



Oregon

Kate Brown, Governor

Department of Forestry

North Cascade District

Santiam Unit

2600 State Street

Salem, OR 97310-1336

503-945-7200

FAX 503-945-7212

To: Andy White, Northwest Oregon Area Director

From: Kyle Kaupp, North Cascade Santiam Unit Manager

CC: Liz Dent, State Forest Division Chief
Ron Zilli, State Forest Planning Division Deputy Chief
Colleen, State Forest Planning Manager

Date: October 5th, 2021



"STEWARDSHIP IN FORESTRY"

Re: Information Item—North Cascade District Approved Annual Operations Plan for 2022

The 2022 State Forest Annual Operations Plan (AOP) for the North Cascade District is attached for your information. During my review of this plan, I have found that it conforms to the Oregon Forest Practices Act and is consistent with the Northwest Oregon State Forests Management Plan, and the North Cascade District Implementation Plan Major Revision 2021.

During its preparation, this plan was reviewed by technical specialists from within the department, biologists from the Oregon Department of Fish and Wildlife and archeologists from the Oregon Department of Transportation. The draft AOP also underwent a 30-day public comment period.

As prepared, this plan consists of 6.5 MMBF of harvest volume. This volume will be achieved through the thinning of 173 acres and the regeneration harvest of 226 acres. There are four primary operations and one alternate operation within this plan. The FY 2022 operations are estimated to generate gross revenues of \$2,709,700 with a net value of \$2,303,945. The volume is slightly below the IP target of 8 MMBF for FY22. Another post-fire harvest operation with a volume of 1.5 MMBF will be released for public review and comment later in the fall that will bring the total volume of the FY22 AOP up to 8 MMBF. This additional harvest is not being put forward for now as we are still working through the planning and review with resource specialists, partner agencies and external stakeholders.

Reforestation and young stand management activities and investments are aligned with FMP objectives and budget considerations. Recreation facilities and trails are managed and maintained for safety, positive experiences and protecting other resources like water quality and are consistent with the FY 2022 budget.

Approval of this plan does not constitute final approval of individual project details. Individual operations are subject to additional review processes at the district and program

staff level before implementation. The planned amount and location of all management activities are based on the latest site-specific assessments and estimates of operational, T & E surveys and market variables. Management activity levels may be adjusted and modified to account for any significant changes to these variables. The alternate operation may be used to replace primary sales that cannot be completed as planned. Actual revenue realized from this AOP could change due to market fluctuations. Harvest operations and the associated project work provide an accurate picture of what will be designed and prepared for contract in FY 2022. Due to the time lag with contract duration, most of the actual harvest operations with associated revenues will not occur for a period of one to two years beyond the end of the fiscal year. Forest management activities such as reforestation and recreation projects will occur in FY 2022.

The official copy of this AOP will be on file at the district office. Additional copies are available at the State Forests Program office in Salem, and are also available on the ODF web site at:

<http://www.oregon.gov/ODF/Pages/Reports.aspx>

APPROVED BY:



Steve Wilson, North Cascade District Forester

10/5/21

Date

Draft
North Cascade District
FY 2022 ANNUAL
OPERATIONS PLAN



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NORTH CASCADE DISTRICT

FY 2022 ANNUAL OPERATIONS PLAN

Introduction

This annual operation plan (AOP) outlines activities on state-owned forestland managed by the North Cascade District for Fiscal Year 2022 (FY22), which begins July 1, 2021, and ends June 30, 2022. It outlines operational steps toward rehabilitating a healthy, productive forest after wildfires burned about 16,600 acres on the forest in September 2020. By law, ODF must manage state forests for economic, environmental, and social benefits. This plan outlines a balanced approach to meeting this mandate as well as the goals, strategies, and objectives of the *NW Oregon Forest Management Plan (FMP)* and the *North Cascade District 2021 Implementation Plan (IP)*.

Oregon's devastating 2020 wildfire season burned more than 1.2 million acres of private, state, federal and tribal forestland, with catastrophic effects on numerous communities. Three of these fires, the Beachie Creek, Lionshead and Riverside Fires caused widespread damage across the Santiam State Forest. The fire perimeters encompassed approximately 24,000 acres of the Santiam State Forest, and burned to varying degrees, approximately 16,600 acres. The fire burned in a patchy, mosaic pattern, severely impacting some areas while other locations in the fire perimeter saw little or no impacts.

This plan outlines activities such as reforestation, safety hazard mitigation, wildlife habitat protections, timber harvest, road repair, and assessment and repair of recreational amenities. Reforestation activities include active replanting, and natural regeneration with no human intervention. Under this plan, riparian protections will meet or exceed the standards outlined in the FMP. Proposed activities are designed with the intent to provide a variety of habitat for Oregon's native wildlife, including species of concern.

Rehabilitation efforts will require significant financial resources. Timber sales are the primary source of revenue to fund recovery and restoration of the Santiam State Forest, including the environmental protections, ecosystem services, and recreational opportunities Oregonians expect from state forests. Approximately two-thirds of revenues from timber sales are provided to counties and local service providers where harvests take place, benefiting rural communities that saw unprecedented devastation in the 2020 fires.

Proposed post-fire logging is generally focused on the most severely impacted areas that would benefit from active rehabilitation efforts and generate revenue consistent with securing the Greatest Permanent Value (GPV) from state forests. Live green trees will be left in post-fire harvest units whenever operationally possible, and sale plans have been repeatedly refined to ensure post-fire sales occur in the most severely impacted locations where active reforestation best meets GPV objectives.

Fire damaged timber starts to deteriorate quickly with warm weather and its marketability declines over time. As a result, most of the post-fire harvesting was conducted in the FY21 AOP. There are still a few areas where the district is planning post-fire harvests and there are also two sales proposed that are outside of the fire perimeter. The activities summarized in this FY22 AOP are timber harvest, young stand management, road management, post-fire monitoring and recreational assessments and activities.

The AOP document is divided into five major categories: Integrated Forest Management; Planning and Information Systems; Public Information and Education; Administration and Appendices.

A 30-day public comment period on these activities was held from August 9 - September 8, 2021. The District Forester reviewed and considered all comments before approving this plan. Changes made to the AOP since the public comment period are discussed in Appendix D. Unfortunately, most of the Santiam State Forest remains closed to the public due to resource protection and safety concerns caused by the devastating fires. As part of our commitment to transparency, we invite you to take a look at our public WebApp map ([Santiam Restoration Public Viewer](#)) – that includes information on the fire effects (including post-fire imagery), and information and maps of planned harvest activities.

Accomplishments of forest management activities that occurred under previous AOPs can be found in several reports, including the *State Forester's Annual Report for the Association of Oregon Counties* and the *Common School Forest Lands Annual Report*. These reports are available through the local district office or online¹.

¹ The State Forests' individual district annual reports are available on the Oregon Dept. of Forestry website under "Reports." You can access here: <http://www.oregon.gov/ODF/Pages/Reports.aspx>

INTEGRATED FOREST MANAGEMENT OPERATIONS

Timber Harvest Operations

Overview of Timber Harvest Operations

All of the primary post-fire harvest operations have been reviewed by ODF’s wildlife biologists, aquatic specialist, geotechnical engineer, road engineer, and planning manager, as well as fish and wildlife biologists from the Oregon Department of Fish and Wildlife, and have been screened for the presence of historic and cultural resources.

The initial estimate of harvest volume to be prepared and sold in FY22 is 8 MMBF. The harvest operations described within this plan provide 6.5 MMBF in harvest volume. Another post-fire harvest operation will be released for public review and comment later in the fall that will bring the total up to 8 MMBF. This additional harvest is not being put forward for now as we are still working through the planning and review with resource specialists, partner agencies and external stakeholders.

Additional operations may produce timber volume for the district during FY22 but are not included in this AOP. These are generally small areas, produce little volume, and/or are time sensitive in nature. These sales do not require significant effort to develop and execute and will comply with all policies, the district IP, and the FMP.

Refer to the attached North Cascade District Financial Summary Table (Appendix A, Table A-1) and vicinity map (Appendix B) for more detail on expected outputs from planned timber sales.

Table 1. Annual Operations Plan objectives compared to annual objectives identified in the North Cascade District 2021 Implementation Plan. Harvest values for partial cut and regeneration are acres, Volume is in MMBF.

Harvest Objectives	FY22 IP Harvest Ranges		2022 AOP
	Low	High	
Volume (MMBF)	8	25	6.5
Partial Cut Harvest (Acres)	0	1,500	173
Regeneration Harvest (Acres)	0	1,500	226

Areas labeled as salvage-partial cut within this plan refer to areas that have a larger number of green trees present in the stand with at least 80 square feet of basal area. All the green trees in these partial cuts will remain where operationally feasible. The green trees will not be thinned, however, when the burned trees have been removed, these stands will resemble partial harvests with wider spacing between residual green trees, potential small gap openings and may have areas of no harvest.

In addition, areas labeled as partial cut – roadside hazard mitigation will occur in this plan. Roadside hazard mitigation will remove trees that pose a post-fire safety risk. Only hazard trees or snags that are within 1 ½ tree lengths on either side of road will be removed. Hazard trees

or snags are defined as a tree or snag that has been damaged and can strike a target (people, infrastructure, or property) based on individual tree condition. Hazard trees or snags that are felled along roadways that are also within a stream buffer shall be felled towards the stream if possible and not removed. Trees will be evaluated on a case-by-case basis and the majority of trees in the roadside hazard mitigation areas may not meet the hazard tree/snag criteria. Portions of the areas identified for hazard tree assessment and removal may have no trees or snags removed.

Overview of Structural Components

Post-Fire Harvests: Retained legacy structure, quality and configuration will vary from unit-to-unit based on the site characteristics. Within post-fire regeneration harvest units, live green trees and any remnant old growth trees within the timber sale perimeters will be retained where operationally possible and safe to do so. The number of green trees and their arrangement on the landscape is dependent on the burn severity and will be unique to each harvest unit. If 5 or more live green trees per acre are not available within the harvest unit, snags will be substituted at an average rate of 2.5 snags per acre at a minimum to achieve overall results for wildlife, habitat, and forest diversity goals. Preference will be given to snags with larger diameters, dominant trees and/or trees with old growth characteristics such as furrowed bark, crooks, missing tops, or multiple tops for retention. Down woody debris will also be retained during post-fire harvest to contribute towards landscape level goals.

