CFLR Project (Name/Number): Lakeview Stewardship Project
National Forest(s): Fremont-Winema National Forest

1. Match and Leveraged Funds:

a. FY18 Matching Funds Documentation

Fund Source – (CFLN/CFLR Funds Expended)	Total Funds Expended in Fiscal Year 2018*
CFLN1618	$1,408,364

This amount should match the amount of CFLR/CFLN dollars obligated in the FMMI CFLRP expenditure report. Include prior year CFLN dollars expended in this Fiscal Year.

Fund Source – (Funds expended from Washington Office funds (in addition to CFLR/CFLN) (please include a new row for each BLI))	Total Funds Expended in Fiscal Year 2018
NFHF1617	$300,000
NFTM1618	$304,535
NFNF1618	$470,803

This value (aka carryover funds or WO unobligated funds) should reflect the amount expended of the allocated funds as indicated in the program direction, but does not necessarily need to be in the same BLIs or budget fiscal year as indicated in the program direction.

Fund Source – (FS Matching Funds (please include a new row for each BLI)	Total Funds Expended in Fiscal Year 2018
NFTM0218	$66,806
CMTL0218	$25,089
NFWF0218	$108,980
FNNF4518	$1,514,560
FNWF4518	$47,800
S2F62015	$8,400
S2F62115	$16,000
NFVW0218	$38,200
NFLM0218	$12,000
RTRT0218	$15,123
NFHF0218	$125,000

This amount should match the amount of matching funds obligated in the FMMI CFLRP expenditure report, minus the Washington Office funds listed in the box above and any partner funds contributed through agreements (such as NFEX, SPEX, WFEX, CMEX, and CWFS) listed in the box below.

Total non-CFLN expenditures as reported in the Agency database of record:

NFTM	$295,286
SRS2	$40,384

Fund Source – (Funds contributed through agreements)	Total Funds Expended in Fiscal Year 2018
MJB38117 – Ruby Pipeline Mitigation	$1,461

Please document any partner contributions to implementation and monitoring of the CFLR project through an income funds agreement (**this should include partner funds captured through the FMMI CFLRP reports such as NFEX, SPEX, WFEX, CMEX, and CWFS**). Please list the partner organizations involved in the agreement. Partner contributions for Fish, Wildlife, Watershed work can be found in WIT database.

Fund Source – (Partner In-Kind Contributions)	Total Funds Expended in Fiscal Year 2018
Northwest Youth Corp	$36,610

Fund Source – (Partner In-Kind Contributions)	Total Funds Expended in Fiscal Year 2018
Lake County School District	$21,079
Lake County Resources Initiative	$76,020
Lake County Cooperative Weed Board	$75,300

Total partner in-kind contributions for implementation and monitoring of a CFLR project on NFS lands. Please list the partner organizations that provided in-kind contributions.

Service work accomplishment through goods-for services funding within a stewardship contract (for contracts awarded in FY18)	Totals
Total revised non-monetary credit limit for contracts awarded in FY18	$0

Revised non-monetary credit limits for contracts awarded prior to FY18 were captured in previous reports (FY16 and FY15). This should be the amount in contract's "Progress Report for Stewardship Credits, Integrated Resources Contracts or Agreements" in cell J46, the "Revised Non-Monetary Credit Limit," as of September 30. Additional information on the Progress Reports is available in CFLR Annual Report Instructions document.

b. Please fill in the table describing leveraged funds in your landscape in FY2018. Leveraged funds refer to funds or in-kind services that help the project achieve proposed objectives but do not meet match qualifications.

