

# **NORTH CASCADE DISTRICT**



*"STEWARDSHIP IN FORESTRY"*

## **2018 ANNUAL OPERATIONS PLAN**

# NORTH CASCADE DISTRICT

## APPROVED 2018 ANNUAL OPERATIONS PLAN

### OVERVIEW

This plan describes the activities and outcomes that Oregonians can expect to see on the Santiam State Forest for Fiscal Year 2018 (July 1, 2017 – June 30, 2018). We welcome your comments, and will use them to improve this plan within the scope of the Department's authority, in alignment with long term plans, budget, and staff resources.

The Santiam State Forest is an actively managed forest, valued by many Oregonians for its mixture of environmental, economic, and social benefits. This plan supports this mixture and provides a balance of these benefits as required by Oregon Administrative Rule (OAR 629-035-0020). We strive to manage the forest sustainably, so that the benefits from the forest can be delivered into perpetuity. The forest harvesting is planned at a sustainable level; a level that forest models suggest can be harvested year after year without reduction.

Managing a large public forest has its challenges. In addition to the challenges of providing the opportunities described above, the forest is expected to be financially self-supporting. About two-thirds of the revenue from state forest timber sales go to local counties. ODF uses the remaining one-third of the revenue to manage the forests through activities including fire protection, tree planting, thinning, research and monitoring, recreation services, road maintenance and stream improvement. Current financial constraints are limiting some activities and you will see this theme throughout this year's plan.

Every year in the Santiam State Forest we learn new things, find new challenges and explore new opportunities. In preparing this plan, we have consulted with geotechnical specialists, wildlife biologists, fish biologists, aquatic specialists, engineers, adjacent landowners, and a variety of interest groups.

This AOP has been reviewed by the Oregon Department of Fish and Wildlife. The public comment period for the FY2018 Annual Operations Plans ran from March 20, 2017 – May 4, 2017. A summary of the comments received is within Appendix D of this plan.

**A short summary of activities planned for the coming year:**

- Initial planting of 225,765 trees on 519 acres, inter-planting of 15,000 trees on 100 acres, and conducting vegetation and animal management activities on an additional 1,160 acres to ensure the survival and growth of plantations
- Maintaining a 390 mile road network that provides access to timber harvest as well as various recreational opportunities
- Northern Spotted Owl density surveys for large blocks of ownership, and Operational Surveys for scattered tracts of ownership
- Protecting streams and water resources through a series of buffers, aquatic anchors, and seasonal restriction activities
- Habitat development projects such as retaining green trees in clearcut areas, leaving down wood, and stream habitat improvement projects all for wildlife benefits in recreation areas and harvest areas
- Improving and maintaining forest roads to ensure ditch water is dispersed and filtered through the forest floor
- Beginning the planning cycle to harvest approximately 20 million board feet of timber volume, generating net revenue of an estimated \$9,475,413
- Operating and maintaining the following developed facilities in a safe, clean, and responsible manner:
  - 5 campgrounds
  - 7 trailhead facilities
- Providing a safe and clean environment for the numerous dispersed activities which occur across the forest – hunting, camping, angling, sight-seeing, target shooting, swimming, mushroom picking, etc.
- Maintaining, managing, and patrolling the 6 miles of motorized and 25 miles of non-motorized trail networks, striving to protect the trail investments, provide for user safety, address developing trail issues, and protect water quality
- Supporting the important volunteer network that assists in recreation management including the following programs:
  - Adopt a Trail
  - Trail Maintenance and Construction Work Parties
- Supporting the pre-planned 2 to 5 organized recreation events
- Providing a firewood cutting program as timber sales are completed
- Supporting ongoing research on the district, in partnership with research cooperatives and universities

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# NORTH CASCADE DISTRICT

## APPROVED 2018 ANNUAL OPERATIONS PLAN

### INTRODUCTION

This annual operations plan (AOP) outlines state-owned forestland managed by the North Cascade District for Fiscal Year 2018 (FY18), which begins July 1, 2017 and ends June 30, 2018. This document describes how the activities and projects undertaken by the district will achieve the goals, strategies, and objectives of the *NW Oregon State Forests Management Plan (FMP)*, *Santiam State Forest Recreation Action Plan*, and the *North Cascade District Implementation Plan (IP)*. Please refer to the district IP for more specific information on physical characteristics and other district resource information.

The AOP document is divided into five major categories: Integrated Forest Management Operations; Planning and Information Systems; Public Information and Education; Administration and Appendices. A short summary of proposed activities are listed within this introduction.

The proposed operations and activities are planned to be designed, engineered, and submitted for processing during the FY18 time period. Actual on-the-ground operations will likely not occur during FY18 due to the time-lag associated with contract duration, which could be one to three years after auction. In contrast, reforestation, young stand management, recreation management, and planning activities will be carried out during FY18.

A Public Comment period ran from March 20 – May 4. A summary of this public comment period can be found in Appendix D.

In addition to describing forest management activities for FY18, Appendix G of this AOP also describe minor modifications being recommended to the District's Desired Future Condition (DFC) classification.

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*, the *Common School Forest Lands Annual Report*, and individual district annual reports (these reports also cover the accomplishments of the Fire Protection and Private Forests Programs). These reports are available through the local district office or online.\*\*

\*\*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**

The following planned commercial forest management activities are within the guidelines and objectives outlined in the North Cascade Districts 2012 Implementation Plan. The FY18 AOP is estimated to produce 20 million board feet (MMBF) in volume, generate gross revenues of approximately \$10,190,425 and net revenues of \$9,475,413. The district has also included 6 Alternate Operations in this Annual Operations Plan. These alternate operations may be used to replace primary sales that cannot be completed as planned. The district anticipates 1-3 small negotiated salvage sales (342 or 343 contracts) in this sale plan. All activity will remain within the expected volume target for the AOP. These small operations are not included as part of the AOP because they affect a very small area, produce little volume or revenue, and do not require significant effort to develop and execute. These sales will be less than \$100,000 in value and comply with all policies and plans.

Table 1 compares the proposed acres by harvest type in this AOP to the harvest acre ranges specified in the North Cascade District 2012 Implementation Plan. Total planned acres in this AOP are 556 net acres. The anticipated harvest acres, volume, and revenue for each proposed operation in this AOP are listed in the “Harvest Operations – Financial Summary” table in Appendix A, while a vicinity map of these harvest operations can be found in Appendix B. Individual pre-operations reports are available upon request.

Table 1. Annual Operations Plan objectives compared to annual objectives identified in the North Cascade District Implementation Plan. All values are acres, except for Volume.

Annual Harvest Objectives	IP Annual Objective		2018 AOP
	Low	High	
Volume (MMBF)	19-21		20
Partial Cut Harvest	0	800	0
Regeneration Harvest	240	700	556

Table 2. Accomplished Volume Compared to Annual Objective (MMBF).

Fiscal Year	Annual Objective	Planned Volume	Sold Volume	Cumulative Difference from Objective
2014	19	20.6	19.106	0.106
2015	19	19	20.606	1.712
2016	19	20	18.854	1.566

\*FY 2017 is not included in this table as sales are currently being set-up and sold at this time.

The regeneration harvests proposed in this operations plan comprise approximately 1.2% of the total acres within the Santiam State Forest. An active and integrated forest management approach on the Santiam State Forest will provide for high levels of sustainable and predictable timber revenue while concurrently providing key habitat for native fish and wildlife species. The following is a summary of Harvest type definitions:

**Regeneration Harvest** –The intent of a Regeneration Harvest is to develop a new stand. In general, residual trees left after a Regeneration Harvest are intended to remain on the site through the life of the new stand/cohort.

**Modified Clearcut:** Clearcuts are modified to leave residual green trees, snags, or trees destined to become snags specifically for their biological or environmental values. In this harvest type, good regeneration results are attained and structural components (green trees, snags, and down wood) are retained that provide value to other resources. A Modified Clearcut resembles a seed tree harvest, but the intent is different. The residual trees from the existing cohort may be distributed across the harvest unit, grouped together in patches, or left along the edge of the harvest unit. Sometimes the residual trees will be grouped along the edges of a harvest unit, in which case, it will look like a Clearcut.

**Partial Cut Harvest** –The intent of a Partial Cut Harvest is to manage the growth and density of an existing stand. A prescription for a Partial Cut may be designed to increase the structural complexity of a stand, maximize volume growth, or capture tree mortality. A stand may be Partial Cut many times throughout its life. All Partial Cut harvest types retain at least 80 square feet of basal area per acre of trees greater than 11 inches DBH. There are three types of partial cuts:

**Heavy Partial Cut:** A Heavy Thinning approaches the harvest intensity of a Retention Cut, and the management focus may be on the existing cohort, new cohort, or both. A heavy thinning results in the fast growth of individual trees, but reduces the total volume growth of the stand.

**Moderate Partial Cut:** Moderate Thinning provides for optimal stand growth and allows vigorous growth of the individual trees. Stand structure will continue to develop with a Moderate Thinning, and depending on species composition and site index, a new cohort of trees may be initiated.