Harvests Outside Fire Perimeters: The guidelines for managing structural habitat components listed under Landscape Management Strategy 3 in the FMP (pg. 4-52), will be followed. The green tree retention target for regeneration harvest units is an average of five trees per acre in the FMP. Green tree arrangements for this AOP may include; scattered individual trees, clumps of trees, and trees concentrated in and adjacent to riparian management areas, inner gorge areas or headwalls. The final decision on the location and arrangement of the green trees is made while the sale is being laid out to incorporate information on potential minor tree species, unique stand features, steep slopes, visual considerations, reforestation considerations, etc.

The FMP strategy for hard snags is to manage for at least two per acre on average across the landscape. The strategy for Down Woody Debris is to retain an average of 600 to 900 cubic feet of hard conifer logs (class 1 & 2) per acre during regeneration harvest. Strategies for retaining snags and down wood are determined using a current condition assessment from forest inventory data or timber cruising data. The need for snag creation in each unit is evaluated based on cruise or inventory information that documents snags in decay class 1 and 2 in the sale and surrounding landscape. Areas with less than 2 hard snags per acre will be evaluated and an appropriate snag prescription will be developed as needed. Down Wood will continue to be created through bucking practices, leaving felled snags in the unit and tops on ground yarding areas.

Harvest Operations within Terrestrial Anchor Sites and Aquatic Anchors

Supplemental Species of Concern Strategies provide for fish and wildlife species of concern. Two of these strategies are Terrestrial Anchor Sites (TAS) and Aquatic Anchor (AA) sites.

- Terrestrial Anchor Sites (TAS) areas are intended to benefit terrestrial wildlife species of concern, especially those associated with older forest or interior habitat conditions, sensitive to forest fragmentation, or do not readily disperse across younger forest conditions. Management within TAS is intended to be limited, to emulate natural

small-scale disturbance patterns, and to minimize short-term negative impacts to habitat. All areas that were designated as TAS were designated for the development of complex structure in the Landscape Design.

- Aquatic Anchor (AA) sites are watersheds where salmon and aquatic amphibian conservation is of concern. Riparian management strategies beyond those described in the FMP will be applied within AAs. In addition, areas designated for the development of complex structure in the Landscape Design are clustered around streams important to fish in the AA.

The Species of Concern Strategies provide long term goals for TAS and AA. The management activities within those areas are designed to achieve those goals. These strategies have not identified specific limits to the total area that can be harvested within these areas; however, the district and resource specialist will be tracking the harvest trends within these areas to ensure the harvest prescriptions and rate is consistent with the goals of these strategies.

Terrestrial Anchor Sites (TAS)

Since the adoption of the TAS in the July 2011, the district has been proceeding with operations in these areas. Great care has been given in selecting stands for harvest and developing prescriptions in these areas to ensure that these harvest activities achieve the goals of the TAS. These sales were reviewed with ODF and ODFW Resource Specialists. The entire Rhody Lake TAS was within the 2020 fire perimeters. Approximately 83% of the TAS was burned with the majority in a moderate or high burn severity. There are no planned regeneration harvests within the TAS as shown in Table 3. Table 3 also shows the cumulative operations in TAS since the strategy was adopted (AOPs 2012 through 2022).

Table 3. Summary of Harvest Operations within TAS (Acres and Percent)

Acres within TAS	Current AOP (FY 2022)		Cumulative Harvest (Since FY 2012)	
	Modified Clearcut	Partial Cut	Modified Clearcut	Partial Cut
Rhody Lake TAS (1,376 ac)	0	0	0	269
% of Acres	0%	0%	0%	19.5%

Aquatic Anchors (AAs)

The AAs became effective July 1, 2011. Increased water protection measures will be implemented on regeneration harvest operations planned within the AA's as specified in the Species of Concern strategy. All of the Sardine Creek AA was within the 2020 fire perimeters with 86% of the AA burned, the majority in moderate to high severity. Only 19 acres of the Rock Creek AA were within the 2020 fire perimeters with the majority being a low burn severity. Table 4 shows the current harvest and the cumulative total from FY 2012. Rehabilitation work began in portions of the Sardine Creek AA with an aerial seeding project in the spring of 2021.

Table 4. Summary of Harvest Operations within AA (acres and percent)

Acreages	Current AOP (FY 2022)		Cumulative Harvest (since FY 2012)	
	Modified Clearcut	Partial Cut	Modified Clearcut	Partial Cut
Rock Creek (12,263 ac)	0	66	271	1,257
% of Acres	0%	0%	2.2%	9.7%
Sardine Creek (3,514 ac)	0	0	0	0
% of Acres	0%	0%	%	0%
All Aquatic Anchors (15,777 ac)	0	66	271	1,257
% of Acres	0%	0%	1.7%	7.5%

Summary of Timber Harvest Operations by Basin

In the following section, the harvest operations planned for FY22 will be summarized in the context of the seven management basins on the North Cascade District. Road strategies and standards are discussed in the Forest Roads Management section. Additional information regarding the harvest operations may be found within Table A-2, the Forest Resources Summary in Appendix A.

Table 5. Summary of Timber Harvest Operations in each basin. All values are in net acres.

Basin	2022 AOP	
	Partial Cut	Modified Clearcut
Butte Creek	0	0
Cedar Creek	0	54
Crabtree	0	0
Green	0	0
Mad Creek	0	67
Rock Creek	66	0
Scattered	107	105
Totals	173	226

Post-fire imagery is available for all post-fire harvest operations in the map section of the individual Pre-Operation Reports or in the public viewer Web Application (link in Appendix E) to enable the readers of this document or the Pre-Operations Reports to better understand the areas where harvest is taking place. The burn severity layer, fire perimeter, desired future condition layer, aerial seeding and several other informational layers are available in the public viewer as well. Burn Severity is defined in the North Cascade District 2021 IP Major Revision.

Butte Creek Basin

No sales are planned for this basin.

Cedar Creek Basin

Silver Dollar: This is a modified clearcut totaling 54 acres located outside of the 2020 Labor Day fire perimeter. The harvest will take place in a 71-year-old Douglas-fir stand. The current stand condition is Understory and the desired future condition is for non-complex stands. Following the completion of harvest, the unit will be planted with seedlings native to the geographic area. Actual species mix will be determined closer to the time of reforestation and available seedlings are known.

No new road construction will be needed for harvesting. Almost 4 miles of road will be improved in conjunction with this sale.

Crabtree Basin

Last West (ALT): This is a 67 acre modified clearcut of 85 year-old Douglas-fir located outside of the 2020 Labor Day fire perimeter. The current stand condition is Understory and the desired future condition is for non-complex stands. Following the completion of harvest, the unit will be planted with a mixture of seedlings to be determined closer to the time of reforestation.

Approximately 0.3 miles of road will be constructed to facilitate the harvest.

Green Basin

No sales are planned for this basin.

Mad Creek Basin

West 7 Mile: This is a three-unit post-fire modified clearcut totaling 67 acres. The burn severity (from satellite imagery) for this sale is Moderate (47 acres) and High (20 acres). As observed in the field, there are few scattered green trees in Unit 1. Unit 2 has patches of green trees within the unit. There is a small patch of green trees within Unit 3, with very few if any scattered green trees.

The Desired Future Condition of all sale areas is for “non-complex” stands. Thoughtful consideration will be given during post-fire harvest to retain dead components within these stands as legacy structures in addition to the remaining green trees. Following the completion of harvest, all units will be planted with seedlings native to the geographic area. Actual species mix will be determined closer to the time of reforestation and available seedlings are known.

Rock Creek Basin

Good Aim Thin: This is a two-unit first entry partial cut totaling 66 acres located outside the 2020 Labor Day fire perimeter. The Douglas-fir and western hemlock trees within this sale are 33 years-old. The current stand condition is Understory and the desired future condition is for non-complex stands.

This sale is located within the Rock Creek Aquatic Anchor.

No new road construction is needed for harvesting. Just under a mile and a half of road will be improved in conjunction with this sale. A little over a quarter mile of road will be vacated following the completion of harvest.

Scattered Basin

Elk Foot: Units 1, 2, 3, 4 & 6 are post-fire modified clearcuts totaling 105 acres. Unit 5 is a 12 acre post-fire partial harvest. Unit 7 is a 107 acre post-fire, individual tree selection, hazard tree removal area. The burn severity (from satellite imagery) for this sale is Moderate (98 acres) and High (124 acres). As observed in the field, Unit 1 burned at a high intensity with no green trees remaining in the unit. Unit 2 has a small stringer of green trees in the northern portion of the unit. Unit 3 has green trees scattered throughout the unit. Unit 4 has some small clumps of green trees remaining. Unit 5 has some large clumps of green trees and scattered green trees within the unit. Unit 6 has two small clumps of green trees.

The Desired Future Condition of the sale is for non-complex stands. Thoughtful consideration will be given during post-fire harvest to retain dead components within these stands as legacy structures in addition to retaining the green trees. Following the completion of harvest, all units will be planted with seedlings native to the geographic area. Actual species mix will be determined closer to the time of reforestation and available seedlings are known.

The roadside hazard mitigation (Unit 7) is located within the Evans Creek Northern Spotted Owl provincial circle. Hazard trees or snags are defined as any tree or snag that has an imminent failure potential (leaning, compromised root systems, high-severity fire damage combined with other indicators, etc) and has the ability to strike a target (people, property, or structures) based on each tree's individual condition. This means that not every tree or snag inside the roadside hazard mitigation areas shown on the maps will be removed, only those that meet the definition above. In some areas there may be very few hazard trees or snags, if any, removed and in other areas most of the trees or snags may be removed. Hazard trees or snags that are felled along roadways that are also within a stream buffer shall be felled towards the stream if possible and not removed. District staff and an ODF biologist have been, and continue to, collaborate on minimizing the impacts of roadside hazard tree mitigation within northern spotted owl circle and across the landscape. A biological assessment will be prepared for this work prior to finalizing the timber sale.

Forest Roads Management

Overview

The State Forest road network provides access for forest management activities, fire suppression, and recreation. Visions, guiding principles, and goals for managing the road network are discussed in the Northwest Oregon State Forests Management Plan (April 2010) and the State Forest Roads Manual (July 2000). The State Forest Roads Manual also provides standards and guidance for all road management activities and definitions, road classifications and other terms.

There are approximately 190 miles of road inside the fire perimeter. To mitigate public and employee safety concerns, an inventory of the affected road system was conducted, including inspecting all culverts and bridges. Repair work is described under the Road Improvement section below. This section describes the types of road management activities that will occur in FY22 and the attached Forest Roads Summary Table (Appendix A, Table A-3) describes the anticipated total amounts.

Road Construction

Road construction and improvement identified in this plan will be primarily achieved through project work connected with timber sales. New LiDAR based slope information is helpful in locating roads away from locally steep slopes.