Description of item	Where activity/item is located or impacted area	Estimated total amount	Forest Service or Partner Funds?	Source of funds
Dry forest restoration on private lands	Private lands within the North Warner Multi-Ownership Forest Health Project	$700,000	Partner	NRCS Joint Chiefs Funding
Dry forest restoration on private lands	Private lands within the North Warner Multi-Ownership Forest Health Project	$537,000	Partner	Oregon Watershed Enhancement Board (OWEB) Oregon Lottery Funds
Dry forest restoration on private lands	Private lands within the North Warner Multi-Ownership Forest Health Project	$336,500	Forest Service	USFS State and Private
Timber sale prep and layout on USFS lands	USFS lands within the Lakeview CFLRP	$75,000	Partner	Oregon Department of Forestry (ODF) Federal Forest Restoration

2. Please tell us about the CFLR **project's progress to date in restoring a more fire-adapted ecosystem as described in the project proposal**, and **how it has contributed to the wildland fire goals in the *10-Year Comprehensive Strategy Implementation Plan***.

FY2018 Overview

FY18 Activity Description (Agency performance measures)	Acres
Number of acres treated by prescribed fire	11,040 acres
Number of acres treated by mechanical thinning	8,610 acres

FY18 Activity Description (Agency performance measures)	**Acres**
Number of acres of natural ignitions that are allowed to burn under strategies that result in desired conditions	0
Number of acres treated to restore fire-adapted ecosystems which are maintained in desired condition	0
Number of acres mitigated to reduce fire risk	19,650

Please provide a narrative overview of treatments completed in FY18, including data on whether your project has expanded the pace and/or scale of treatments over time, and if so, how you've accomplished that – what were the key enabling factors?

- **How was this area prioritized for treatment?** What kinds of information, input, and/or analyses were used to prioritize? Please provide a summary or links to any quantitative analyses completed.

  In 2014, the Fremont-Winema National Forest developed an Accelerated Restoration and Priority Landscape document to help support and guide decisions at the Forest and local level. This process delineated large landscapes (generally >100,000 acres) and prioritized them based on the following variables: Regional and National priorities (i.e. Watershed Condition Framework, Terrestrial Restoration and Conservation Strategy, Oregon Conservation Strategy, and R6 Aquatic Restoration Strategy), past management, large tree structure, Wildland Urban Interface, crown fire potential, and landscape fire opportunities. Landscapes were then prioritized as high, moderate, or low. This has guided the NEPA planning and implementation of projects within the Lakeview Stewardship CFLRP.

  The Klamath-Lake Forest Health Partnership (KLFHP) then uses the Fremont-Winema NEPA priority landscapes to guide the priority and selection of cross-boundary landscape-scale restoration projects within Lake and Klamath Counties. Partners within the KLFHP conducted a risk assessment of all private lands within the counties to determine the focus for cross-boundary restoration. A variety of risk rating criteria include: land ownership, broad vegetation classes, fire history, communities at risk identified in the Community Wildfire Protection Plans and the Oregon State Communities at Risk Project, and personal knowledge of the landowners and communities. Based on this risk assessment, the North Warner Multi-Ownership Forest Health Project (located within the Lakeview Stewardship CFLRP) was selected as a priority for focused restoration and shared stewardship across public and private land.

- **Please tell us whether these treatments were in "high or very high wildfire hazard area** from the "wildfire hazard potential map" (Firelab.org)
  - Were the treatments in **proximity to a highly valued resource** like a community, a WUI area, communications site, campground, etc.?

  Most of the treatments within the Lakeview Stewardship CFLRP are in the "high" to "moderate" wildfire hazard areas, according to the national wildfire hazard potential map. Approximately 80% of the treatments were located in WUI as identified in the Lake County Community Wildfire Protection Plan.

- **What have you learned** about the interaction between treatment prioritization, scale, and cost reduction? What didn't work? Please provide data and further context here.

  When all partners agree to the priority of focused landscapes and shared stewardship of that landscape, it is much easier to obtain support and funding. The North Warner Multi-Ownership Forest Health Project is a great example. The partners are working together from planning through implementation to restore this landscape across ownership boundaries. In 2016 and 2017, Oregon Department of Fish and Wildlife funded $40,000 to the Lake County Umbrella Watershed Council to collect current condition information for 25 private landowners on a total of 32,100 acres that surround the Crooked Mud Honey Integrated Restoration Project. Each vegetation

association was delineated and assessed to evaluate 1) risk of disturbance, 2) recommendations for forest health treatments, 3) priority for treatment, and 4) funding needs within the larger landscape, beneficial for private landowners to determine forest management treatment options and/or to develop forest management plans for their property. Data was also collected for riparian, juniper, and invasive vegetation. The inventory of private land allowed partners to prioritize stands for treatment based upon density of conifers, surface fuel loading, and relative risk of disturbance. The partners worked together to assess the condition and priority for treatments.

