important information. Currently the Lake Cushman Firewise Council can be reached at lakecushmanfirewisecouncil@att.net

A web site is established at http://home.att.net/~lakecushmanfirewisecouncil/ . Web space provided by a community member. The content is managed by the Lake Cushman Firewise Council. Examples of other firewise web sites are www.toltfirewise.org and www.skagitcd.org/firewise.htm

Public Relations

To try and reach as many people as possible, this committee would like to recommend some additional educational/public relations activities. These may consist of the following.

- Articles in neighborhood association newsletter and local newspapers
- Information booth at local events.

Additional activities/ideas:
Identify funding for marketing materials.
Create reminder give-aways, items to distribute to property owners with tips, hints and other Firewise-related information.
Create Firewise "arboretum", a sample of fire resistant landscaping plants at a local county park or entrance to one or more of the established neighborhoods.

5.3 Fuel Reduction Priorities and Recommendations Plan

One of the more troubling issues in the area is the abundant amount of fuel for a potential wildfire. The existing forest stands tend to be very dense and there is a lot of brush. The Fuel Reduction Committee has come up with suggestions to reduce the fuel.

1. Reduce fuels and improve visibility along main access roads

- Apply for grants similar to WUI (apply for in 2007).
- Organize community-clearing projects.
- Encourage property owners to clear, thin and chip along roads and drives

2. Expand fuel reduction program along secondary roads, drives, and other access points

In addition to improving access and visibility on the main roads, we want to identify additional sources of funding to expand on brush clearing along all of the roads in the area that need this treatment since the nature of the contiguous forested area dictates that all roads in the area be included in a fuel reduction program.

3. Increase number of homes and structures with appropriate defensible space

One of the best ways to minimize damage to homes is to reduce the fuel around the house and create a defensible space.

- Refer to education committee for Firewise and other information
- Identify sample homes around Lake Cushman

4. Expand defensible space concept by "feathering" tree and plant density

- Educate homeowners how to expand defensible space.
- Examples of good landscaping practices
- Washington DNR/State Farm Insurance video

5. Maintain existing natural and man-made fuel breaks (such as the power line right-of-way)

With a large expanse of interconnected properties, existing fuel breaks may be critical in controlling any future wildfires. These breaks, such as the power line right-of-way, also allow access to the interior of the properties. We want to encourage property owners to maintain these existing fuel breaks. To accomplish this we plan on the following.

- Contact PUD 1 & PUD 3 (power line right-of-way) and obtain their maintenance plans.
- Work with Fire District 18 or similar group to apply for grant to purchase chipper. Make chipper available to property owners on certain days.

6. Encourage good forest management practices to thin and prune trees

- Work in conjunction with the education committee
- Provide harvest/thinning permit information to property owners
- Locate list of consultants to assist property owners (see Appendix 5)
- Encourage property owners along main road to thin appropriately to serve as examples for all property owners
- Work with abutting property owners to create and maintain fuel breaks.

7. Thin and remove brush/fuel in greenbelts.

- Work in conjunction with the Lake Cushman Maintenance Company (LCMC).
- Encourage property owners to work with LCMC to cleanup greenbelts.

6.0 Conclusion

The area defined by the Lake Cushman Communities is composed of a group of enthusiastic and concerned neighbors representing diverse neighborhoods who collectively form a community. There exist real opportunities to do great work relative to wildfire education and prevention in this community. Organizing, coordinating and drafting the Lake Cushman Community Wildfire Protection Plan is a unified effort. The Lake Cushman community members are responsible for drafting this plan and look towards our government collaborators for support in our efforts to educate our neighbors, reduce hazardous fuels and conditions near or en route to our homes (or our neighbors' homes) and be responsible stewards of our dynamic ecosystem.

Appendix 1

Participating Organizations

The following is some brief information about the various groups and organizations supporting the efforts of the Lake Cushman Community:

Neighborhoods and Related Associations
Lake Cushman division 9 community watch
K-9'ers – DNR boat launch volunteers

Non-government/private Organizations
Lake Cushman Maintenance Company
Lake Cushman Resort
Sunrise Resort
Lake Cushman Booster Club

Government Organizations
Washington State Department of Natural Resources

The people of Washington own more than 5 million acres of land - forests, farms, commercial properties and underwater lands - all of which are managed to provide benefits to the people. The Department of Natural Resources' mission is: To provide professional, forward-looking stewardship of our state lands, natural resources and environment; and to provide leadership in creating a sustainable future for the Trusts and all citizens.

The DNR also protects other public resources- fish, wildlife, water, etc. Two of the largest and most important responsibilities in resource protection are fire prevention and suppression and regulating forest practices. www.wadnr.gov

The DNR manages approximately 4,000 acres of State Trust timberlands that border Lake Cushman communities area of concern.

U.S. Forest Service

The Olympic National Forest lands (including the Wonder Mountain and Mount Skokomish Wilderness areas) borders the Lake Cushman communities area of concern. The Forest Service is responsible for fire suppression on Forest Service managed lands, and the Forest Service takes an active interagency role in prevention and education relative to forest fires. www.fs.fed.us/r6/olympic

U.S. Park Service

The Olympic National Park with its glacier capped mountains and magnificent stands of old-growth trees borders the northern end of Lake Cushman. In conjunction with the DNR, U.S.F.S, and the Mason County Fire Protection District # 18, the Olympic National Park takes an active role in fire prevention and fire suppression, to protect park resources and the safety of their visitors, employees and neighbors. www.nps.gov/olym

Mason County Fire Marshal

The fire Marshal is responsible for the administration of the uniform fire code and other related codes and ordinances in unincorporated Mason County.