Road Improvement

Road improvement projects will use ODF road inventory protocols to assess existing road drainage, stability, surfacing and vegetation conditions, and to aid in the development of transportation system improvement plans. The majority of this improvement work will be performed on collector and spur roads and will consist of installing new cross drains and disconnect culverts, as well as, replacing culverts, cleaning ditch-lines, updating fish passage culverts, road widening, road surfacing and sidecast pullback sections of road.

Road Access Management

Currently most of the Santiam State Forest is closed to the public. Re-opening will occur in phases as it is safe to do so and ODF can protect forest resources. The district will be installing six gates during FY22 in strategic locations to facilitate the staggered re-opening of areas within the forest as it becomes safe to do so.

Road Maintenance

Roads will be maintained as necessary to protect water quality and the road system asset value. Road maintenance is accomplished under timber sale contracts for roads used for hauling forest products or work order contracts. Maintenance is focused on ensuring proper drainage to prevent sediment entering streams. Collector roads and roads in active sale areas need and get the most maintenance. District personnel respond to heavy storms and thaw periods by performing road inspections, and where necessary, stopping heavy truck use during periods when roads cannot handle traffic without damage to water quality or the road asset.

Management of Rock Source/Supply

The District provides durable rock for in-sale spurs and haul routes, which allows for year-round harvest and recreation opportunities as well as safe public travel and fire protection access. Rock quarry development, rock crushing, and/or purchasing rock is necessary to provide sufficient quantities of the road rock for planned road construction, road improvement, and road maintenance activities.

Quarry developments are planned for the following primary Timber Sale road projects; however, these plans are subject to change as timber sale project work is laid out:

- Silver Dollar

The District will continue to explore new rock sources in FY22.

Land Surveying

The fires destroyed property line markers in many areas. These need to be resurveyed or refreshed prior to harvest. Survey work may be accomplished by utilizing the licensed surveyor

on staff with ODF or may be done utilizing a contracted licensed surveyor. Land surveying may be necessary on the following sales:

- Elk Foot – To Be Determined (TBD)
- Silver Dollar (1.2 miles)
- Last West ALT (0.5 miles)

Young Stand Management

The impacts of the fires have drastically changed reforestation needs on the district. Approximately 25% of the forest requires some reforestation activity. The State Forest strategy is to use a range of silvicultural tools to establish and maintain diverse stands of well-adapted natural species throughout the landscape to meet the objectives and goals in the Forest Management Plan and District Implementation Plan. These tools include site preparation, planting, natural regeneration, tree protection, vegetation management, pre-commercial thinning, early commercial thinning and interplanting or replanting. Each practice must be considered and prescribed for individual stands on a site-specific basis.

This section describes the types of reforestation and young stand management activities that will occur in FY22 and the attached Young Stand Management Table (Appendix A, Table A-4) describes the anticipated total amounts. The location and amount (acres) of these activities are estimates based on plans, information, and conditions as known at this point in time. The type, amount and specific stand management prescriptions will be further adjusted based on when existing harvest units are completed and on updated assessments and surveys that will occur during and after the 2021 growing season.

Reforestation activities will be completed by using experienced contractors. A portion of the activities may be completed by utilizing work crews from the Oregon Santiam Correctional Facility. These crews work on activities such as tree protection, mechanical hand release, planting, and noxious weed control.

Seedlings / Nurseries

To meet the goals of the Forest Management Plan, the State Forests Program requires tree seedlings that are physiologically healthy and best suited for the planting sites. A wide variety of seedlings are grown at forest nurseries throughout the Pacific Northwest to meet the reforestation needs. Seedlings are grown in three different stock types: 1) plug seedlings or one-year-old container grown seedlings, 2) plug ones which are grown one year in a container followed by a second year in a bare root bed, and 3) straight bare root seedlings grown from seed in a bare root bed and then transplanted to a lower stocking bare root bed. The budget accounts for a string of growing costs over several years rather than just those costs of the trees being grown and planted in the winter. The budget for seedlings includes portions of the costs for growing seedlings for three planting years. Additionally, there are costs associated with the seed that is used for growing the seedlings, estimated transportation costs and various costs associated with packaging and freezer and/or cooler storage. The individual species mixture and stock type used for a particular reforestation unit is determined after the final inventory from the forest nursery and varies by District.

Site Preparation

Site preparation is any planned measure to prepare a site to allow for favorable growing conditions for newly planted seedlings. More than one of these techniques may be used for any given site based on the attributes and reforestation prescription for the site. The three main site preparation techniques are mechanical, chemical and slash burning.

- 1) Slash Burning: Slash burning will be accomplished by burning piles of slash that result from the harvest.
- 2) Mechanical: Mechanical site preparation is the use of mechanized equipment to rearrange or alter forest slash and/or disturb the forest surface layer and vegetation to create seedbeds or planting spots. Planting spots are created in a fairly even distribution. Dense slash concentrations created during timber harvest may be mechanically piled as part of the timber sale contract.
- 3) Chemical: Chemical site preparation involves the application of herbicides to control competing vegetation before planting or natural regeneration and during the early stages of seedling establishment. Applications occur by two primary methods: aurally by helicopter or ground based with the use of backpack application equipment. The objective is to control brush species to allow stand establishment and maintain 2-3 years free of significant competing vegetation. The actual site preparation plan will be prepared in late spring when harvest unit availability and brush development is better known.

Planting

Tree planting operations are conducted for various reasons. These include meeting Forest Practices Laws, quickly establishing a new stand of trees after timber harvesting and increasing species diversity in the area and across the landscape. Planting is comprised of matching the appropriate species and stock type to the planting site. Forest health strategies are addressed on a site-specific basis when the planting plan is developed. Site specific prescriptions will incorporate a site-appropriate species mix factoring in seed zone, location, elevation, aspect, presence of root disease, the desired future condition of the site, and hotter, drier conditions as a result of climate change where possible.. To accomplish this, a mixture of species and planting densities are utilized to provide for a healthy, productive, and sustainable forest ecosystem over time that is more resilient to climate change. The following are different types of planting.

- 1) Initial Planting (Regeneration harvest units): Planting activities establish the desired species and stocking levels to meet the goals in the Forest Management Plan and Forest Practices Laws. Planted seedlings will be well suited and adapted to the reforestation site and where appropriate, a mixture of species may be planted to increase diversity on the landscape.
- 2) Interplanting: Interplanting may occur when stocking levels fall below or are at risk of falling below Forest Practices Act (FPA) minimums. In certain instances, interplanting will occur to increase stocking on high quality sites to fully capture the site. In other areas, lower stocking will be acceptable, as it will provide high quality early seral habitat while still meeting FPA requirements.

- 3) Underplanting: This type of planting is occasionally conducted after thinning in order to introduce both species diversity and an additional future layer of structure into a stand.
- 4) Natural Regeneration: This approach will be utilized to accomplish reforestation goals in areas that have difficult access or safety concerns for planting due to remaining hazard trees and have enough surviving green trees in the overstory to provide seed. This approach will help promote a natural succession pathway that includes a delayed response to conifer regeneration and allow for perennial shrubs and hardwoods to colonize these areas.

Tree Protection

Animal damage on newly planted seedlings reduces their overall size, health, and vigor. Extensive damage can lead to interplanting, may extend the time to achieve free to grow status as defined by the Forest Practices Act and prevent meeting Forest Management Plan goals. Deer and elk, as well as mountain beaver, can heavily damage young seedlings. Various tree protection strategies are applied to help re-establish trees in areas with high concentrations of these species. Most commonly, various types of physical barriers (bud caps, vexar tubes, etc.) help prevent damage from big game. Direct control includes trapping mountain beaver in highly populated areas prior to planting to help prevent damage to newly planted trees.

Vegetation Management – Release Treatments

Vegetation management is done to reduce light, moisture, or nutrient competition from undesirable vegetation in a young stand of trees to improve survival and growth. It can also be used to alter tree species composition under pressure from insect and disease and favor species that are tolerant or resistant to the threat. Vegetation management may be required to meet forest practices reforestation stocking requirements, the NW Oregon State Forests Management Plan and the District Implementation Plans. There are two types of vegetation management, chemical and manual release treatments. They are described below.

Chemical Release: Chemical release treatments involve the application of herbicides to control undesirable vegetation. Typical application methods are broadcast, directed spray, and hack and squirt. Broadcast application treatments are sprayed over the top of seedlings and undesirable vegetation using either aerial or backpack methods. Directed spray applications are made with a backpack and target individual plants. This method is often used to remove invasive species such as Scotch broom from young stands. Hack and squirt involves basal or stem injection of chemicals. This method is typically applied to hardwoods to release conifers from hardwood competition.

Manual Release: Manual release can include cutting down of noxious weeds or hardwoods. Hardwood release is used when ingrowth of hardwoods, mainly red alder in the northwest and madrone and tanoak in the southwest, threaten to change the stand from conifer dominate to hardwood dominate. In this treatment, hardwoods are removed using chainsaws leaving all of the conifer trees. This differs from PCT (described below) in the fact that conifer spacing and species are not manipulated. While hardwoods are important on the landscape, long-term conifer production is the goal for many stands across the district.

Pre-Commercial Thinning (PCT)

PCT is a silviculture activity used to manipulate the density, structure or species composition of overstocked young forest stands. Generally, the purpose of a PCT operation is to release the biggest and best growing trees so they can maintain their growth. PCT is normally conducted in a stand between the ages of 10 and 20 years old. In areas of disease such as Swiss Needle Cast or *Phellinus weirii*, PCT can be used to favor species other than impacted Douglas-fir trees in the residual stand.

Pruning

No pruning activities are planned for this AOP.

Stocking Surveys

The Reforestation Unit has the responsibility of ensuring that the goals of the Forest Management Plan are met. Stocking surveys is one tool to ensure the stands are on track for the desired future condition. The surveys are done to check initial plantation survival at a time when the seedlings are vulnerable and there is still time to remedy problems, by using interplanting and animal damage control measures as examples. In addition, stocking surveys are conducted to assess free-to-grow status and to get baseline data on the stand for future management planning, for example evaluating release treatments and pre-commercial thinning candidates.

Invasive Species

Most noxious weeds or invasive plants are found along roads and have spread into plantations. The main sources for the weed introduction into the forest are vehicle tires, equipment moved into and out of district, and where soil disturbance occurs. 100% weed-free grass seed and certified weed-free straw used for mulch is required for project work on roads. Equipment washing is required in timber sale contracts to prevent the introduction of weed seed from other sites. It is also required that weed-free hay be used for feeding stock on State Forest Lands.