This data was then used to obtain funding from a variety of sources. The partners have used CFLR funding to leverage funding for dry forest restoration totaling approximately $3.1 million for private lands and $4 million for federal lands. To date, 5,100 acres on private and 12,800 acres on federal land of dry forest restoration have been completed. The partners are currently working together to prepare for cross-boundary prescribed fire within the North Warner Project area. Currently, the focus is to burn existing slash piles on federal and private land. The partners held a workshop on Nov. 5, 2018 to provide assistance and education for private landowners on how to safely and effectively burn slash piles.

There are future plans to hold a similar workshop on prescribed fire for private landowners and to implement cross-boundary prescribed fire to maintain restoration treatments and to reintroduce low-intensity fire. The shared stewardship to: 1) set priorities at the County and project scale, 2) assess and map current conditions across public and private land, 3) to prioritize treatments within a focused landscape, and 4) to implement cross-boundary has resulted in additional funding, acres treated, and increased scale of dry forest restoration.

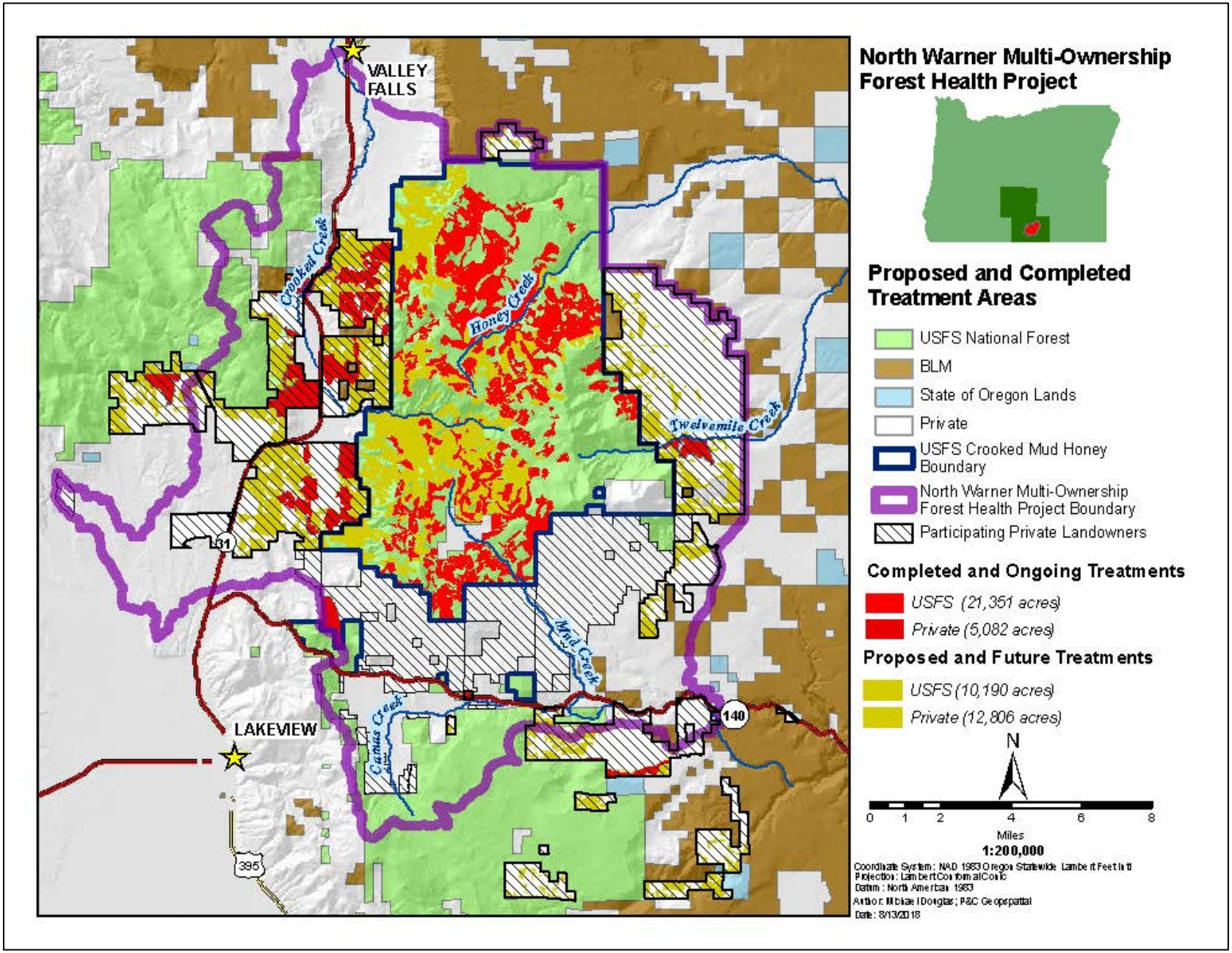
With increased restoration occurring in the same landscape, this presents the opportunity for new markets for wood utilization and lowers the cost per acre of most treatments. We have also learned that some of the higher priority treatment areas may have a reduction in scale and an increase in cost because they are closer to communities, WUI areas, infrastructure, etc., where smoke can be a determining factor in size of treatment.