**Light Partial Cut:** A Light Thinning focuses on maintaining stand growth and health, however in order to achieve these goals, it must occur more frequently than a Heavy or Moderate Thinning in the same stand. More complex stand structure will not be developed with a Light Thinning and a new cohort of trees will not be initiated.

A Desired Future Condition of GEN places an emphasis on timber production as well as occupying the full growth potential for the site. Partial cuts are intended to reduce the density of the overstory trees and to maintain or further encourage the understory growth within these stands. Partial cutting will also allow the residual trees within a stand to increase their diameter growth and enhance stand volume and value. Regeneration harvests are typically reserved for DFC General Forest Management areas but may be used in a DFC Complex area as needed but tend to be rare and warrant justification for doing so.

A Desired Future Condition of Complex places an emphasis on increasing or enhancing the biodiversity of a stand. Partial cutting a stand tends to move the stand along the trajectory towards the DFC. Stand structure begins to develop later when the stands reach 10-15 years of age or pre-commercial thinning age. At the time of pre-commercial thinning, the DFC for the stand is re-evaluated since some young stands change dramatically within the first 15

years. The primary management objective for these stands is to enhance stand volume production and value while maintaining or developing structural components important to habitat diversity.

All of the Primary and Alternate harvest operations and many of the other forest management activities have been reviewed by ODF's wildlife biologists, aquatic specialist, geotechnical engineer, road engineer, and operations coordinator, as well as fish and wildlife biologists from the Oregon Department of Fish and Wildlife. Information on operations that occur within the provincial circle of a northern spotted owl have been provided to the US Fish and Wildlife Service.

### **Structural Habitat Components**

The process of producing an array of forest stand structures across the landscape is a gradual one. A variety of sound silvicultural practices will be used to actively move the forest towards the desired range of stand structures outlined in the Implementation Plan.

The guidelines for managing structural habitat components listed under Landscape Management Strategy 3 in the NWO State Forests Management Plan (pg. 4-52) will be followed for the FY18 Annual Operations Plan. In proposed commercial forest management operations, existing down wood, snags, and remnant old growth trees or patches of old growth will be retained. The landscape management goal is to have an average of two snags per acre retained across the landscape. Residual live trees retained in conjunction with regeneration harvests will serve as a source of future snags and down wood as well as provide legacy trees for the new stand being regenerated. Retained trees will include a component of hardwood trees when available. The snags and down wood left in all operations also support future forest needs. The snags provide habitat for cavity-nesting species and provide a future source of down wood. The down wood provides habitat for wildlife species and enables other key functions such as nutrient cycling.

The FMP strategy for hard snags is to manage for at least two per acre on average across the landscape. The need for snag creation for regeneration sales is evaluated on a sale by sale basis. The wind events of December 2006, November 2007 and December 2007 made significant contributions to snag and down woody debris levels despite the salvage of some large concentrations. The residual decadence in turn led to scattered bark beetle outbreaks resulting in additional tree mortality during 2009-2011. The majority of beetle caused mortality is located within the Mad Creek and Rock Creek Basins. Based on these observations (and evaluation of upcoming timber sale areas), snag creation will only be considered on planned sales in the Butte Creek, Cedar Creek, and Scattered Basins. Planned sales in these basins include Family Camp 2, Gravy Train, and ReStout.

In order to protect water quality during active operations, a variety of options will be used to prevent sediment from entering live streams. These methods include (but are not limited to) maintaining or improving existing culverts and ditch lines along active haul routes, adding additional ditch relief culverts when needed to ensure disconnect from live streams, use of sediment control devices in road ditches as necessary during active hauling, and use of seasonal restrictions for logging and hauling operations during wet weather conditions. New culvert installments or culvert replacements in live streams will be conducted during the in-stream work period which occurs generally between July 1 and August 31. Operations outside of this period will be reviewed with the local ODFW fish biologist. Riparian management areas include leave trees and other stream associated vegetation

adjacent to the stream which protect stream temperature, provide nutrients, protect stream banks, and eventually provide large wood debris to improve fish habitat.

The FMP strategy for Down Woody Debris (DWD) is to retain an average of 600 to 900 cubic feet of hard conifer logs (class 1 & 2) per acre during regeneration harvest. Methods used to ensure targets are met in this sale plan include utilization of residual logging slash, modified bucking practices, and contract required DWD creation. Specific methods will be assigned during the sale preparation phase.

Another opportunity for natural recruitment of snags and DWD is created by laminated root rot disease (*Phellinus weirii*). In severe cases of root rot, we attempt to hinder the spread of the disease by cutting out the infected trees. In other cases we do not cut out the infected trees. This allows the disease to spread at a rate of approximately one foot per year, slowly adding snags and DWD to the stand. Whether laminated root rot is treated or untreated, we know from experience that additional trees will be infected by the disease, creating snags and eventually DWD.

### **Harvest Operations within Terrestrial Anchor Sites and Aquatic Anchors**

The Implementation Plan has incorporated the State Forests' Species of Concern Strategies which specifically identifies fish and wildlife species of concern on the Santiam State Forest. Two of these strategies include Terrestrial Anchor Sites (TAS) and Aquatic Anchor (AA) sites.

- TAS 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 a TAS is intended to be limited, to emulate natural small-scale disturbance patterns, and to minimize short-term negative impacts to complex habitat and to promote long-term improvements to habitat conditions through management. Areas which were designated as TAS include stands designated for the development of complex structure in the Landscape Design.
- 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 sites, with the management activities within those areas 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 specialists will be tracking the harvest trends within these areas to ensure the harvest prescriptions and rate is consistent with the goals of these strategies. Table 3 and 4 summarize cumulative harvest operations in TAS and AA since the strategy was adopted (AOPs 2012 through 2018). Currently, no operations are scheduled within the TAS for the FY18.

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

Terrestrial Anchor Site (TAS)	Current AOP (FY 2018) Planned Harvest		Cumulative Harvest (FY 2012 AOP to Present)	
	Clearcut	Partial Cut	Clearcut	Partial Cut
High Lakes TAS	0	0	3	278
% of Acres	0%	0%	0.2%	20.5%
All TAS	0	0	3	278
% of Acres	0%	0%	0.2%	20.5%
Entire District	556	0	2485	2434
% of Acres	1.2%	0.0%	5.2%	5.1%

Table 3 summarizes proposed harvest operations within the TAS for FY18 and the cumulative operational acreage since the strategy was adopted (AOPs 2012 through 2018). Although the High Lakes TAS cumulative harvest rate is significantly higher when compared to cumulative district harvest rates, it is important to recognize that the TAS is comprised of a comparatively smaller overall land base of 1,354 acres. Because of this, standard harvest operations of equal acreage (when compared to averages across the district land base) will carry a significantly greater percentage weight when applied to the significantly lower land base acreage of the High Lakes TAS.

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

Aquatic Anchors (AA)	Current AOP (FY 2018) Planned Harvest		Cumulative Harvest (FY 2012 AOP to Present)	
	Clearcut	Partial Cut	Clearcut	Partial Cut
Rock Creek	31	0	77	1197
% of Acres	0.3%	0%	0.6%	9.8%
Sardine Creek	0	0	0	0
% of Acres	0%	0%	0%	0%
All AA	31	0	77	1197
% of Acres	0.2%	0%	0.5%	7.6%
Entire District	556	0	2485	2434
% of Acres	1.2%	0%	5.2%	5.1%

Table 4 summarizes proposed harvest operations within the AA's for FY18 and the cumulative operational acreage since the strategy was adopted (AOPs 2012 through 2018). Cumulative partial-cut harvest rates for the AA's are lower this year due to no partial cut acres planned in this AOP. Cumulative clearcut harvest rates remain significantly lower. The difference between the two rates stem primarily from the higher proportion of LYR and OFS stands within the AA's.

### Summary of Timber Harvest Operations by Basin

In the following section, the harvest operations planned for FY 2018 will be summarized in the context of the seven management basins located within the North Cascade District. A summary of the resources within each sale is located in Appendix A, b. Forest Resource Summary. Individual pre-operation reports include information regarding riparian

protection and structural components such as snags, down wood, and green tree retention. Road projects and standards are discussed in the Roads and Engineering section.

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

Basin	Partial Cut	Clearcut
Butte Creek	0	58
Cedar Creek	0	170
Mad Creek	0	0
Crabtree	0	0
Scattered	0	87
Green	0	65
Rock Creek	0	176

Butte Creek Basin

**Family Camp 2:** Proposed 1 unit modified clearcut across 58 net acres. The DFC for this unit is General. The future pathway will be regenerated with primarily Douglas-fir. Approximately 0.3 miles of new road will be constructed to facilitate harvest operations. Approximately 0.5 miles of existing road will be improved along the proposed haul route. No streams are currently mapped within the proposed timber sale boundary. If any perennial streams are found, they would be in the headwaters of Fall Creek and will be protected accordingly.

Cedar Creek Basin

**Gravy Train:** Proposed 3 unit modified clearcut across 170 net acres. The DFC for these units is General. The future pathway for these stands will be regenerated with primarily Douglas-fir. Approximately 0.1 miles of new road will be constructed to facilitate harvesting operations. Approximately 4.5 miles of existing road will be improved along the proposed haul route. Streams within these units are all perennial non-fish bearing and in the headwaters of Little Abiqua Creek.