Reforestation continues to work with Marketing, Forest Roads, and Recreation personnel to identify appropriate steps each unit can take to prevent the introduction and spread of invasive plants. Knotweed, Scotch broom, and false brome are the primary species known to exist in the District. Active control measures are being planned and prioritized for roadside, in-unit, and trail treatment.

Roadside Vegetation Management

Reforestation works with the Forest Roads personnel on the management of vegetation alongside forest roads. Vegetation management protects the investment by preventing damage from unchecked vegetation growth, helps to maintain a safe driving environment by maintaining clear sight distance, controls noxious weeds, and reduces fire hazards. Roadside vegetation will be controlled manually, mechanically or chemically where necessary. The method used will depend on the characteristics of the vegetation and its location.

Recreation, Education, and Interpretation

Recreation Management Overview

Recreation use has been taking place on the Santiam State Forest and the North Cascade District for decades and has been managed in varying degrees since the 1960s. Currently the direction for management of the Recreation program flows from the Northwest Oregon State Forest Management Plan (2010).

The 2020 Labor Day wildfires significantly impacted the recreation opportunities on the Santiam State Forest and changed the forest setting around many of the trails and recreation facilities. 24 of the 32 miles of trails were impacted by the wildfires along with 3 of the 5 campgrounds and multiple day use areas.

Recreation program work will be focused on repair, replacement and improvement of trail and facility infrastructure damaged by the wildfires.

This section of the FY22 AOP is designed to provide information about the recreation program activities for the FY22 period. See Tables A-5, A-6, and A-7 in Appendix A for more information.

Facilities

The Recreation program manages the following developed facilities on the North Cascade District:

- 5 campgrounds
- 1 OHV staging area
- 7 trailheads and parking areas
- Dispersed camping and target shooting opportunities

The 2020 wildfires have severely impacted recreation opportunities in the Santiam State Forest. Operation of developed facilities will be suspended until facility repairs have been made and access into these facilities are deemed safe for public use.

Dispersed Use

Each year, a high amount of dispersed recreation use occurs across the Santiam State Forest. Most of this use is associated with recreation activities such as but not limited to hunting, camping, sight-seeing, target shooting, swimming, and mushroom picking. Most of these activities take place at specific dispersed use sites. These activities are expected to continue in FY22 in areas that are open to the public and will require varying degrees of recreation program and district staff attention. Dispersed use sites will be monitored, maintained, and improved as resources allow to meet safety, sanitation, and resource protection objectives.

See Table 6 below for developed and dispersed facility maintenance and improvement projects planned for FY22.

Table 6. Developed and Dispersed Facility Projects

Project Type	Project Name	Work Resources	Project Description
Facility Replacement	Replacement of facility infrastructure damaged by wildfire	REI staff / SCI Crews	Project work involves removal and reconstruction of facility infrastructure damaged by wildfire at Shellburg Falls Day Use Area and Santiam Horse Camp.
Facility Planning	Shellburg Falls Campground and Day use Area	REI Staff, District Staff, ODF Resource Specialists	Project involves developing a plan for re-establishment of day use and overnight opportunities.
Facility Planning	Santiam Horse Camp	REI Staff	Explore addition of 3 new tent site locations
Facility Maintenance	Paint Restrooms	REI Staff, SCI Crews	Project work involves painting interior and exterior of CXT restrooms at developed recreation sites: Butte Creek Trailhead, Butte Creek Campground, Rhody Lake, and Shellburg Falls Day Use Area.
Facility Maintenance	CXT Door Replacement	REI Staff	Replace CXT Door at the Butte Creek Campground
Hazard Tree Assessment and Removal	Hazard Tree Mitigation	REI Staff, SCI Crews, Private Contractor	Complete hazard tree assessments and develop plan for removal of hazard trees in and around all developed recreational facilities.
Target Shooting Site Construction	Butte Creek 615 Target Shooting Lanes	REI Staff, Trash No Lands, Private Contractor	Construction of target shooting lanes, parking area, site sign and information board.

OHV Trails

Oregon Department of Forestry manages 6-miles of designated OHV trails located in the north block of the Santiam State Forest in the Crooked Finger OHV Area.

Table 7. OHV Trail Projects

Project Type	Project Name	Project Mileage	Work Resources	Project Description
Trail System Inventory/Assessment	Crooked Finger OHV trail Assessment and sign maintenance	NA	REI Staff/ SCI	Project involves work to update the OHV Trail inventory in the Santiam State Forest and install signage on designated OHV trails.

Non-Motorized Trails

The Non-Motorized Trail system on the Santiam State Forest provides opportunities for hiking, mountain biking and horseback riding. Annual trail maintenance includes bridge inspection, brushing, tread repair and drainage repair. Due to the extensive damage that occurred to the non-motorized trail system as a result of the 2020 Labor Day wildfires, ODF will conduct ongoing hazard assessments and restore and repair trails impacted by wildfire.

Table 8. Non-Motorized Trail Projects

Project Type	Project Name	Project Mileage	Work Resources	Project Description
Trail Development (Planning)	High Lakes Trail Loop	NA	REI Staff	This project involves the development of a plan to construct the High Lakes Trail Loop
Trail Bridge Replacement	Shellburg Falls Trail Loop	NA	REI Staff / SCI	This project involves the replacement of a hiking only trail bridge that was damaged by wildfire.
Trail Bridge Replacement (Planning)	August Mountain Trail	NA	REI Staff	This project involves planning the replacement of a hiking, equestrian and mountain biking trail bridge.
Trail Sign Replacement	Non-motorized Trail Signs	NA	REI Staff/ SCI	This project involves the replacement of trail signage that was damaged by wildfire.
Trail Information Board Replacement	Non-motorized Trailheads	NA	REI Staff/ SCI	Project involves the replacement of information boards at trailheads damaged by wildfire.
Trail Tread Repair	Non-motorized trails	Approx. 10 miles	REI Staff/ SCI/ NWYC/TKO	Project involves the repair of non-motorized trail tread damaged by wildfire
Trail Entrance Post and Railing Installation	Non-motorized trails	NA	REI Staff/ SCI	Project involves the installation of post and railing trail filters at non-motorized trail entrances
Monument Peak Trail System Connectivity Project (Planning)	Monument Peak Trail System Planning	NA	REI Staff/BLM Staff	Project includes the development of plan to improve trail system connectivity.
Installation of Education and Interpretation picture posts at various locations	Various locations	NA	REI Staff/ SCI	Project involves the installation of picture posts at various locations to document wildfire recovery and restoration over time

Volunteer Program and Partnerships

Volunteers contribute labor, supplies, and expertise to the Recreation, Education, and Interpretation Program. Volunteers have partnered with ODF to construct new trails, maintain infrastructure, and preserve natural resources.

ODF will re-engage volunteers and trail adoptees in the restoration and repair of trails and recreation facility infrastructure impacted by the wildfires when areas are deemed safe for public use.

The Recreation program will continue to look for opportunities to develop new partnerships and to enhance existing partnerships that will increase our collective capacity to meet program and project goals and objectives.

Event Management

ODF will not be permitting any events in the FY22 period.

Grants

In collaboration with our partner Trash No Land, the Recreation program will be administering the following grant to support the construction of the Butte Creek 615 Target Shooting area (located outside the fire perimeter):

- NRA Foundation Grant

Education and Interpretation

In an effort to collect resources proactively for future interpretive opportunities in relation to the Santiam State Forest wildfire impacts and restoration efforts, the Recreation, Education, and Interpretation Program will complete the following in FY 2022:

- Work to record historical evidence and interpretive resources and data to preserve the record and provide meaning to the Labor Day Fires in relation to the Santiam State Forest. Resources include, artifacts, oral histories, policies, procedures, contracts, photographs, videos, key messages/stories, Tillamook Burn comparisons, maps, media reports, and staff/community member contact information etc.
- Develop a system for monitoring forest cyclic and seasonal post fire (change over time) that provides staff and the public and opportunity to contribute.
- Work towards establishing a database and catalogue resources in an archival collection that is searchable for future use.
- Draft a narrative that includes fire impacts and recovery as it relates to the Santiam State Forest, ODF staff, and surrounding communities.
- Compile a list of future interpretive opportunities for consideration during the development of the REI Program Interpretive Master Plan.

Unplanned Activities

The activities above represent project and program work items for the fiscal year. However, the agency and the Recreation program often receive requests from non-profit and commercial businesses to utilize the forest for their trail use events or business ventures. In fiscal year 2022 the REI Program will not be accommodating any additional event activities.

Other Integrated Forest Management Projects

Aquatic & Riparian Management

There are approximately 174 miles of streams within the fire perimeter of which 32 miles were not affected by the burn. All streams found in State Forests are subject to the Management Standards for Aquatic and Riparian Areas as outlined in Appendix J found in the Northwest Oregon State Forests Management Plan (2010) at a minimum. An objective of State Forests' aquatic resources is to maintain, enhance, and restore properly functioning aquatic and riparian functions. This is achieved primarily through riparian buffer strategies specific to the aquatic resource characteristics such as presence of fish, stream size, and flow duration. Areas that are outside of the fire perimeter will apply the current Northwest Oregon Forest Management Plan (FMP) riparian management areas

(RMA) strategies. Post-fire sales within the fire perimeter will apply the Draft Habitat Conservation Plan (HCP) Riparian Conservation Areas (RCA) strategies.

Several strategies, described in the Forest Management Plan, dictate protection measures designed to protect, maintain, and restore aquatic and riparian functions. These strategies are employed during harvest activities and include but are not limited to: leave trees adjacent to streams to protect stream temperature, provide nutrients, protect stream banks, and eventually provide wood to improve fish habitat. Best management practices for road construction, reconstruction, and maintenance minimize impacts to water quality.

Threatened and Endangered Fish Species: Federally Threatened listed species with Critical Habitat Designations found within the District include Winter Steelhead and Spring Chinook.

Fish Distribution Surveys: Streams are classified in part as supporting anadromous fish, game fish species, or by fish species that are listed as threatened or endangered under either federal or state Endangered Species Acts (Type F) or not supporting fish (Type N). Riparian protection measures depend in part on the presence of fish. Many streams in the past have been surveyed with electro-fishing techniques that established the upper extent of fish use. However, many small streams have not yet been surveyed for fish presence. Streams needing classification in the AOP will be evaluated using a Physical Habitat Survey. This physical survey methodology was developed in conjunction with Oregon Department of Fish and Wildlife. The seasonal/perennial break in the streams will be evaluated during fish distribution surveys or during sale layout.