The Fremont-Winema has made a considerable effort to increase the pace and scale of implementation, and expanding the Forest treatments to private lands has illustrated a Return-On-Investment approach that can be difficult to perform, and sometimes considered outside the authority of the agency. This has required the Forest and partners prioritize and implement restoration with knowledge and can-do aptitude, which is not common in other National Forests. The logic has been straightforward, so that managers can satisfy stakeholders that important decisions are being made in a defensible manner. The approach being used also incorporates research findings widely accepted and applied by practitioners.

Please provide visuals if available, including maps of the landscape and hazardous fuels treatments completed, before and after photos, and/or graphics from fire regime restoration analysis completed locally. You may copy and paste these below or provide a link to a website with these visuals.

Photo of Slash Pile Burning Workshop Held Nov. 5, 2018

This map shows the scale of implementation on public and private lands within the North Warner Multi-Ownership Forest Health Project area, as a result of the priority setting, partnerships, and leveraging of funds



Expenditures

Category	
FY2018 Wildfire Preparedness[1]	$2,727,750
FY2018 Wildfire Suppression[2]	$18,980,000
The cost of managing fires for resource benefit if appropriate (i.e. full suppression versus managing)	$0
FY2018 Hazardous Fuels Treatment Costs (CFLN)	$404,378
FY2018 Hazardous Fuels Treatment Costs (other BLIs)	$1,341,194

How may the treatments that were implemented contribute to reducing fire costs? If you have seen a reduction in fire suppression costs over time, please include that here.

Treatments that have been implemented will lead to reducing fire suppression costs by reducing the resistance to control. Where treatments that have occurred intersected with wildfires, we have seen fire behaviors reduced which has contributed to a reduction in effort and resources needed to facilitate control of the fire. On large fires that occurred in FY18, the places where treatments occurred were the areas that allowed the fire fighters to have a high probability of success with their containment options.

Have there been any assessments or reports conducted within your CFLRP landscape that provide information on cost reduction, cost avoidance, and/or other cost related data as it relates to fuels treatment and fires? If so, please summarize or provide links here:

There have not been any assessments or reports at this time that have been conducted within the CFLN landscape in regards to cost reduction, etc. There was a large incident (wildfire) that occurred in 2018, the Watson Creek Fire. A Fuels Treatment Effective Modeling (FTEM) is being conducted on the fire where treatments intersected with the fire. The outputs from the FTEM have not been summarized in time for this report.