Mad Creek Basin

No operations are planned in this basin during FY18

Crabtree Basin

No operations are planned in this basin during FY18

Scattered Basin

**ReStout:** Proposed 1 unit modified clearcut across 87 net acres. The DFC for this unit is General. The future pathway will be regenerated with primarily Douglas-fir. Approximately 0.3 miles of new road will be constructed to facilitate harvesting operations. Approximately 1.5 miles of existing road will be improved along the proposed haul route. Streams within this unit are all perennial non-fish bearing and in the headwaters of Stout Creek. The sale boundary is adjacent to a portion of Stout Creek, a small fish bearing stream.

Green Basin

**Green 30:** Proposed 1 unit modified clearcut across 65 net acres. The DFC for this unit is General. The future pathway will be regenerated with primarily Douglas-fir. Approximately 0.2 miles of new road will be constructed to facilitate harvesting operations. Approximately

0.2 miles of existing road will be improved along the proposed haul route. Streams within this unit are all perennial non-fish bearing and in the headwaters of Big Washout Creek and Sawmill Creek.

### Rock Creek Basin

**Cobra Commander:** Proposed 1 unit modified clearcut across 90 net acres. The DFC for this unit is General. The future pathway will be regenerated with primarily Douglas-fir. No new road will need to be constructed on this timber sale. Approximately 1.3 miles of existing road will be improved along the proposed haul route. Streams within this unit are all perennial non-fish bearing and in the headwaters of Snake Creek.

**Tom Rock Top:** Proposed 1 unit modified clearcut across 86 net acres. The DFC for this unit is General. The future pathway will be regenerated with primarily Douglas-fir. No new road will need to be constructed on this timber sale. Approximately 0.8 miles of existing road will be improved along the proposed haul route. Streams within this unit are all perennial non-fish bearing and are in the headwaters of Snake Creek and Rock Creek. The eastern half of this unit is within the Rock Creek Aquatic Anchor, meaning that the streams that are located within this side of the unit will require additional protection measures for riparian management zones.

## Forest Roads Management

### **Overview**

The primary transportation focus is to provide access for forest management activities. This involves constructing new roads where needed and maintaining or upgrading existing road systems. Other resource management needs and other users are considered in the transportation planning. A well-managed transportation system provides access for timber removal, recreation, fire control and removal of other forest products as well as other uses. The district transportation system is managed to provide efficient and effective access.

The transportation activities planned in FY18 will be to maintain and improve current access which minimizes resource impacts to water quality while also meeting the district's access needs. An over-arching goal for new road construction and road maintenance is to protect or improve water quality. Over the last 20 years much effort has been made in removing barriers to fish passage and improving road drainage which minimize impacts to water quality. The planned activities within this AOP will help meet transportation objectives.

This AOP includes project work with each proposed primary sale. Roads surfaced with crushed rock make it possible to create and maintain a road surface shape that will drain appropriately and allow for safe and efficient travel of our forest road system. Good surface drainage is critical to minimizing sedimentation from roads and for protecting the subgrade to allow winter hauling where appropriate. Along with good surface drainage, once the water is off the road the water needs to be directed in a way to minimize impacts to water quality.

Cross drainage structures will be reviewed on all proposed haul routes. Connecting spur roads will be upgraded where necessary. The guidelines found in the Oregon Department of Forestry Roads Manual are followed to determine where additional culverts will be

installed. Stream crossing structures will be analyzed on haul routes and the connecting spur roads to verify culvert sizing meets 50-year flow event minimums. Roadside brushing and roadside spraying will be conducted to control encroaching vegetation and maintain safe sight distance.

Some new spur roads will be constructed to provide access for commercial forest management operations planned within the 2018 fiscal year. All new road construction for this Annual Operations Plan falls into the spur road category. Spur roads needed for future management activities, but not for immediate use, may be put in a restricted status by partially vacating or simply closing the road. This will reduce maintenance costs and reduce water quality impacts from those roads. All new road construction will be designed, reviewed and administered by foresters with forest engineering experience. Roads will be rocked if winter use is anticipated. It is also desirable to rock roads for reforestation activities which occur in the winter months.

Total cost of project work for FY18 is estimated at \$715,012 or 7% of the total gross timber sale value (value excludes alternate sales). Rationale for project work includes elevation of the sale, condition of the existing surface along the haul route and primary logging method of the timber sale area. Additional information regarding roads and engineering can be found in Appendix A, c. Forest Roads Management Summary.

### **Road Construction**

The district will construct approximately 0.9 miles of rocked spur road for timber sale access. All road construction for the planned commercial forest management operations described within this Annual Operations Plan will be designed as spur roads. Spur roads are short, generally less than 0.5 mile in length and will be built to standards that minimize the road footprint within a harvest area. Road sub-grade widths will be 14 to 16 feet wide and either ditched or outsloped. Where partial cut harvests are planned, the roads will be kept on the landscape and utilized for future management activities. Some of the roads built on other operations will be closed (not vacated) when the operation has been completed. Closed roads will be put in a condition that will require minimal or no maintenance until needed again. This may involve grass seeding and the installation of water bars, tank traps or other road barriers to keep vehicles off the road. If a spur road is vacated, stream crossing structures will be removed to eliminate the possibility of a stream restriction or maintenance problems. In some cases the access will not be vacated to assist with the reforestation effort.

### **Road Improvement**

Approximately 8.4 miles of road will be improved for the purpose of hauling logs. Road improvement in this plan will consist of culvert replacements with some culvert additions, ditch-line maintenance, spreading lifts of rock along major haul routes, and road brushing as needed on collectors and spurs.

### **Road Access Management**

Access to the Santiam State Forest generally is not restricted. However, roads that pose a high risk of damage to water quality are candidates for closure. Closing and vacating roads reduces the district's maintenance cost and helps to minimize impacts to the environment from roads. Not only do these roads cause a maintenance liability; some of these roads

become opportunities or locations for dumping of trash. Roads will be assessed for potential closure and vacating during the sale preparation phase.

### **Road Maintenance**

The maintenance for roads being used for timber sale access becomes the responsibility of the timber sale purchaser once sale activity has begun. Timber sale purchasers during this operating plan will maintain approximately 20 miles of road. Road grading, ditch cleaning, culvert inlet/outlet cleaning and spreading rock as needed during log haul will all be completed by timber sale purchasers.

District roads not under timber sale contracts are maintained by district personnel using a grader, front end loader, lowboy and a dump truck. Road grading over much of the district is covered once during the year with some roads graded more frequently due to heavy public use. Small rocking projects will also take place to reinforce weak subgrades. The district road crew also responds to emergencies such as plugged culverts, removing small slides, clearing slough from ditch lines and blocking roads when necessary. It is the district's goal to maintain approximately 75 miles of road per year. There is a great need for a district owned excavator to respond to these road maintenance emergencies and projects which require this type of equipment.

### **Land Surveying**

The district does not currently have an active land survey program. Property line surveys are conducted on a case-by-case basis and in a variety of fashions. Contracting out the work with the use of PLS licensed contractors, cost sharing with adjacent landowners, and utilizing the Salem Staff licensed surveyor are three examples. Family Camp 2 and Gravy Train are anticipated to be the primary operations requiring re-establishment of property lines for the FY18 AOP. In total, approximately 3 miles of property line will need to be surveyed. If the district had to expend the full cost of contracting the work out, an estimate for this work is \$10,000. This amount will be included in the FY18 budget to account for these needs.

### **Young Stand Management**

Young stand management operations occur in forest stands prior to harvest. These operations do not produce revenue, but are essential in maintaining a healthy forest. The objectives of young stand management are to achieve reforestation, stand structure development, and future revenue generation. The current fiscal year budget constraints limit young stand management to activities that are essential to the establishment of new stands.

Appendix A, d. Reforestation and Young Stand Management Summary outlines the costs needed to perform management activities on young stands. These young stands are not associated with the sales described in the pre-operations reports.

Reforestation projects will be completed through the use of ODF Staff, inmate crews from Mill Creek, as well as contracted crews. Mill Creek is a correctional facility in Salem and has joined in a cooperative effort between the Department of Corrections and Oregon Department of Forestry. Prior planning is needed to schedule any inmate crew for these projects; although some emergency situations can be accommodated.

The planned operations necessary to meet landscape and stand structure targets include: site preparation, planting, and vegetation management. Fertilization and Pruning are not funded in this plan due to budget constraints. The following is a brief summary of each individual activity.

## **Site Preparation**

Site preparation is a necessary tool used to establish a stand. Site preparation can affect seedling establishment and survival. Prescribed fire (burning of logging slash), mechanical piling of slash, and use of herbicides are just a few tools used in site preparation. Burning or piling logging slash eliminates or manipulates logging debris in order to create plantable areas. Herbicide site preparation is used to control undesirable vegetation that would otherwise compete with planted seedlings. Planting spot development is used when burning is not a viable option. Only heavy concentrations of logging slash are treated, while the majority of the slash is not removed from the site and will be left to decompose on site over time.