Restoration Goals and Identification Process: Following the development of the Santiam State Forest Restoration Plan, approximately 100 acres of riparian areas affected by the 2020 wildfires were identified as high priority for assessment and possible restoration. In FY22, a riparian monitoring strategy will be deployed to evaluate natural regeneration along with invasive species presence. Where necessary, invasive species will be treated within riparian areas, and they may be replanted with an appropriate seedling mix, targeted to accelerate stream recovery. Recovery goals include riparian shade, future large wood recruitment, sediment filtration and routing, and nutrient input from leaf litterfall. Planting prescriptions will be site specific and utilize available seedlings. Actual number of acres planted will depend on available budget and seedling availability. All aquatic restoration prioritization will consider feedback from, and may be in collaboration with, ODFW, local watershed councils, and other technical experts.

Potential Stream Projects may be associated with the following Timber Sales:

- Good Aim Thin: A fish pipe on the haul route that blocks the passage of juvenile fish will be replaced. This will open access to a little over 1 mile of fish stream for juvenile fish.

Restoration accomplishments are reported to Oregon Watershed Enhancement Board using the Oregon Watershed Restoration Inventory electronic filing process and reported by ODF annually in our report to the counties, board of forestry, and Division of State Lands.

Land Exchange

The process for a potential purchase or land exchange with Weyerhaeuser began in FY21 and will continue in FY22. Weyerhaeuser owns approximately 400 acres directly adjacent to the ODF Shellburg parcel just to the east. Acquiring this parcel will help create a safer public

access point to the Shellburg Falls trail network and add 3 more waterfalls to the Recreation Area.

Law Enforcement and Public Safety

Currently the district participates in a Cooperative Law Enforcement program in Linn County and Marion County with other private timber companies.

Firewood Cutting Program

The primary objective of the District Firewood Cutting Program is to provide a source of firewood from State Forests to the public for personal use. The permit fee for personal firewood cutting is \$20 for two cords. Permits are issued for a period of three weeks. Historically firewood cutting has only been allowed outside the months of fire season. The District typically sells 50-75 woodcutting permits each year. Firewood permits will not be issued while there is a public use closure on the Santiam State Forest.

Non-Timber Forest Products

The North Cascade District has suspended its commercial Miscellaneous Forest Products permit program due to lack of staffing resources. Previously, forest products such as mushrooms, vine maple, and salal were available for commercial permit. Many of these products are available throughout the forest landscape and can be found in the different stand structures on the forest. The permit program policy will be re-evaluated in FY22.

The district does issue personal use permits, consistent with Northwest Oregon Area policy. Gathering of these products is allowed provided that the products and quantities are not removed or exceeded as outlined in ORS 164.813. No personal use permits will be issued while there is a public use closure on the Santiam State Forest.

Planning

Below are the significant district-level planning projects currently scheduled for commencement, completion, or both in FY22.

Forest Inventory

Work has begun to retype the stands within the burn based on GIS layers of burn severity, an aggregated index seral stage group codes (small-diameter, medium-diameter, large-diameter), and dominant species. Retyping then proceeds manually to adjust boundaries based on operations and natural boundaries. This process will set the stands up to be re-inventoried which started in the spring of 2021 and will continue into FY22. Lidar-based inventory was impacted in two ways by the burn: lidar data collected in summer 2020 may no longer match conditions on the ground and the setup of permanent field plots monitored in partnership with the USFS FIA program was delayed. ODF is applying for grants to collect new lidar data through various funding opportunities. FIA contractors began setting up permanent plots in FY21 and will continue the work into FY22.

Wildlife Surveys

Northern Spotted Owl Surveys

For the FY22 AOP, the District will continue the northern spotted owl (NSO) survey program, to comply with federal and state Endangered Species Acts and to contribute to Forest Management Plan (FMP) goals. Survey requirements are determined in accordance with *ODF Northern Spotted Owl Operational Policies*, November 2017.

T&E Plants

The District will continue to screen harvest operations against the Oregon Biodiversity Information Center (Orbic) database and other known locations on the District to identify potential conflicts with plant species listed in the District IP.

Species of Concern Wildlife

The District will continue to screen harvest operations against several wildlife databases to identify potential conflicts with wildlife of concern listed in the District IP.

Research and Monitoring

The district is actively evaluating past timber sales for compliance with the Oregon Forest Practices Act. The North Cascade District will use the information to assess and improve compliance.

Additionally, the district cooperates with Weyerhaeuser and Oregon State University on a study to help determine the abundance of the Oregon Slender Salamander on the western slopes of the Cascade Range. The study will also help to determine if there is a significant difference in the amount of down-woody debris, the Oregon Slender Salamander's primary habitat, pre- and post-harvest. This cooperative study was originally supposed to last 5 years, which ended last calendar year; the study has now been extended for another year. The district is still waiting to receive the results and utilize them for analysis on future planning.

The district is also conducting a cooperative research project with Oregon State University on the study of black bear and tree peeling. The status of this project is that the field portion of the study is complete, and the district is waiting to receive a report this year.

In cooperation with ODFW and their bat monitoring program as well as the BLM, the district has had 3 sound meters installed to monitor various species of bats that are found on the Santiam State Forest. The BLM has also installed a sound meter on an adjacent parcel near ODF ownership. This study is ongoing, and we will be receiving more data in the coming years.

In cooperation with ODFW the district also has a blacktail deer study which will occur in the Rock Creek drainage. The study is to determine population densities and the overall health of the blacktail deer population.

USGS has been given a permit to install monitoring equipment on Sardine Creek on the Santiam State Forest. Stream gages will measure precipitation, velocity, and stage as part of the USGS post-burn monitoring program.

Prioritization of research, monitoring, and adaptive management programs will be a product of the Santiam State Forest Restoration Plan. In addition, there is great interest among our stakeholders to learn from the 2020 fires. ODF will coordinate with agency, industry, nonprofit, and academic partners to design monitoring, apply for grants, and implement studies with the potential for field work to start during FY22. Examples of studies may include the impacts of active management (e.g. aerial seeding, riparian underplanting, or post-fire harvest) versus passive management (i.e. natural regeneration) on long-term forest structure and function.

ODF will design new monitoring in coordination with the Forest Inventory Program and the Santiam State Forest Restoration Plan to track stand development over time with permanent plots to compare sites with different impacts from the fire and management activities. Field work in FY22 would involve setting up initial plots to measure baseline conditions. Examples of studies may include the impacts of active management (e.g. aerial seeding, riparian underplanting, or post-fire harvest) versus natural regeneration on long-term forest structure and functioning. ODF will be piloting a stream monitoring program to target impacts of post-fire management on stream temperature with continuous sensors. Other physical properties such as sediment and turbidity may be monitored.

ODF plans to deploy 20-30 wildlife cameras to monitor wildlife use and recovery within the Santiam State Forest using an internationally recognized scientific protocol referred to as the Wildlife Picture Index (WPI). Cameras will be placed on a grid system to improve our understanding of native wildlife biodiversity. Camera trapping provides a passive, low cost, and provable method to document both common and rare moderate and large species of wildlife including birds and mammals that may not be detectable when humans are conducting surveys (O'Brien 2010). By deploying wildlife cameras on a grid system the agency can document wildlife species and create baseline data associated with observed species for the year cameras are deployed. This type of research can inform understanding of how the Santiam State Forest's wildlife species are recovering within areas impacted by the 2020 Labor Day fires.

Other Planning Operations

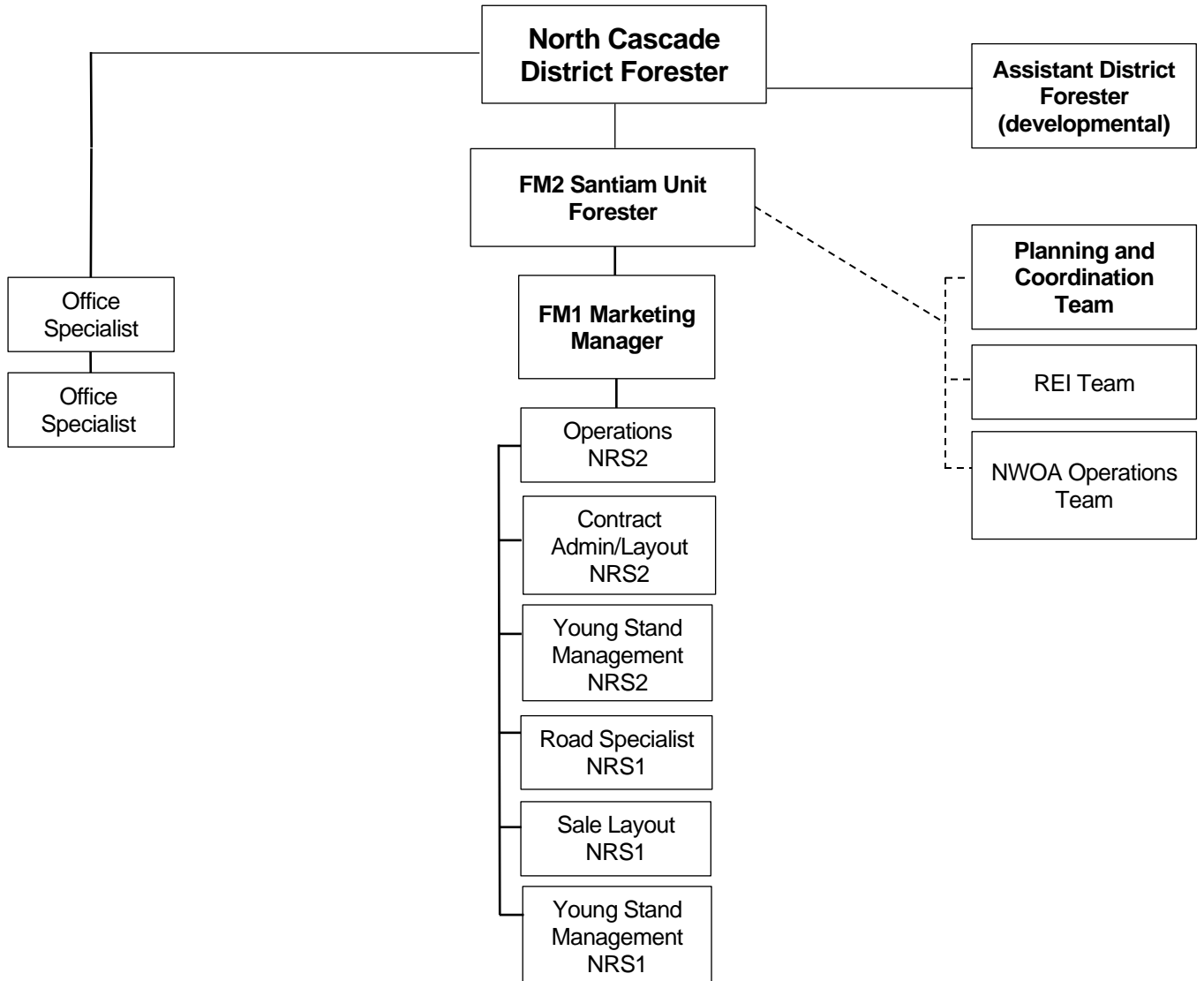
- Participate in the development of the Santiam State Forest Restoration Plan
- The District will continue to conduct Hydrological Connectivity Surveys on the road systems as time allows.
- In conjunction with the REI Team, the District will provide input and context to recreation planning.
- The district will also continue to participate in FMP and HCP reviews as needed.