When a wildfire interacts with a previously treated area within the CFLR boundary:
Each unit is required to complete and submit a standard fuels treatment effectiveness monitoring (FTEM) entry in the FTEM database (see FSM 5140) when a wildfire occurs within or enters into a fuel treatment area. **For fuel treatment areas within the CFLR boundary, please copy/paste that entry here and respond to the following supplemental questions. Note that the intent of these questions is to understand progress as well as identify challenges and what didn't work as expected to promote learning and adaptation.**

The FTEM report for the Watson creek fire is not completed at this time. Please refer to IFTDSS at a later time for this report. There are over 200 treatments within the Watson creek fire perimeter that extend back 10 years, trying to pull each treatment to determine cost is not feasible at this time. The majority of the treatments within the Unit that were funded with CFLR funds had input and support from the Lakeview Stewardship group. Other treatments that were funded with appropriated funds had public and partner involvement during the planning phase. For the project areas associated with the Watson Fire, there was no coordination with adjacent private landowners. Values at risk are many,

[1] Include base salaries, training, and resource costs borne by the unit(s) that sponsors the CFLRP project. If costs are directly applicable to the project landscape, describe full costs. If costs are borne at the unit level(s), describe what proportions of the costs apply to the project landscape. This may be as simple as Total Costs X (Landscape Acres/Unit Acres).

[2] Include emergency fire suppression and BAER within the project landscape. Describe acres of fires contained and not contained by initial attack. Describe acres of resource benefits achieved by unplanned ignitions within the landscape. Where existing fuel treatments within the landscape are tested by wildfire, summary and reference the fuel treatment effectiveness report.

with the priority being private industrial and non-industrial property, human life and natural resources. Completed treatments did help to protect these values, but were not always as successful as desired. The majority of the treatments within the Watson Creek Fire did reduce the fire behavior, some treatments were more successful than others. Treatments that removed fuel (timber sales, pile and burn and/or under burning) showed to minimize fire behavior to an extent that suppression efforts were more successful.

The treatments within the Watson creek fire have shown to be beneficial to reducing the effects of a large fire. One key aspect of treatments that we have learned is that the placement on the landscape of these treatments plays a vital role in their success to minimize the effects of a wild fire. We also identified that having treatments planned and completed adjacent to each other (linking treatments together without vast untreated land between them) is key to protecting adjacent values. Treatments that were located within the landscape that did not account for possible fire behavior generated by surrounding fuels, or not located in an ideal location, did not provide the desired outcome. There are a few small treatments within the fires footprint that were too small to make a difference in the fire behavior. In conclusion, large areas of treatments linked together, and located appropriately on the landscape, have the best chance to be successful at minimizing wildland fire effects.

When a wildfire occurs within the CFLR landscape on an area <u>planned</u> for treatment but not yet treated:
Within the 59,061 acres of the Watson creek fire, the BEAR team report states that the severity on Forest Service land was:

- Low severity 16,119 acres
- Moderate Severity 18,629 acres
- High severity 3,408

Continued treatments are planned within the Unit both within and surrounding the Watson Creek Fire, field visits and planning are continuing to happen that will allow us to best plan what and where treatments should take place. The Forest will be working to implement the recommendations in the BAER report. Involvement with the Lakeview Stewardship group, and other partners will be a priority as we move forward.

Please include acres of fires contained and not contained by initial attack and acres of resource benefits achieved by unplanned ignitions within the landscape, and costs.
In 2018, there were several fires that burned within the Unit and contained at a very small scale using initial attack. The Watson Creek Fire, 59,061 acres, started outside the Unit and within an area that had not been treated. This fire quickly grew, and spread into and through many treatment units. It has been identified that 12,625 acres within the Watson Creek Fire, that overlapped treatments in the Deuce EA boundary, may be considered to have resource benefit. These acres will be compiled and entered into FACTS. Further field visits are needed to determine if other acres will meet the requirements as resource benefit.