Generally, on the North Cascade District the site preparation activities are completed by different entities. The following list outlines who completes which projects:

- Mechanical - Timber Sale Contract Project Work
- Chemical (aerial and hand) - Private Contractors, occasionally Mill Creek Crews
- Slash Burning - ODF staff and Mill Creek Crews

The following units will undergo site preparation activities in FY 18: Around Panther, Zip-Up, 3<sup>rd</sup> and 15<sup>th</sup>, Camp Six, Camp Creek North, and Lawhead. Due to ongoing harvesting and 2-3 year contract terms, it is not possible at this time to be completely sure which units will be treated in FY18.

To protect air quality, all burning is planned in accordance with the Oregon Smoke Management Plan. The Smoke Management Plan is designed to reduce emissions from prescribed burning in western Oregon and to minimize smoke intrusions into designated population areas.

When using herbicides on State Forests for site preparation, the district will adhere to Environmental Protection Agency, approved herbicide product labels, and the Oregon Forest Practices Act.

Any mechanical site preparation will also be monitored to ensure that the Oregon Forest Practices Act requirements are met.

## **Planting**

Reforestation is the planting of tree seedlings following regeneration harvests, patch cuts, root disease removal, and severe blow down events. Initial planting and inter-planting a variety of tree species provide different outcomes.

Initial planting establishes the seedlings to begin a regeneration stand. The species of seedlings planted and the density at which they are planted will influence future management activities within the stand.

Inter-planting is used when initial reforestation has been less successful than desired. Planting additional trees within an area will continue the stand along its desired management path.

Generally, each year about 95% of our planted trees are Douglas-fir, and about 5% are western redcedar. Because it is root rot resistant, the western redcedar is planted in areas where root rot is present. Western redcedar is scheduled to be planted in FY18.

Occasionally in the past, noble fir was planted at high elevations where it naturally occurs and where our Douglas-fir seed is not appropriate. Noble fir is scheduled to be planted in FY18.

Generally the units that will be planted in a fiscal year are the same as the units scheduled for site preparation that year. Often there will be slight variances as some units may be site prepped, but not planted due to stock types and availability. During FY18, the units that will be planted should be the same as the units that will be site prepped. These units include: Around Panther, Zip-Up, 3<sup>rd</sup> and 15<sup>th</sup>, Camp Six, Camp Creek North, and Lawhead.

### **Vegetation Management**

Chemical and manual release treatments including hand spray, aerial spray, hack and squirt and mechanical release will be conducted in plantations in danger of failure due to brush or grass competition.

Generally, on the North Cascade District vegetation management activities are completed by different entities. The following list outlines who completes which projects:

- Chemical (aerial and hand)—Private Contractors (aerial), Private Contractors (backpack) occasionally Mill Creek Crews (hand), and ODF staff (hand)
- Mechanical Hand Release—Mill Creek Crews
- Chemical Hack and Squirt—Mostly Mill Creek Crews, occasionally Private Contractors

### **Tree Protection**

Tree protection is used in areas where animal damage (from deer and elk) is expected to reduce the number of seedlings below desired stocking levels. A Vexar tube is placed over a newly planted seedling and the tube is supported with two bamboo stakes. Vexar tubes are generally reserved for tree species such as western redcedar that are severely damaged by animal browsing. Approximately 10,000 western redcedar seedlings are scheduled to be planted and protected during FY18 in an effort to mitigate root disease areas identified within recently completed timber harvest operations and to maintain tree species diversity.

### **Pre-commercial Thinning**

No PCT projects have been planned for FY18. An estimated 250-350 acres are in need of PCT, but budget instructions in recent years have been to not include PCT projects.

### **Fertilization**

No fertilization projects have been planned for FY18.

## **Noxious Weeds Control**

Noxious weed and invasive species treatment will occur in areas that can easily be treated and controlled. Smaller treatments are done on a county wide basis; these smaller treatments tend to be less than an acre in size. The goal is to treat smaller populations before they have an opportunity to spread. Individual scotch broom plants found along a road or in a plantation are examples of these smaller treatments.

Our timber sale contracts require road construction and timber harvest equipment washing to help control the spread of noxious weeds prior to working on the State Forest.

## **Recreation Management**

### **Overview of Recreation Management**

Currently, the district manages 4 fee campgrounds, 1 OHV staging area, 7 trailheads and parking areas, 25 miles of non-motorized trails, and 6 miles of OHV trails. Both overnight and day-use visitation on the Santiam State Forest has continued to increase in recent years. In anticipation that this trend will continue, staff have been focusing on ways to best manage the increased usage while preserving the features and assets visitors have come to experience.

The most concentrated recreation visitation on the Santiam State Forest occurs in the Shellburg Falls, Rock Creek, Butte Creek Falls and Santiam Horse Camp Recreational Areas.

There is significant use in the Santiam State Forest outside of the designated recreation areas. This includes, dispersed camping, hunting, target shooting, foraging, ATV use, and other activities.

The Recreation Program on the Santiam State Forest is managed in accordance with the Recreation Management Plan approved in September 2000, the North Cascade District Implementation Plan approved in June 2012 and the approved 2010 Northwest Oregon State Forests Management Plan. This section of the FY18 AOP is designed to provide information about the types of recreation opportunities and activities that are currently in demand on the Santiam State Forest, the developments and opportunities currently available, and the planned projects for the FY18 AOP period. Given the current budget constraints, the focus of the recreation program will be on maintaining existing infrastructure, providing for public safety and sanitation, and mitigating damage to natural resources.

### **Facilities (Campgrounds, View Points, Trail Heads, etc.)**

A summary of the costs can be found in Appendix A, e., Recreation Management Summary.

- Update and improve or replace existing informational kiosks
- Continue trail maintenance and repair
- Continue facilities maintenance and repair
- Update and improve informational and interpretive/educational signage

### Rock Creek Camping Area

- Rebuild informational kiosk at fee station
- Complete campsite relocation from FY17 AOP
- Spot rock roads and campsite parking areas
- Replace signage and campsite posts as needed due to weather damage
- Remove hazard trees in and around camp sites

### Shellburg Falls Campground

- Paint restroom
- Rebuild campground informational kiosk
- Continue adding rock to depressed trails, and improving trail drainages
- Improve spatial accuracy of GIS trail layer
- Continue coordination with Adopt-a-Trail group on improving the mountain bike trail system
- Remove hazard trees in and around campground
- Install wooden fencing around trailhead parking area to deter visitors from entering private property
- Explore potential opportunities to increase number of parking spaces
- Refinish wood on covered shelter

### Butte Creek Campground

- Reconfigure and add boulders to define campsites and parking locations
- Remove hazard trees near and around campground
- Rebuild campground informational kiosk and relocate iron ranger
- GPS survey historical trail leaving from Butte Creek Campground and leading towards Butte Creek Falls Trailhead

### Santiam Horse Camp

- Trail maintenance throughout entire trail system
- Install new trail way-finding signage along Monument Peak Trail system
- Remove hazard trees in and around campground
- Refinish wood on covered shelter

### Rhody Lake Recreation Area

- Conduct fuels reduction around camping sites
- Install metal fire pits
- Repair restroom floor and walls damaged by vandalism
- Remove hazard trees near and around campground

### Butte Creek Falls Trailhead

- Replace trailhead informational kiosk and signage

- Decommission “user made” trails off of designated trails
- Increase number of parking spaces
- Remove hazard trees near and around trailhead

#### Crooked Finger ATV Staging Area

- Install informational kiosk with updated trail map and OHV information
- Conduct trail assessment and update GIS layer accuracy
- Install way-finding signage and no shooting placards
- Continue coordination with Adopt-a-Trail group on improving ATV trail system and safety

#### Natural Arch Trailhead

- Replace trailhead kiosk and way-finding signage
- Repair steps on steep trail sections

#### Rocky Top Trailhead

- Replace trailhead kiosk and way-finding signage

#### Sardine Creek Trail

- GPS survey historical trail system

### **Trails**

#### Motorized (OHV) Trails

Motorized vehicles, including ATVs and dirt bikes, are allowed to ride on maintained gravel roads throughout the Santiam State Forest. A 6 mile designated ATV trail system is located in the north block of the forest called Crooked Finger OHV Area, and receives moderate to high use. Trail maintenance will be conducted by volunteer groups and overseen by ODF staff.

#### Non-Motorized Trails

The district will seek to maintain the over 25 miles of non-motorized trails on the Santiam State Forest. Trail systems provide opportunities for hiking, mountain biking and horseback riding. Annual trail maintenance includes bridge inspection, brushing, tread repair and drainage repair. Trail maintenance will be done by staff, volunteers and inmate crews.