Mason County Fire District 18

Responsible for fire fire fighting response in the Lake Cushman area.

Appendix 2

Knox Box

If there is a fire or other emergency, it is critical that the fire department have rapid access to your property. If you have a locked gate to your property, this can delay the fire department's response. One way you can make it easy for emergency personnel to access your property (without damaging anything) is to install a Knox box on the gate.

Knox boxes are a secure system that allows fire and emergency personnel access to your locked gates. Fire and emergency medical personnel can only open these boxes. Mason County Sheriff does not have access. In fact, some of the boxes are set up in such a manner that once installed you do not even have access to the box.

The box itself can contain keys to locks, access codes, or even override switches to gates or other locked areas on your property.

The Knox box lock box system utilizes a single master key, with all lock boxes within Fire District 18 jurisdiction keyed to the same master key. The master key is secured with only authorized fire department personnel having access to the master key.

Having a Knox box on your locked gate will speed Fire District 18's response time and may help save your property in case of an emergency.

For more details or to purchase and install a Knox box, contact:

***A*ppendix 3**

Skokomish watershed

The North Fork of the Skokomish River is a river that starts by draining the southeast corner of the Olympic Mountains in Mason County, Washington. It flows southeasterly entering Hood Canal (a fjord of Puget Sound) at Hoodsport, Washington. Lake Cushman and Lake Kokanee are maintained by Cushman Dam No. 1 and Cushman Dam No. 2 respectively on the North fork of the Skokomish River.

Appendix 4

Harvesting Tress and/or Land Clearing

If landowners are contemplating harvesting timber, cutting trees or clearing land, it is likely that a Forest Practice permit would be required. Contact Mason County and/or the Washington State Department of Natural Resources regarding specific requirements.

The consequences of conducting an activity without the required permits range from a significant fine to a $10,000.00 civil penalty to the automatic imposition of a six year development moratorium. The moratorium can be in addition to fines and civil penalties. The affect of the moratorium is to preclude Mason County from accepting or approving any application related to conversion of forestland to non-forestry uses such as to a residence, a commercial development or a pasture.

Appendix 5

Fuel Reduction, Pre-commercial Thinning and Hand Slashing Contractors

Zane's Tree Service 360-432-9309
Custom cuts tree topping & logging 360-432-1760

Mt Washington Excavation 360-877-9460
B-line construction 360-426-4221

Appendix 6

Firewise Community Assessment Form

Wildfire Hazard Severity Form Checklist NFPA 299

This form may be used for individual houses or larger areas like developments or other types of applications

Name of area or address receiving assessment			
Census Data			
Track number			
Block group number			
Block number (s)			
A. Subdivision Design	**Points**	**House**	**Notes**
1. Ingress and egress			
Two or more roads in/out	0		
One road in/out	7		
2. Road width			
Greater than 24 feet	0		
Between 20 and 24 feet	2		
Less than 20 feet wide	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 (4 in. in size and reflectorized)	0		
Not present	5		
B. Vegetation (Fuel Models)			
1. Predominant vegetation			
Light (grasses, forbs)	5		
Medium (light brush and small trees)	10		
Heavy (dense brush, timber, and hardwoods)	20		
Slash (timber harvest residue)	25		
2. Defensible space			
More than 100 ft of treatment from buildings	1		
More than 71 -100 ft of treatment from buildings	3		
30-70 ft of treatment from buildings	10		
Less than 30 feet	25		
C. Topography			
1. Slope			
Less than 9%	1		
Between 10-20%	4		
Between 21-30%	7		
Between 31-40%	8		

Greater than 41%	10
D. Additional Rating Factors	
1. Topography that adversely affects wildland fire behavior	0 - 5
2. Area with 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 Materials	
1. Construction material	
Class A roof (metal, tile)	0
Class B roof (composite)	3
Class C roof (wood shingle)	15
Non-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 feet to slope	1
Less than 30 feet to slope	5
Not applicable	0
G. Available Fire Protection	
1. Water source availability (on site)	
500 gpm pressurized hydrants < 1000ft apart	0
250 gpm pressurized hydrants < 1000ft apart	1
More than 250 gpm non-pressurized, 2 hours	3
Less than 250 gpm non-pressurized, 2 hours	5
No hydrants available	10
2. Organized response resources	
Station within 5 miles of structure	1
Station greater than 5 miles	3
3. Fixed fire protection	
Sprinkler system (NFPA 13, 13R, 13D)	0
None	5
H. Utilities (Gas and Electric	
1. Placement	
All underground utilities	0
One underground, one aboveground	3
All aboveground	5
I. Totals for Risk Assessments	
Totals	

1. Low Hazard: < 39 points
2. Moderate Hazard: 40-69 points
3. High Hazard: 70-112 points
4. Extreme Hazard: 113 > points