Public Information and Education

Public information and involvement activities will include review and input regarding the FY22 Annual Operations Plan and the 2020 Labor Day fires.

Administration

There are 6 permanent positions whose full-time function is to manage State Forest land on the District and 3 developmental positions who are assisting with management of State Forest land. In addition, the District is supported by the NWOA REI Team and the NWOA Operations Team as well as the Division Planning and Coordination Team. All are responsible for implementing the 2022 Annual Operations Plan. The State Forest Unit is responsible for ensuring that all management approaches, activities, and projects for timber marketing, road management and young stand management are designed to meet the goals, strategies, and objectives of the FMP, Implementation Plan, AOP, and Recreation Plan. The sales and projects are coordinated across the district and with the NWOA and Division Teams from the development of the AOP to the final sale administration for consistency within and between units to meet common goals.



APPENDICES

A. Summary Tables

1. Harvest Operations – Financial Summary
2. Harvest Operations – Forest Resource Summary
3. Forest Road Management Summary
4. Reforestation and Young Stand Management Summary
5. Recreation Site Management Summary
6. Recreation Trail Management Summary
7. Recreation Grant Management Summary

B. Maps

1. Harvest Operations Vicinity Map

C. Consultations with Other State Agencies

This appendix summarizes the results of consultations with the Oregon Department of Fish and Wildlife, Oregon Department of Transportation, and other agencies as appropriate.

D. Public Involvement

This appendix will describe the results of the public involvement process of this AOP.

E. Pre-Operations Reports

Pre-Operations Reports are available on the ODF website.

Appendix A

Summary Tables

- **Table A-1: Commercial Forest Management Operations - Financial Summary**
- **Table A-2: Commercial Forest Management Operations – Forest Resource Summary**
- **Table A-3: Forest Roads Summary**
- **Table A-4: Reforestation and Young Stand Management Summary**
- **Table A-5: Recreation Site Management – Financial Summary**
- **Table A-6: Recreation Trail Management – Financial Summary**
- **Table A-7: Recreation Grant Management – Financial Summary**

TIMBER HARVEST OPERATIONS - FINANCIAL SUMMARY

District: North Cascade

Fiscal Year: 2022

Date: 08/06/2021

Primary Operation	Type	Fund %		County	Sale Quarter	Net Acres		Volume (MMBF)			Value		
		BOF	CSL			Partial Cut	Clear-cut	Conifer	Hardwoods	Total	Gross	Projects	Net
Elk Foot	Post-Fire	100%	0%	Marion	1	107	105	2.5	0.0	2.5	\$1,000,400	\$45,000	\$955,400
West Sevenmile	Post-Fire	100%	0%	Linn	1	0	67	1.1	0.0	1.1	\$328,800	\$35,000	\$293,800
Good Aim Thin	Outside Fire	100%	0%	Linn	2	66	0	0.5	0.0	0.5	\$198,000	\$50,000	\$148,000
Silver Dollar	Outside Fire	100%	0%	Marion	3	0	54	2.4	0.0	2.4	\$1,182,500	\$75,755	\$1,106,745
Post-Fire Harvest						107	172	3.6	0.0	3.6	\$ 1,329,200	\$ 80,000	\$ 1,249,200
Outside Fire						66	54	2.9	0.0	2.9	\$ 1,380,500	\$ 125,755	\$ 1,254,745
Project WOC Sub-total:												\$ 200,000	
Total:						173	226	6.5	0.0	6.5	\$ 2,709,700	\$ 405,755	\$ 2,303,945

Alternate Operation	Type	Fund %		County	Sale Quarter	Net Acres		Volume (MMBF)			Value		
		BOF	CSL			Partial Cut	Clear-cut	Conifer	Hardwoods	Total	Gross	Projects	Net
Last West	Outside Fire	100%	0%	Linn	3	0	67	3.6	0.2	3.8	\$2,096,600	\$81,200	\$2,015,400
Post-Fire Harvest						0	67	3.6	0.2	3.8	\$ 2,096,600	\$ 81,200	\$ 2,015,400
Total:						0	67	3.6	0.2	3.8	\$ 2,096,600	\$ 81,200	\$ 2,015,400

PRIMARY HARVEST OPERATIONS - FOREST RESOURCE SUMMARY

District: North Cascade

Fiscal Year 2022

Date: 07/23/2021

This table lists Forest Resources and other issues addressed within Pre-Operations Report due to their presence within or near harvest operations

Primary Harvest Operations	Unit (Optional)	Forest Health Issues ¹	Invasive Species	LYR/OFS Structures ²	Landcape Design LYR/OFS ³	Install/Replace Culverts on Fish Bearing / Perennial Streams	Harvesting within 100' of Fish Bearing Stream	Domestic Water Source	Potential Stream Habitat Improvement ⁴	Within Aquatic Anchor	Within Terrestrial Anchor	Operating within a NSO Provincial Circle (BA Required)	Operating within a MMMA (BA Required)	Murrelet Timber Sale Screening Process Required (MM Policy 2.27)	T&E Fish Adjacent to Harvest Unit / Haul Route ⁵	T&E Plants	Geotechnical Issues Needing Field Review	Recreation Sites	Cultural Resources	Scenic Resources	Other Resources or Issues	
Elk Foot		-	-	-	-	-	-	-	-	-	-	x*	-	-	-	-	-	-	-	-	-	*Part of the Unit 7 hazard tree mitigation is within the Evans Creek owl circle. A BA is being prepared.
Good Aim Thin	1, 2	-	x	-	-	x	-	-	-	x	-	-	-	-	-	-	-	-	x	-	-	ODFW Biologist to accompany ODF staff during fish pipe assessment on the SRC600 road
Silver Dollar	1	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
West Sevenmile		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x	x		

¹ A 'x' (in any column) indicates yes the resource or other issue occurs within or near the harvest operation and is addressed by the Pre-Operations Report

² A 'x' indicates the harvest operation contains stands that were in pre-fire Layered or Older Forest Stand Structure

³ A 'x' indicate that the operation contains areas that have been designated for the development of complex forest stands (LYR/OFS); operations planned in stands with a pre-fire stand condition of layered or older forest structure are burned and no longer contain living forest components needed for those stand structure types.

⁴ The final decision on these projects will occur during sale preparation and inconslutation with ODFW.

⁵ This table lists harvest operations (units or log haul routes) that are adjacent to streams that are known to contain T&E fish.

ALTERNATE HARVEST OPERATIONS - FOREST RESOURCE SUMMARY

This table lists Forest Resources and other issues addressed within Pre-Operations Report due to their presence within or near harvest operations

Alternate Harvest Operations	Unit (Optional)	Forest Health Issues ¹	Invasive Species	LYR/OFS Structures ²	Landscape Design LYR/OFS ³	Install/Replace Culverts on Fish Bearing / Perennial Streams	Harvesting within 100' of Fish Bearing Stream	Domestic Water Source	Potential Stream Habitat Improvement ⁴	Within Aquatic Anchor	Within Terrestrial Anchor	Operating within a NSO Provincial Circle	Operating within a MMMA (BA Required)	Murrelet Timber Sale Screening Process Required (MM Policy 2.27)	T&E Fish Adjacent to Harvest Unit / Haul Route ⁵	T&E Plants	Geotechnical Issues Needing Field Review	Recreation Sites	Cultural Resources	Scenic Resources	Other Resources or Issues
Last West	1	-	x	-	-	-	-	-	-	-	-	-	-	x	-	-	-	x	-	Cultural resource site is located nearby off of State Forest.	

¹ A 'x' (in any column) indicates yes the resource or other issue occurs within or near the harvest operation and is addressed by the Pre-Operations Report

² A 'x' indicates the harvest operation contains stands that are currently in a Layered or Older Forest Stand Structure

³ A 'x' indicate that the operation contains areas that have been designated for the development of complex forest stands (LYR/OFS)

⁴ The final decision on these projects will occur during sale preparation and inconspultation with ODFW.

⁵ This table lists harvest operations (units or log haul routes) that are adjacent to streams that are known to contain T&E fish.

FOREST ROADS SUMMARY

District: North Cascade

Fiscal Year: 2022

Date: 08/06/2021

Primary Operations	Construction		Improvement		Other Projects	Total Project Costs	Gross Value of Operation	Total Cost as a percent of Gross Value	Comments
	Miles	Cost	Miles	Cost					
Elk Foot	0.3	\$ -	0.0	\$ -	\$ -	\$ 45,000	\$ 1,000,400	4.5%	The breakout of costs is unknow at this time. This is a rough estimate.
West Sevenmile	0.0	\$ -	0.0	\$ -	\$ -	\$ 35,000	\$328,800	10.6%	The breakout of costs is unknow at this time. This is a rough estimate.
Good Aim Thin	0.0	\$ -	1.4	\$ 17,820	\$ 32,180	\$ 50,000	\$198,000	25.3%	fish pipe, vacate road (SRC610)
Silver Dollar	0.0	\$ -	3.9	\$ 72,337	\$ 3,418	\$ 75,755	\$1,182,500	6.4%	Includes rocking Cedar Creek main roads
Sub-total	0.3	\$ -	\$ -	\$ -	\$ -	\$ 205,755	\$ 2,709,700	7.6%	
Sub-total WOC (see below)	0.0	\$ -				\$ 200,000	\$ -		
Totals	0.3	\$ -	\$ -	\$ -	\$ -	\$ 405,755	\$ 2,709,700	15.0%	

Alternate Operations	Construction		Improvement		Other Projects	Total Project Costs	Gross Value of Operation	Total Cost as a percent of Gross Value	Comments
	Miles	Cost	Miles	Cost					
Last West	0.2	\$ 19,560	4.6	\$ 61,640	\$ -	\$ 81,200			

Road Projects to be Completed as a Work Order Contract

Operation	Construction		Improvement		Other Projects	Total Project Costs	Funding Source	Comments
	Miles	Cost	Miles	Cost				
Restoration WOC						\$ 200,000		This money will be allocated towards post-fire road repair, maintenance, rock crushing and stockpiling, and property line surveying. The breakout of how much will be spent on each item will be determined later.
Total	0.0	\$ -	0.0	\$ -	\$ -	\$ 200,000		