### **Volunteer Program**

Volunteers contribute labor, supplies and expertise to the district recreation program. Our volunteers have partnered with ODF to construct new trails, maintain infrastructure, and preserve natural resources. Oregon Equestrian Trails, Silver Falls Chapter, has volunteered time and resources toward maintaining trails within the Monument Peak trail system. Boy Scouts of America have accomplished a variety of projects, primarily within the Shellburg Falls Recreation Area. These projects include trail maintenance, litter cleanup and invasive species removal. Cascadia Trail Crew, a local non-profit mountain biking association entered

into an Adopt-a-trail agreement with ODF. This group has been an integral partner in reconstructing and maintaining the mountain bike trails in the Shellburg Falls Recreation Area. The Chemeketans Trail Crew have contributed considerable amount of hours maintaining trails in the Shellburg Falls Recreation Area. We are reaching out to partner with a new volunteer group in the maintenance of the Crooked Finger OHV Trail Area in FY18.

### **Event Management**

Annually ODF partners with Run Wild Adventures to host an trail run at the Shellburg Falls Recreation Area which brings approximately 250 participants. ODF also partners with National Association of the Deaf to provide a 1-week long camping and outdoor activity experience for approximately 100 youth in the Rock Creek Camping Area.

### **Grants**

During FY18, the recreation staff will be exploring new grant opportunities to help fund the recreation program.

### Aquatic and Riparian Resources

The North Cascade District is comprised of a variety of habitat types that support many native species found in forests of the Oregon Cascade Range. Appendix E [of the FMP] and the *North Cascade District 2012 Implementation Plan*, "Species of Concern", page 14, contain a list of native fish that are currently known or are likely to exist within the North Cascade District. The streams, rivers, lakes, and other water bodies of the area provide habitat for a variety of fish species. There are approximately 67 miles of known fish bearing streams within the Santiam State Forest.

Rock Creek and Sardine Creek Watersheds are designated as AAs and were selected through a collaborative effort with ODFW District Fish Biologists, the State Forests Aquatic Specialist, District Forester, and district staff. The Rock Creek and Sardine Creek watersheds meet the landscape design principles described under the Landscape Design section of the *2012 North Cascade District Implementation Plan*. Fish are well distributed throughout the Rock Creek Watershed and Sardine Creek presents a unique opportunity for an aquatic anchor with amphibian emphasis.

A relatively high percentage of ODF ownership in each watershed means that management actions have a higher likelihood of influencing watershed processes. The proposed forest operations for FY18 follow the FMP's riparian management guidelines as well as incorporate the additional Species of Concern Strategies that are applied within AA's. The intended purpose of these management strategies are to lower short term risk to various salmonids and amphibian species while fostering the development of properly functioning aquatic systems and suitable habitat.

### Land Exchange

The North Cascade District has an approved land exchange plan, but due to budget constraints, all ongoing land acquisition and exchanges have been suspended in FY2018. As future budgets allow, acquisition and exchange plans will be revisited.

## Other Integrated Forest Management Operations

### **Firewood Cutting Program**

The North Cascade District will continue to issue personal firewood cutting permits in the coming year for areas within completed timber sales.

The public will be notified of firewood cutting permits through the district's telephone recording and posting at both the Santiam and Molalla offices. The permit fee for personal firewood cutting is \$20 for 2 cords. Permits will be issued for 3 week periods, during the months outside of fire season.

A limited number of personal firewood cutting permits will be issued, on a first come-first served basis, with a limit of 2 permits per individual or household within a 12 month period. Oregon Department of Forestry does not guarantee the quality or availability of wood when issuing firewood cutting permits.

Designated firewood cutting areas will be marked on the permit map, which excludes active and sold timber sales, recreation sites, and planned operations. Active timber sales will be posted with no firewood cutting signs.

### **Miscellaneous 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. Other products require specific stand types and growing conditions to be most productive. The most popular products requested in the past are salal and mushrooms. Salal can be found over most of the Santiam State Forest, while mushrooms grow best at lower elevations and in younger, dense stands of timber, usually in the under 40-year old closed single canopy stands. The permit program policy will be re-evaluated in FY18.

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.

## Planning (and Information Systems)

### Stand Level Inventory and Other Vegetation Inventories

Due to continued budget constraints, the Stand Level Inventory program maintains a utilization rate less than the capacity of its original intent. However, recent budget allocation will ensure that some stands within the district are scheduled for contract inventory during FY18. In the past year, through private contracts and Salem Staff, the district acquired 20 stands of new inventory cruises totaling approximately 1,976 acres. In the 2017 calendar year, approximately 3,420 acres across 26 stands are scheduled to be

inventoried. District personnel will continue to focus inventory efforts on post-harvest thinning units – time permitting, in an effort to ensure that silvicultural information is available for current stand conditions, harvest scheduling and prescription design.

### Fish and Wildlife Surveys

In order to remain consistent with the State Forest Management Plan, comply with federal and state Endangered Species Acts, surveys for the Northern Spotted Owl (*Strix occidentalis*) will continue during the 2017 field season. Density surveys will be conducted on major tracts of ownership which will cover all the primary and alternate operations in this plan, with the one exception of an alternate timber sale called Elk Hoof. Monitoring surveys for known spotted owl sites will also continue in order to determine site occupancy, nesting, and reproductive status of resident owls.

During the 2016 calling season and for future surveying, the district switched from operational surveys to density surveys. Where operational surveys focused on the proposed timber sale operational area, density surveys are based on strategically placed calling stations throughout the district ownership which allows for complete coverage of all suitable habitat.

Density surveys will cover large ownership parcels in the Mad Creek, Rock Creek, Butte Creek, Cedar Creek, Crabtree and Green Basin management areas. For tracts of ownership within the Scattered Management basin, operational surveys will still be utilized.

Within the operational survey protocol previously used and still being used on scattered parcels, spot check surveys were conducted during the life of the timber sale contract, usually 2 years after operational surveys. During spot checks, many timber sale contracts also had to have seasonal restrictions placed in them to ensure that certain aspects of the operation would not cause a disturbance during breeding season. With density surveys, no seasonal restrictions are required in timber sale contracts and spot checks are not needed because all suitable habitat is being surveyed every year regardless of the location of a certain operation.

Table 6. Summary of Surveys for Threatened and Endangered Species

<b>Primary Operation</b>	<b>Species<sup>1</sup> (NSO/MM)</b>	<b>Survey Years<sup>2</sup></b>	<b>BA<sup>3</sup> Required</b>	<b>Special Considerations</b>
Family Camp 2	NSO	2016, 2017	No	Density Coverage
Cobra Commander	NSO	2016, 2017	No	Density Coverage
Green 30	NSO	2016, 2017	No	Density Coverage
Gravy Train	NSO	2016, 2017	No	Density Coverage
Tom Rock Top	NSO	2016, 2017	No	Density Coverage
ReStout	NSO	2016, 2017	No	Density Coverage
<b>Alternate Operation</b>	<b>Species<sup>1</sup> (NSO/MM)</b>	<b>Survey Years<sup>2</sup></b>	<b>BA<sup>3</sup> Required</b>	<b>Special Considerations</b>
Cedar Creek Thin	NSO	N/A	No	Non-Habitat – Survey Waiver
Higher Rock	NSO	2016, 2017	Yes	Preliminary BA done
Mad Hatter	NSO	2016, 2017	No	Density Coverage
Radio Flyer	NSO	2016, 2017	No	Density Coverage
Spike Only	NSO	N/A	No	Non-Habitat – Survey Waiver
Wiley Coyote	NSO	2016, 2017	No	Density Coverage

<sup>1</sup> Surveys are conducted according to accepted protocols when habitat for the specific species is determined to be present. NSO – northern spotted owl, MM – marbled murrelet.

<sup>2</sup> Years that surveys have been completed or are planned.

<sup>3</sup> A Biologic Assessment is required for this operation due to the presence of NSO or MM in the vicinity of the operation.

## Research and Monitoring

The district is actively evaluating past timber sales for compliance with the Oregon Forest Practices Act. Several past sales were surveyed in 2013. The North Cascade District will use the information to assess and improve compliance.

Additionally, the district cooperated with Weyerhaeuser and Oregon State University on a study to help determine the abundance of the Oregon Slender Salamander on the Western slope 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 is proposed to last 5 years.

The district is also conducting a cooperative research project with Oregon State University on the study of black bear and tree peeling.

## Other Planning Operations

Planning activities will include road inventory updates throughout the ownership to assess and map locations of all stream crossing and ditch relief pipes.

Timber sale planning will begin in the spring of 2017 for the fiscal year 2018 Annual Operations Plan. The Annual Operations Plan will provide specific details on the harvest operations that will be set up and auctioned in the 2018 fiscal year. The plan will also provide an overview of the roads and engineering projects, non-commercial forest management operations, recreation management, planning, public information and education and administrative activities that will take place during fiscal year 2018. This

plan is developed according to guidance and standards found in the *NWO State Forests Management Plan*, *North Cascade District Implementation Plan*, *Santiam State Forest Recreation Plan* and the *Oregon Forest Practices Act*.