Summary of the Watson Creek Fire BAER request:

Treatment	**Unit**	**Unit Cost**	**# of Units**	**Total Cost**
Invasive Plant Surveys/Detection	Acre	$9	440	$3,960
Invasive Plant Treatments	Acre	$130	83	$10,790
Overflow Culvert Installation	Each	$6,000	1	$6,000
Storm Proofing	Miles	$1,852	2.43	$4,500
Storm Patrol	Days	$500	6	$3,000
Improve Trail Drainage	Mile	$3,856	9.7	$37,404
Installation of Warning Signs	Each	$255	11	$2,805
Install Hazard Signs	Each	$125	8	$1,000
Hazard Tree Mitigation	Each	$92	31	$2,852
Rockfall Hazard Mitigation	Each	$100	2	$200
			Total	**$72,511**

3. **What assumptions were used in generating the numbers and/or percentages you plugged into the TREAT tool**? Information about Treatment for Restoration Economic Analysis Tool inputs and assumptions available here.

TREAT analyzes for an "impact area" is defined as Lake County for the Lakeview Stewardship CFLRP. Only funding that went to contractors located within this impact area were included in the calculations. It was estimated that 16% of the CFLN funds and 9% of the total funds (CFLR and matching) were used to fund contractors from Lake County for service work type project activities such as invasive plant treatments or monitoring. Contracting funds that were expended on contracts that went to firms outside the impact area contribute to leakage from the local economy. Forty-three percent (43%) of the CFLR funds were used for Forest Service personnel related to implementing projects and monitoring. Commercial forest product activities considered in the TREAT analysis consisted of 65,243 CCF harvested from the National Forest in the CFLR landscape in FY18, and all the saw timber was processed locally at the Collins Pine Sawmill.

FY 2018 Jobs Supported/Maintained (FY18 CFLR/CFLN/ WO carryover funding):

FY 2018 Jobs Supported/Maintained	Jobs (Full and Part-Time) (Direct)	Jobs (Full and Part-Time) (Total)	Labor Income (Direct)	Labor Income (Total)
Timber harvesting component	**72**	**97**	6,087,161	7,147,866
Forest and watershed restoration component	**2**	**3**	4,866	9,484
Mill processing component	**78**	**136**	4,869,729	7,095,036
Implementation and monitoring	**22**	**27**	778,518	908,462
Other Project Activities	**1**	**2**	44,822	51,735
TOTALS:	**176**	**263**	**11,785,095**	**15,212,584**

FY 2018 Jobs Supported/Maintained (FY18 CFLR/CFLN/ WO carryover and matching funding):

FY 2018 Jobs Supported/Maintained	Jobs (Full and Part-Time) (Direct)	Jobs (Full and Part-Time) (Total)	Labor Income (Direct)	Labor Income (Total)
Timber harvesting component	**72**	**97**	**6,087,161**	**7,147,866**
Forest and watershed restoration component	**3**	**3**	**5,800**	**11,305**
Mill processing component	**78**	**136**	**4,869,729**	**7,095,036**
Implementation and monitoring	**42**	**52**	**1,750,401**	**2,042,565**
Other Project Activities	**1**	**1**	**41,675**	**48,103**
TOTALS:	**196**	**289**	**12,754,766**	**16,344,875**

4. **Describe other community benefits achieved and the methods used to gather information about these benefits**. **How has CFLR and related activities benefitted your community from a social and/or economic standpoint?** (Please limit answer to two pages).