REFORESTATION AND YOUNG STAND MANAGEMENT SUMMARY

District: North Cascade

Fiscal Year: 2022

Date: 04/28/2021

Projects Conducted by ODF Staff or Contractors	Board of Forestry			Common School Forest Lands			District	
	Acres Planned	Average Cost*/Acre	BOF Cost	Acres Planned	Average Cost*/Acre	CSL Cost	Total Acres	Total Cost
Seedling / Nursery Costs			\$0			\$0.00	0	\$0
Initial Planting	2,692	\$160.00	\$430,720			\$0.00	2,692	\$430,720
Interplanting	300	\$120.00	\$36,000			\$0.00	300	\$36,000
Aerial Seeding			\$0			\$0.00	0	\$0
Underplanting			\$0			\$0.00	0	\$0
Tree Protection - Barriers	1,500	\$75.00	\$112,500			\$0.00	1,500	\$112,500
Tree Protection - Direct Control	2,500	\$110.00	\$275,000			\$0.00	2,500	\$275,000
Site Prep - Chemical - Aerial	2,000	\$40.00	\$80,000			\$0.00	2,000	\$80,000
Site Prep - Chemical - Hand	500	\$120.00	\$60,000			\$0.00	500	\$60,000
Site Prep - Broadcast Burning			\$0			\$0.00	0	\$0
Site Prep - Pile Burning			\$0			\$0.00	0	\$0
Site Prep - Mechanical	300	\$500.00	\$150,000			\$0.00	300	\$150,000
Release - Chemical - Aerial	500	\$40.00	\$20,000			\$0.00	500	\$20,000
Release - Chemical - Hand	250	\$40.00	\$10,000			\$0.00	250	\$10,000
Release - Mechanical - Hand	250	\$140.00	\$35,000			\$0.00	250	\$35,000
Precommercial Thinning	250	\$140.00	\$35,000			\$0.00	250	\$35,000
Pruning			\$0			\$0.00	0	\$0
Invasive Species	250	\$100.00	\$25,000			\$0.00	250	\$25,000
Roadside Vegetation Mngt	100	\$105.00	\$10,500			\$0.00	100	\$10,500
Stocking Surveys*	250	\$6.00	\$1,500			\$0.00	250	\$1,500
Other			\$30,000			\$0.00	0	\$30,000
Totals:	11,642	--	\$1,311,220	0	--	\$0.00	11,642	\$1,311,220

* Work to be completed by ODF staff; cost are for materials only

Projects Conducted by Mill Creek Crews	Board of Forestry			Common School Forest Lands			District	
	Acres Planned	Average Cost*/Acre	BOF Cost	Acres Planned	Average Cost*/Acre	CSL Cost	Total Acres	Total Cost
Initial Planting			\$0			\$0.00	0	\$0
Interplanting			\$0			\$0.00	0	\$0
Underplanting			\$0			\$0.00	0	\$0
Tree Protection - Barriers			\$0			\$0.00	0	\$0
Tree Protection - Direct Control		\$0.00	\$0			\$0.00	0	\$0
Site Prep. - Chemical Aerial			\$0			\$0.00	0	\$0
Site Prep - Chemical - Hand			\$0			\$0.00	0	\$0
Site Prep - Broadcast Burning			\$0			\$0.00	0	\$0
Site Prep - Piling Burning			\$0			\$0.00	0	\$0
Site Prep - Mechanical			\$0			\$0.00	0	\$0
Release - Chemical - Hand			\$0			\$0.00	0	\$0
Release - Mechanical - Hand		\$0.00	\$0			\$0.00	0	\$0
Precommercial Thinning			\$0			\$0.00	0	\$0
Pruning			\$0			\$0.00	0	\$0
Invasive Species			\$0			\$0.00	0	\$0
Other			\$0			\$0.00	0	\$0
Totals:	0	--	\$0	0	--	\$0.00	0	\$0

Grant Funded Activities	Board of Forestry			Common School Forest Lands			District		Funding
Project	Acres Planned	Average Cost*/Acre	Cost	Acres Planned	Average Cost*/Acre	Cost	Total Acres	Total Cost	
			\$0.00			\$0.00	0	\$0.00	

RECREATION SITE MANAGEMENT SUMMARY

District: North Cascade

Fiscal Year: 2022

Date : 06/09/2021

Project	Construction Cost (Funding)		Improvement Cost (Funding)		Operations/Maint. (Funding)		Total Costs	Comments
	ODF (\$)	Other (\$)	ODF (\$)	Other (\$)	ODF (\$)	Other (\$)		
Campgrounds								
Butte Creek Falls Campground					\$550		\$550	Vault Toilet Pumping
Butte Creek Falls Trailhead					\$550		\$550	Vault Toilet Pumping
Shellburg Falls Recreation Area					\$500		\$500	Vault Toilet Pumping
Shellburg Falls Recreation Area Site Sign				\$750			\$750	
Santiam Horse Camp					\$1,100		\$1,100	Vault Toilet Pumping
Santiam Horse Camp Campground Entrance Sign		\$2,000					\$2,000	
Santiam Horse Camp Information Kiosk			\$3,000				\$3,000	
Santiam Horse Camp Rock for Log Fencing				\$155			\$155	2 yards of 1/4" rock + Delivery (\$65)
Santiam Horse Camp Site Posts				\$60			\$60	4 Site Posts (4" x 4")
Santiam Horse Camp Pire Pit and Hitching post			\$200				\$200	
Santiam Horse Camp Rock for Corrals				\$605			\$605	12 yards of 1/4" rock + Delivery (\$65)
Designated Dispersed Campsites								
Rock Creek					\$2,800		\$2,800	2 Portable Toilets
Rhody Lake					\$500		\$500	Vault Toilet Pumping
Day Use Areas								
Trailheads								
Monument Peak Trailhead					\$1,000		\$1,000	1 Portable Toilet
Monument Peak Trailhead Kiosk			\$3,000				\$3,000	3 Panel Kiosk
Rocky Top and Natural Arch Trailhead Information Boards			\$1,000				\$1,000	2 Trailhead Information boards
Crooked Finger OHV							\$0	
Interpretive Sites								
							\$0	
Other Operations								
Brochures/Fee Envelope Printing							\$0	
Well Fee							\$0	
Water Testing					\$500		\$500	
Maintenance and Operation Supplies					\$8,000	\$5,500	\$13,500	
					District Total		\$22,700	
					Other Total		\$9,070	
					TOTAL		\$31,770	

RECREATION TRAIL MANAGEMENT SUMMARY

District: North Cascade

Fiscal Year: 2022

Date : 06/09/2021

Project	Construction Projects			Improvement Projects			Operations & Maintenance Projects			Total Costs	Comments
	Miles	ODF (\$)	Other (\$)	Miles	ODF (\$)	Other (\$)	Miles	ODF (\$)	Other (\$)		
Non-Motorized											
Maintenance										\$0	
Trail Bridge Inspections								\$5,000		\$5,000	
Monument Peak Trail Signs						\$3,700				\$3,700	
Monument Peak Trail System				8.8		\$90,000				\$90,000	
Natural Arch trail tread re-build	0.5					\$2,500				\$2,500	AIC/ODF
Rocky Top and Natural Arch wayfinding signage and Trailhead sign						\$5,200				\$5,200	
Rocky Top Trail Tread re-build	0.5					\$2,500				\$2,500	AIC/ ODF
High Lakes Trail Sign Rock						\$110				\$110	3/4" Rock for sign installation
High Lakes Trail Signs						\$450				\$450	10 trail and wayfinding signs
High Lakes Re-route (Planning)											
Shellburg Falls Recreation Area Trail Tread repair	7.0					\$60,000				\$60,000	60 days of AIC Crew time
Shelburg Falls Recreation Area Trail Signs						\$515				\$515	19 trail signs
Shellburg Falls Loop Trail Bridge Replacement						\$35,650				\$35,650	Removal, Material, Permits, and AIC Labor
High Lakes Trail Tread Repair (Planning)	2.2										
Mini-Excavator Rental (5 weeks)						\$5,000				\$5,000	
Culverts						\$900				\$900	
Trail location and design supplies						\$500				\$500	Pin Flags, Flagging...etc.
Motorized											
Maintenance	6.0									\$0	
Trailhead Markers										\$0	
										District Total	\$5,000
										Other Total	\$207,025
										TOTAL	\$212,025

RECREATION GRANT MANAGEMENT SUMMARY

District: North Cascade

Fiscal Year: 2022

Date : 06/09/2021

Grant	Status	Award Date (actual or anticipated)	Recreation Leadership Approval	Goals/Purpose	Funding		Project Total	Comments
					Grant (\$)	Match (\$)		
BC 615 Target Shooting Area Development (NRA)	Awarded		Yes	safe and manageable target	\$7,000		\$7,000	Originally a FY2021 AOP project
					Grants Total		\$7,000	
					Match Total		\$0	
					TOTAL		\$7,000	