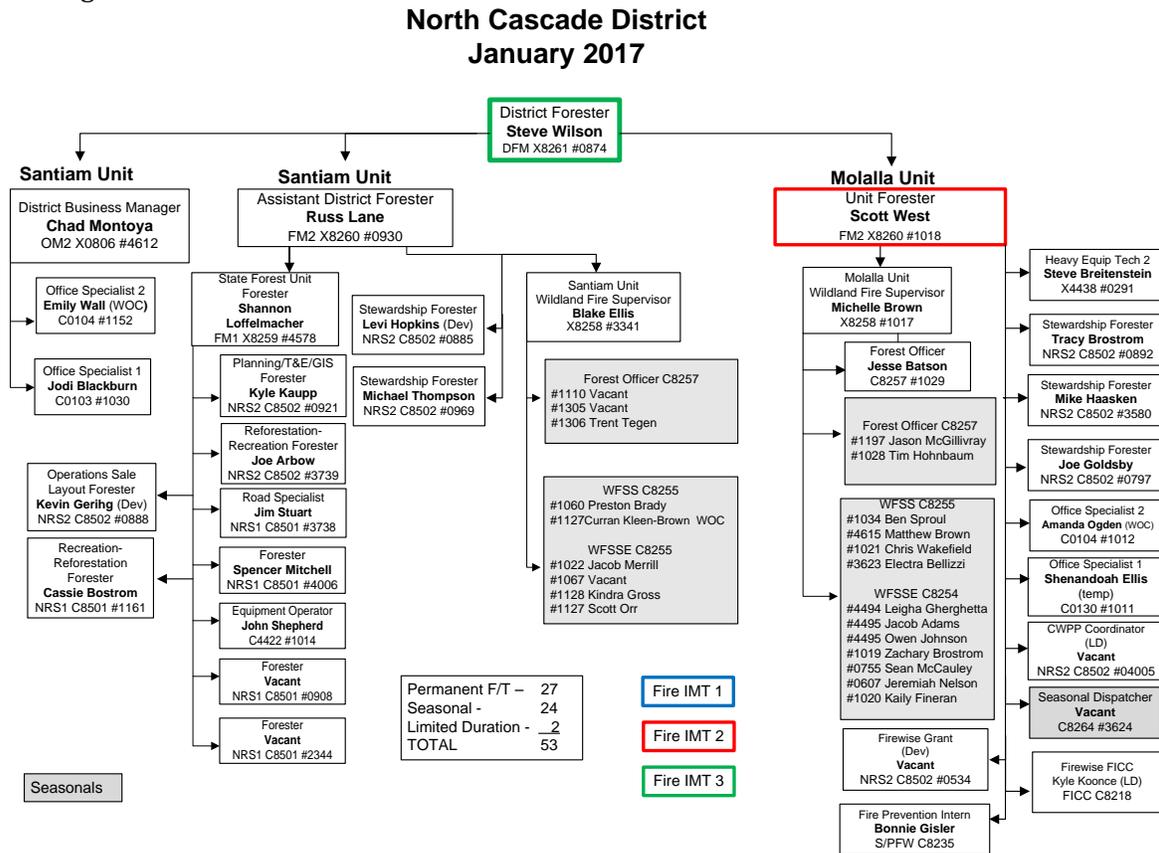
## Public Information and Education

Public information and involvement activities will include review and input regarding the FY18 Annual Operations Plan. Following that review, a public involvement summary will be added as an Appendix to this document.

The district often receives requests for job shadowing opportunities. Job shadowing usually involves a high school student or occasionally a college student who is interested in natural resources. The district arranges for these students to spend a work day with a district employee in a position they may be interested in. The district has also conducted school to work tours in cooperation with the Human Resources Department.

## Administration

The current Santiam State Forests Unit is comprised of 10 full-time permanent positions. The organization is structured as follows:



The organization has integrated into one functional unit supervised by the Management Unit Forester. Responsibilities of the Forest Management Unit include forest-level planning, (SLI) Stand Level Inventory, commercial and non-commercial forest management operations, young stand management, roads and recreation. The unit produces the AOP, timber sale contracts, reforestation and young growth management contracts, and administers the special forest products and firewood programs. Transportation plans, road maintenance plans and schedules, and other engineering related plans are in progress. The State Forests Unit also produces the plans and contracts needed to develop campgrounds, trails, and associated facilities. The recreation personnel coordinate most of the public information on the district.

The organization fits well within the budget instructions and guidance that is available for next fiscal year at this point in time. The young stand management program is highly cyclical in workload due to the nature of projects such as tree planting, fertilization, and vegetation management.

### Law Enforcement

Currently the district participates in a Cooperative Law Enforcement program in Linn County with other private timber companies. The district is currently seeking opportunities to partner with Marion County Law Enforcement to address a variety of public misuse activities from vandalism on State Forest structures at recreation sites, garbage dumping, illegal off-road ATV use, and firewood theft.

## APPENDIXES

### **A. Summary Tables**

- a. Harvest Operations – Financial Summary
- b. Harvest Operations – Forest Resource Summary
- c. Forest Road Management Summary
- d. Reforestation and Young Stand Management Summary
- e. Recreation Management Summary

### **B. Map Section**

- a. Harvest Operations Vicinity Map
- b. Include other maps that support the AOP

### **C. Consultations with Other State Agencies**

This appendix summarizes the results of consultations with the Oregon Department of Fish and Wildlife and other agencies, as appropriate. This appendix contains any written comments that we received from state agencies.

### **D. Public Involvement**

This appendix describes the results of the public involvement process of this AOP and will be added prior to its approval.

### **E. Pre-Operations Reports**

Pre-Operations Reports are available from the district upon request.

### **F. Minor Modification to Landscape Design**

This appendix describes a proposed minor modification to the landscape design.

## Appendix A – Summary Tables

### a. Harvest Operations – Financial Summary

#### TIMBER HARVEST OPERATIONS - FINANCIAL SUMMARY

District: North Cascade

Fiscal Year: 2018

Date: 02/21/2017

Primary Operations	Fund %		County	Sale Quarter	Net Acres		Volume (MMBF)			Value		
	BOF	CSL			Partial Cut	Clear-cut	Con-ifer	Hard-woods	Total	Gross	Projects	Net
Cobra Commander	100%		Linn (100.0%)	2	0	90	4.5	0.1	4.6	\$2,524,500	\$65,202	\$2,459,298
Family Camp 2	100%		Clackamas (100.0%)	1	0	58	2.5	0.0	2.5	\$1,205,225	\$200,159	\$1,005,066
Gravy Train	100%		Marion (100.0%)	3	0	170	5.3	0.1	5.3	\$2,804,025	\$92,276	\$2,711,749
Green 30	100%		Marion (100.0%)	1	0	65	1.5	0.0	1.5	\$738,625	\$165,525	\$573,100
Restout	100%		Marion (100.0%)	3	0	87	3.3	0.2	3.5	\$1,937,650	\$55,417	\$1,882,233
Tom Rock Top	100%		Linn (100.0%)	4	0	86	2.1	0.0	2.1	\$980,400	\$136,433	\$843,967

<b>Total:</b>	0	556	19.2	0.4	19.5	\$	10,190,425	\$	715,012	\$	9,475,413
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Alternate Operations	Fund %		County	Sale Quarter	Net Acres		Volume (MMBF)			Value		
	BOF	CSL			Partial Cut	Clear-cut	Con-ifer	Hard-woods	Total	Gross	Projects	Net
Cedar Creek Thin	100%		Marion (100.0%)	2	102	1	0.5	0.2	0.7	\$ 264,750	\$ 24,025	\$ 240,725
Higher Rock	100%		Linn (100.0%)	1	264	0	2.6	0	2.6	\$ 1,034,800	\$ 154,627	\$ 880,173
Mad Hatter	100%		Linn (100.0%)	4	0	136	4.1	0	4.1	\$ 1,947,500	\$ 61,077	\$ 1,886,423
Radio Flyer	100%		Linn (100.0%)	3	89	2	2.1	0	2.1	\$ 1,165,450	\$ 120,521	\$ 1,044,929
Spike Only	100%		Linn (100.0%)	2	99	2	1	0.1	1.1	\$ 406,875	\$ 50,560	\$ 356,315
Wiley Coyote	100%		Linn (100.0%)	3	225	5	5.2	0	5.2	\$ 2,873,750	\$ 101,895	\$ 2,771,855

<b>Total:</b>	779	146	15.5	0.3	15.8		7,693,125		512,705		7,180,420
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**b. Harvest Operations – Forest Resource Summary**

**PRIMARY HARVEST OPERATIONS - FOREST RESOURCE SUMMARY**

District: North Cascade

Fiscal Year 2018

Date: 02/21/2017

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 <sup>1</sup>	Invasive Species	LYR/OFS Structures <sup>2</sup>	Landscape Design LYR/OFS <sup>3</sup>	Install/Replace Culverts on Fish Bearing / Perennial Streams	Harvesting within 100' of Fish Bearing Stream	Domestic Water Source	Potential Stream Habitat Improvement <sup>4</sup>	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 <sup>5</sup>	T&E Plants	Geotechnical Issues Needing Field Review	Recreation Sites	Cultural Resources	Scenic Resources	Other Resources or Issues
Cobra Commander			x	x													x				
Family Camp 2			x	x																x	
Gravy Train			x			x		x							x		x				
Green 30			x			x		x									x				
ReStout			x	x				x									x			x	
Tom Rock Top			x	x						x											x

<sup>1</sup> 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

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

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

<sup>4</sup> The final decision on these projects will occur during sale preparation and inconultation with ODFW.