Appendix B

Vicinity Maps

- Harvest Operations Vicinity Map

NORTH CASCADE DISTRICT FY 22 AOP VICINITY MAP

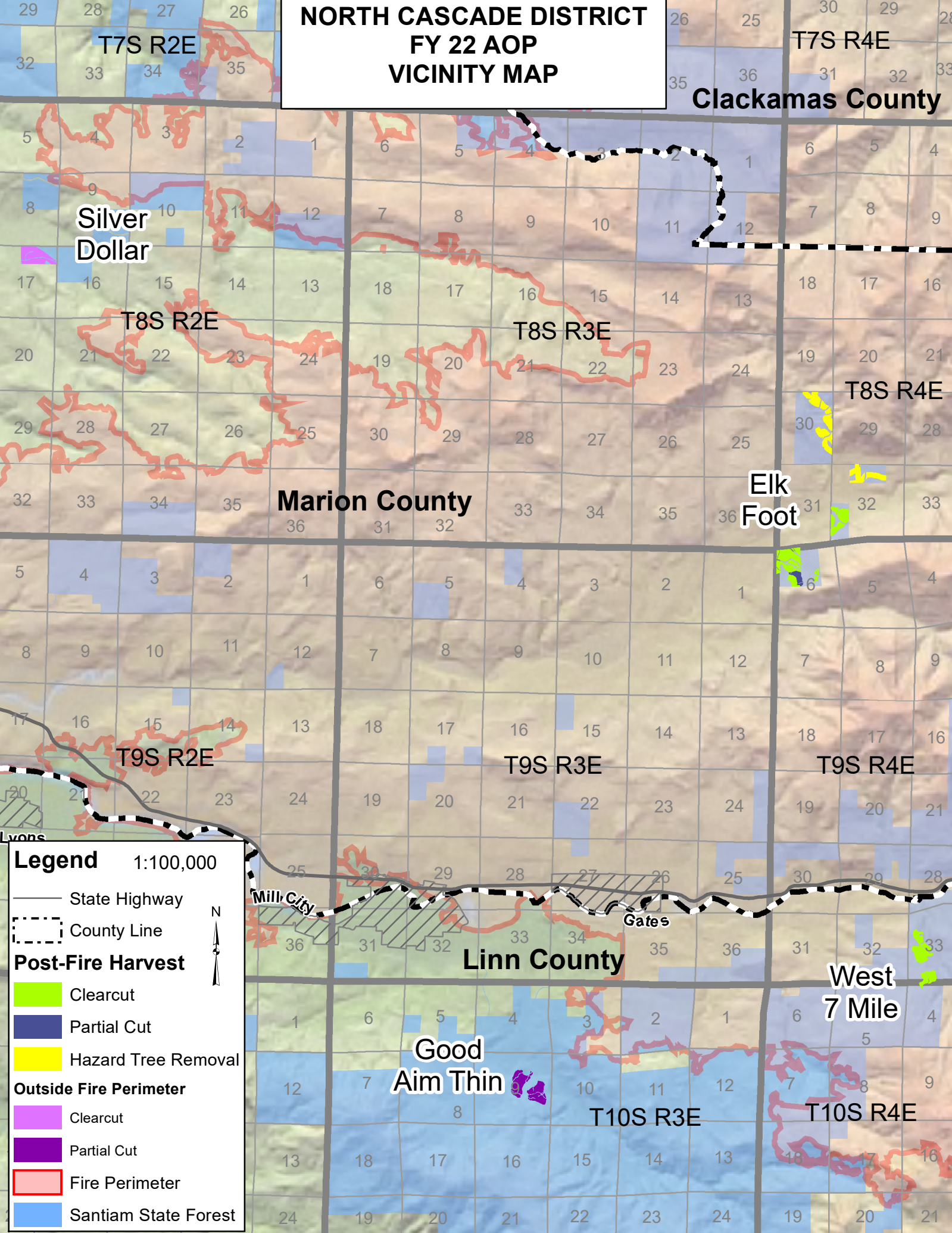
Clackamas County

Marion County

Linn County

**West
7 Mile**

**Good
Aim Thin**



Legend 1:100,000

- State Highway
- County Line
- Post-Fire Harvest**
- Clearcut
- Partial Cut
- Hazard Tree Removal
- Outside Fire Perimeter**
- Clearcut
- Partial Cut
- Fire Perimeter
- Santiam State Forest



Lyons

Mill City

Gates

**Silver
Dollar**

**Elk
Foot**

T7S R2E

T7S R4E

T8S R2E

T8S R3E

T8S R4E

T9S R2E

T9S R3E

T9S R4E

Gates

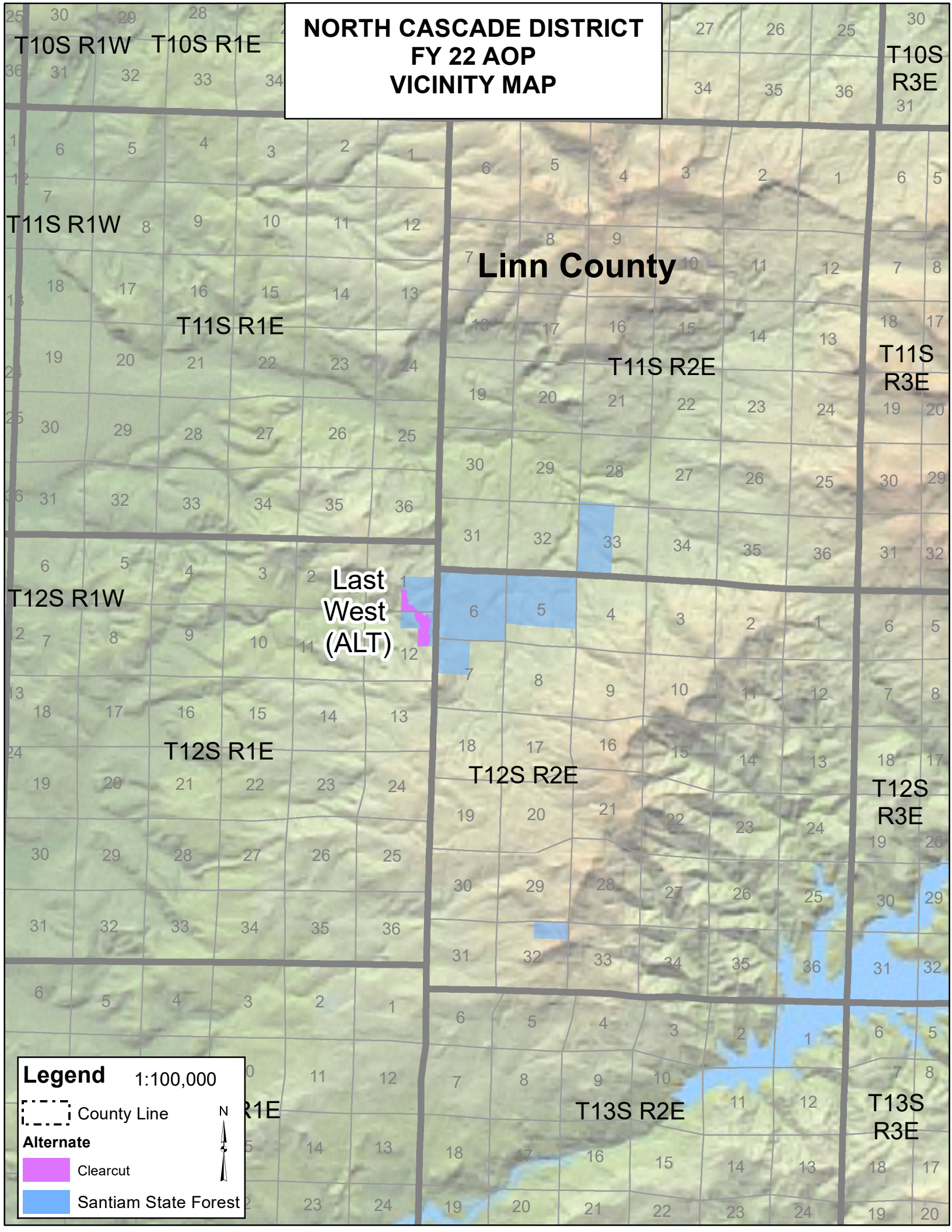
Mill City

Gates

T10S R3E

T10S R4E

NORTH CASCADE DISTRICT FY 22 AOP VICINITY MAP



Linn County

Last
West
(ALT)

Legend 1:100,000

County Line

Alternate

Clearcut

Santiam State Forest

N

Appendix C

Consultations with Other State Agencies

Oregon Department of Fish and Wildlife (ODFW):

ODFW fish and wildlife biologists were provided the harvest units for review. The following is the written feedback received from ODFW:

“Thank you for the opportunity to comment on the FY22 North Cascade District Annual Operations Plan. We appreciate your sharing of the sale plan GIS data and providing extra time for our review. ODFW district fish and wildlife biologists have reviewed the plan and do not have any major concerns. I believe the communication between ODF and ODFW over the past year has paid off well in that regard.

ODFW wildlife staff have had on-going conversations with ODF staff about road access management as the forest reopens, and we hope that these conversations can continue. We would like to further explore the possibility of Travel Management Areas in the areas that have been severely impacted by the fire. Reduced cover for big game species could potentially lead to overharvest of huntable animals in the near future as these landscapes recover. We would appreciate being kept apprised of ODF’s plans for road access management and the strategic placement of the six new gates.

Regarding aquatic and riparian management, we recommend that ODF seek input from ODFW fish staff on the prioritization of riparian areas for restoration. As for wildlife research and monitoring, we are supportive of the effort to deploy 20-30 cameras to monitor wildlife use on the Santiam State Forest. We would be happy to collaborate on this project, and would be interested in the results of the study as they are generated. We are also interested in the results of the Oregon Slender Salamander (Oregon Strategy Species, State Sensitive) study being conducted with Weyerhaeuser and Oregon State University.

We look forward to seeing the draft Santiam State Forest Restoration Plan when it becomes available. As we discussed over email, a field visit with key staff to see how restoration work is progressing and provide input would be mutually beneficial and lead to better restoration and recovery outcomes.”

Oregon Department of Transportation – Archaeologists:

Archaeologists from the Oregon Department of Transportation (ODOT) have reviewed the proposed timber harvests, road construction and recreation projects for potential impacts to cultural resources. ODOT’s review of historic maps and other information indicates there was human activity near some of our planned operations that could have led to the presence of cultural artifacts today.

The following areas (listed by historic activity) will be reviewed on the ground to determine if cultural artifacts are present:

Trail: West 7 Mile

Railroad grade: Good Aim Thin

Appendix D

Public Involvement and Summary of Changes

The Oregon Department of Forestry issued a Press Release in August 2021, announcing a formal 30-day public comment period for the North Cascade FY 22 Annual Operation Plan from August 9, 2021 through September 8, 2021.

The purpose of the Public Comment Period was to provide an opportunity for the public to review the AOPs, ask questions, make recommendations, and offer comments. As a public agency, ODF strives to operate in the best interest of Oregonians. We provide opportunities for public participation to assist us in securing the greatest permanent value from state forests for all Oregonians.

The following changes have been made to the North Cascade FY22 AOP since the Public Comment Period:

Summary Document: Language was added on page 21 to clarify the riparian management strategies being used inside and outside the fire perimeter.

Below is a link to a summary of all comments received for the North Cascade FY22 AOP and ODF's responses to those comments.

<https://www.oregon.gov/odf/working/documents/aop-public-comments-north-cascade-district-fy22.pdf>

Appendix E

Pre-Operations Report

Pre-Operations Reports are available online through a Web Application at the following link: (This is the Public Web Viewer on the Santiam Recovery Page link)

<https://experience.arcgis.com/experience/71b6681f422946a2968eacf350522ab7>

This link should be opened using Chrome or Edge. Zoom to the sale area of interest and click inside the polygon. A pop-up box should show up with a link to the Pre-Op Report for the sale. The burn severity layer, fire perimeter, desired future condition layer, aerial seeding and several other informational layers are available in this Web Application as well. Burn Severity is defined in the North Cascade District 2021 IP Major Revision.