<sup>5</sup> This table lists harvest operations (units or log haul routes) that are adjacent to streams that are known to contain T&E fish. The Pre-Operation Report identifies whether T&E fish are present in the basin.

**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 <sup>1</sup>	Invasive Species	LYR/OFS Structures <sup>2</sup>	Landscape Design LYR/OFS <sup>3</sup>	Install/Replace Culverts on Fish Bearing / Perennial Streams	Harvesting within 100' of Fish Bearing Stream	Domestic Water Source	Potential Stream Habitat Improvement <sup>4</sup>	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 <sup>5</sup>	T&E Plants	Geotechnical Issues Needing Field Review	Recreation Sites	Cultural Resources	Scenic Resources	Other Resources or Issues
Cedar Creek Thin			x														x				
Higher Rock			x	x	x	x				x		x									x
Mad Hatter		x	x														x				x
Radio Flyer			x	x	x													x			x
Spike Only			x			x		x		x					x						x
Wiley Coyote			x	x	x												x	x			x

<sup>1</sup> 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

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

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

<sup>4</sup> The final decision on these projects will occur during sale preparation and inconultation with ODFW.

<sup>5</sup> This table lists harvest operations (units or log haul routes) that are adjacent to streams that are known to contain T&E fish. The Pre-Operation Report identifies whether T&E fish are present in the basin.

c. Forest Roads Management Summary

**FOREST ROADS SUMMARY**

District: North Cascade

Fiscal Year: 2018

Date: 02/21/2017

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					
Cobra Commander	0.0	\$ 12,534	1.3	\$ 52,668	\$ -	\$ 65,202	\$ 2,524,500	3%	
Family Camp 2	0.3	\$ 40,762.00	0.1	\$ 9,397	\$ 150,000	\$ 200,159	\$ 1,205,225	17%	
Gravy Train	0.1	\$ 6,680	4.5	\$ 71,196	\$ 14,400	\$ 92,276	\$ 2,804,025	3%	
Green 30	0.2	\$ 22,375.00	0.2	\$ 13,150	\$ 130,000.00	\$ 165,525	\$ 738,625	22%	
Restout	0.3	\$ 23,343	1.5	\$ 13,954.00	\$ 18,120	\$ 55,417	\$ 1,937,650	3%	
Tom Rock Top	0.0	\$ -	0.8	\$ 22,825	\$ 113,608	\$ 136,433	\$ 980,400	14%	
<b>Total</b>	<b>0.9</b>	<b>\$105,694</b>	<b>8.4</b>	<b>\$183,190</b>	<b>\$426,128</b>	<b>\$715,012</b>	<b>\$10,190,425</b>	<b>7.0%</b>	

**Alternate Operations**

Cedar Creek Thin	0.24	\$ 24,025	0	\$ -	\$ -	\$ 24,025	\$ 264,750	9%	
Higher Rock	0	\$ -	2.1	\$ 154,627	\$ -	\$ 154,627	\$ 1,034,800	15%	
Mad Hatter	0.26	\$ 56,077	0	\$ -	\$ 5,000	\$ 61,077	\$ 1,947,500	3%	
Radio Flyer	0.67	\$ 63,521	0	\$ -	\$ 57,000	\$ 120,521	\$ 1,165,450	10%	
Spike Only	0.44	\$ 41,810	0.66	\$ 8,750.00	\$ -	\$ 50,560	\$ 406,875	12%	
Wiley Coyote	1.01	\$ 101,895	0	\$ -	\$ -	\$ 101,895	\$ 2,873,750	4%	
<b>Total</b>	<b>2.6</b>	<b>\$287,328</b>	<b>2.8</b>	<b>\$163,377</b>	<b>\$62,000</b>	<b>\$512,705</b>	<b>\$7,693,125</b>	<b>6.7%</b>	

**Road Projects Not Associated with Harvest Operations in this AOP**

Operation	Construction		Improvement		Other Projects	Total Project Costs	Funding Source	Comments
	Miles	Cost	Miles	Cost				
		\$ -		\$ -		\$ -		
		\$ -		\$ -		\$ -		
		\$ -		\$ -		\$ -		
<b>Total</b>	<b>0.0</b>	<b>\$ -</b>	<b>0.0</b>	<b>\$ -</b>	<b>0.0</b>	<b>\$ -</b>		

d. Reforestation and Young Stand Management Summary

**REFORESTATION AND YOUNG STAND MANAGEMENT SUMMARY**

District: North Cascade

Fiscal Year: 2018

Date: 02/21/2017

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			\$87,816.00			\$0.00	0	\$87,816.00
Initial Planting	519	\$280.00	\$145,320.00	0	\$280.00	\$0.00	519	\$145,320.00
Interplanting	0	\$250.00	\$0.00	0	\$290.00	\$0.00	0	\$0.00
Underplanting	0	\$210.00	\$0.00	0	\$210.00	\$0.00	0	\$0.00
Tree Protection - Barriers	20	\$220.00	\$4,400.00	0	\$220.00	\$0.00	20	\$4,400.00
Tree Protection - Direct Control	0	\$125.00	\$0.00	0	\$125.00	\$0.00	0	\$0.00
Site Prep - Chemical - Aerial	519	\$50.00	\$25,950.00	0	\$30.00	\$0.00	519	\$25,950.00
Site Prep - Chemical - Hand	0	\$125.00	\$0.00	0	\$125.00	\$0.00	0	\$0.00
Site Prep - Broadcast Burning	0	\$420.00	\$0.00	0	\$420.00	\$0.00	0	\$0.00
Site Prep - Piling Burning	290	\$25.00	\$7,250.00	0	\$50.00	\$0.00	290	\$7,250.00
Site Prep - Mechanical	0	\$250.00	\$0.00	0	\$250.00	\$0.00	0	\$0.00
Release - Chemical - Aerial	200	\$35.00	\$7,000.00	0	\$35.00	\$0.00	200	\$7,000.00
Release - Chemical - Hand	200	\$125.00	\$25,000.00	0	\$125.00	\$0.00	200	\$25,000.00
Release - Mechanical - Hand	0	\$250.00	\$0.00	0	\$350.00	\$0.00	0	\$0.00
Precommercial Thinning	0	\$100.00	\$0.00	0	\$85.00	\$0.00	0	\$0.00
Pruning	0	\$250.00	\$0.00	0	\$250.00	\$0.00	0	\$0.00
Invasive Species	0	\$200.00	\$0.00	0	\$200.00	\$0.00	0	\$0.00
Road Side Spraying	145	\$200.00	\$29,000.00	5	\$200.00	\$1,000.00	150	\$30,000.00
Stocking Surveys	650	\$10.00	\$6,500.00	0	\$10.00	\$0.00	650	\$6,500.00
Other	0	\$200.00	\$0.00	0	\$200.00	\$0.00	0	\$0.00
<b>Totals</b>	<b>2,543</b>	<b>--</b>	<b>\$250,420.00</b>	<b>5</b>	<b>--</b>	<b>\$1,000.00</b>	<b>2,548</b>	<b>\$251,420.00</b>

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

Projects Conducted by Inmates	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	\$280.00	\$0.00	0	\$280.00	\$0.00	0	\$0.00
Interplanting	98	\$250.00	\$24,500.00	2	\$290.00	\$580.00	100	\$25,080.00
Underplanting	0	\$210.00	\$0.00	0	\$21.00	\$0.00	0	\$0.00
Tree Protection - Barriers	0	\$220.00	\$0.00	0	\$220.00	\$0.00	0	\$0.00
Tree Protection - Direct Control	650	\$125.00	\$81,250.00	0	\$125.00	\$0.00	650	\$81,250.00
Site Prep - Chemical - Hand	0	\$125.00	\$0.00	0	\$125.00	\$0.00	0	\$0.00
Site Prep - Broadcast Burning	0	\$420.00	\$0.00	0	\$420.00	\$0.00	0	\$0.00
Site Prep - Piling Burning	290	\$25.00	\$7,250.00	0	\$25.00	\$0.00	290	\$7,250.00
Site Prep - Mechanical	0	\$250.00	\$0.00	0	\$250.00	\$0.00	0	\$0.00
Release - Chemical - Hand	0	\$125.00	\$0.00	0	\$125.00	\$0.00	0	\$0.00
Release - Mechanical - Hand	50	\$250.00	\$12,500.00	0	\$350.00	\$0.00	50	\$12,500.00
Precommercial Thinning	0	\$100.00	\$0.00	0	\$85.00	\$0.00	0	\$0.00
Pruning	0	\$250.00	\$0.00	0	\$250.00	\$0.00	0	\$0.00
Invasive Species	0	\$200.00	\$0.00	0	\$200.00	\$0.00	0	\$0.00
Other	0	\$200.00	\$0.00	0	\$200.00	\$0.00	0	\$0.00
<b>Totals</b>	<b>1,088</b>	<b>--</b>	<b>\$125,500.00</b>	<b>2</b>	<b>--</b>	<b>\$580.00</b>	<b>1,090</b>	<b>\$126,080.00</b>

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

e. Recreation Management Summary

**RECREATION SITE MANAGEMENT SUMMARY**

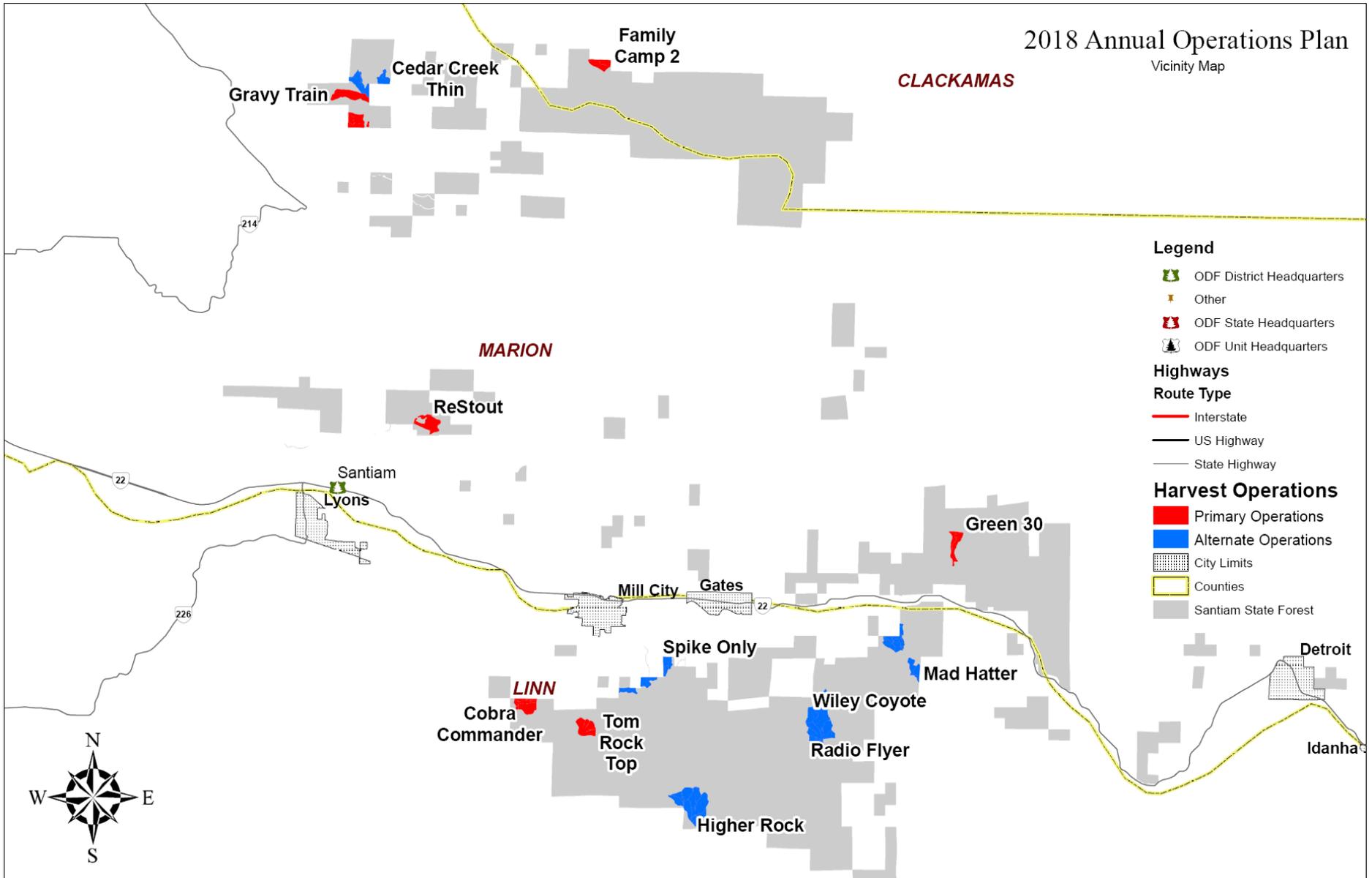
District: North Cascade

Fiscal Year: 2018

Date : 02/21/2017

Project	Construction Cost (Funding)		Improvement Cost (Funding)		Operations/Maint. (Funding)		Total Costs	Comments
	ODF (\$)	Other (\$)	ODF (\$)	Other (\$)	ODF (\$)	Other (\$)		
<b>Campgrounds</b>								
Butte Creek					\$1,043		\$1,043	2 vault toilets - pumped twice/year
Shellburg					\$522		\$522	1 vault toilet - pumped twice/year
Shellburg					\$354		\$354	Chemical toilet maintenance
Horse Camp					\$1,043		\$1,043	2 vault toilets - pumped twice/year
<b>Designated Dispersed Campsites</b>								
Rock Creek					\$948		\$948	Chemical toilet maintenance
Rhody Lake					\$261		\$261	1 vault toilet - pumped once/year
<b>Trailheads</b>								
Monument Peak			\$ 735		\$0		\$735	Picnic table
Shellburg			\$ 248		\$0		\$248	Kiosk rebuild
Rocky Top			\$ 248		\$0		\$248	Kiosk rebuild
Natural Arch			\$ 248		\$0		\$248	Kiosk rebuild
<b>Interpretive Sites</b>								
							\$0	
							\$0	
							\$0	
<b>Other Operations</b>								
Brochures/Fee Envelope Printing					\$100		\$100	
Law Enforcement					\$30,000		\$30,000	
Water Testing					\$180		\$180	Well water analysis
Maintenance Supplies					\$2,000		\$2,000	Cleaning supplies, toiletries, hardware, paint/sealer, misc. building materials, vandalism repair/cleaning supplies, etc.
<b>District Total</b>							<b>\$37,930</b>	
<b>Other Total</b>							<b>\$0</b>	
<b>TOTAL</b>							<b>\$37,930</b>	

## Appendix B – Maps



## Appendix C – Consultation with Other State Agencies

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

Representatives from ODFW were in attendance with ODF's resource specialists to discuss the activities in this AOP. The district has received verbal comments from ODFW and these comments were considered while developing pre-operation reports.

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 identified potential archeological resources within or directly adjacent to some of the proposed operations. More specific information can be found in the pre-operation reports.

- Wiley Coyote and ReStout are proposed harvest operations requiring a thorough field exam to determine if potential cultural resources are present. If any resources are found, an archaeologist will be consulted to assist in developing management strategies for the site.

## Appendix D – Public Involvement

The Oregon Department of Forestry held a formal 45 day public comment period for the 2018 Annual Operations Plans from March 20 through May 4, 2017.

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.

One public comment was received relating to timber harvest levels. Harvest levels were reviewed and are in alignment with the District's Implementation Plan.

## Appendix E – Pre Operation Reports

Pre-Operation Reports and Recreation Project Reports are available upon request.

## Appendix F – Changes to Landscape Design – Minor Modification to the 2012 District Implementation Plan

The Landscape Design for the North Cascade District consists of 35 percent of the land base which is designated to achieve a Desired Future Condition (DFC) of either Layered (LYR) or Older Forest Structure (OFS). The 35 percent landscape design was adopted in 2012 as part of the North Cascade District Implementation Plan (IP). The landscape design is a long term vision of the arrangement of stand structures to be developed across the district achieve the landscape objectives set forth in the 2010 Northwest Oregon State Forests Management Plan (FMP).

In order to adapt to new information such as: updated forest inventory, new threatened and endangered species sites, forest land management classification updates, landscape changes due to storm damage, insect and/or disease or other significant events; the landscape design was anticipated to change over time. In addition, various GIS layers including the DFC are always in need of aligning and fine tuning as part of the improvement and maintenance of the data. Changes of up to 240 acres annually are considered minor changes and can be approved by the District Forester concurrent with the Annual Operation Planning (AOP) process. Changes that are greater than 240 acres are considered major and require a public comment period and are approved by the State Forester.

Edits made for this minor modification consisted of: aligning and fine tuning the DFC boundary with riparian area boundaries, stand type boundaries, road edges, wildlife areas, forest health issues, high landslide potential areas or new information on the stands potential to achieve (or not) a complex forest condition etc.). A total of 232 acres were modified; 126 acres were added to the DFC and 106 acres were removed.

Total LYR acres after this modification are 9,945 (21% of District Acres), and total OFS acres are 7,001 (15% of District Acres).

Summary of Minor Landscape Design Changes			
Acres Removed		Acres Added	
Current Stand Condition	Acres	Current Stand Condition	Acres
NF		NF	
REG		REG	89
CSC		CSC	
UDS	126	UDS	17
LYR		LYR	
OFS		OFS	
Total Acres Removed	126	Total Acres Added	106

\*Current Stand Condition categories: NF (Non-forested), REG (Regeneration), CSC (Closed Single Canopy), UDS (Understory Development), LYR (Layered), OFS (Older Forest Structure)

# 2018 AOP Summary DFC Minor Modification