Indicator	Brief Description of Impacts, Successes, and Challenges	Links to reports or other published materials (if available)
# Cross-institutional agreements/policies	The National Cohesive Wildfire Fire Management Strategy includes the objective to "restore and maintain landscapes, such that landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives." The North Warner Multi-Ownership Forest Health Joint Chiefs Project (located within the Lakeview CFLRP) is a landscape level area and involves 25 private landowners, 8 federal, state, and county agencies, and 7 non-governmental partners. The goal of the partnership is to collaborate across ownership boundaries to implement forest health treatments with a goal of creating a seamless, healthy forest landscape resilient to natural disturbance. The partners have used CFLR funding to leverage funding for dry forest restoration totaling approximately $3.1 million for private lands and $4 million for federal lands. To date, 5,100 acres on private and 12,800 acres on federal land are completed. Key partners have worked closely to provide the resources for private landowners to manage their properties based upon the landowner's objectives. With the integration of resources, the partners have been successful in finding opportunities to implement private land treatments concurrently with adjacent federal timber sales or prescribed fire. The partners are also maximizing use of all authorities, agreements, and understandings to increase pace and scale of restoration within the project area. There are currently agreements being utilized within the project including: 1) a Good Neighbor Authority Agreement between USFS and ODF for forestry services, 2) multiple participating agreements between agencies and organizations, and 3) a cooperative agreement between the NRCS and ODF that allows ODF to provide technical forestry assistance to implement the Environmental Quality Incentives Program (EQIP) and the Wetland Reserve Program (WRP).	More information on the partnership and the North Warner project can be found: KLFHP website at: klfhp.org The process for planning and implementing landscape-scale cross-boundary restoration was published in Oct. 2018. This includes details in a case study for the North Warner Project (Chapter 11 p. 40-46). Oregonstate.edu link
Relationship building/collaborative work	The 2014/2015 social-economic report for the Lakeview CFLRP notes that: "Partner agreements with state, local, and non-profit organizations provided significant contributions to CFLR projects through both contributed funds and in-kind donations. These organizations have leveraged funds to support CFLR projects and have assisted in project implementation and monitoring activities to support CFLR goals. These funds and in-kind contri-butions, in combination with Forest Service direct and matching funds, make up the total funding for the first four years of the Lakeview Stewardship CFLR project."	2014/2105 Social-Economic Report for the Lakeview CFLR Project. ewp.uoregon.edu link

Indicator	Brief Description of Impacts, Successes, and Challenges	Links to reports or other published materials (if available)
Project partnership composition	The effectiveness of the Lakeview CFLR and Joint Chiefs projects stems from the partners involved in both the Lakeview Stewardship Group (LSG) and the KLFHP. This project is located within the Lakeview Federal Stewardship Unit. The Forest Service (FS) works in cooperation with the LSG, a collaboration of conservationists, timber industry workers, local government officials, and other civic leaders. The LSG works very closely with the partners to ensure this project achieves the goals identified in the Lakeview Stewardship Group Long Range Strategy for the Lakeview Federal Stewardship Unit. KLFHP formed in 1995, is an interagency and landowner collaborative organization with a mission to facilitate restoration projects on public and private forestland in Klamath and Lake Counties through education, outreach, and diverse partnerships. The KLFHP, which includes private landowners, university, federal, state, and county agencies, and non-governmental partners, is actively supporting this project through landowner outreach, education and the pursuit of funding to support restoration on private land. Key partners include Oregon Department of Forestry, Oregon State University Extension, Natural Resources Conservation Service, Fremont-Winema National Forest, Lake County Watershed Council, and several private landowners.	Lakeview Stewardship Group Long Range Strategy Link to strategy Klamath-Lake Forest Health Partnership – klfhp.org
Economic dependency/sectors impacted/expanding market development	The population of Lake County has economic and social conditions that differ in several ways from the statewide averages. The County has an older population, higher unemployment, and a greater percentage of residents in poverty. The forest health treatments associated with Lakeview CFLRP and North Warner Joint Chiefs has resulted in local contracts and jobs in the woods and at the mill. Secondary benefits include contractors' expenditures in the rural community of Lakeview such as hotels, gas, groceries, etc. and educational benefits of the Lake County School District. This is reflected in the TREAT analysis which reflects a total of 289 direct and indirect jobs resulting from the funding dedicated to this project. In the rural community of Lakeview, this is a significant impact to the local economy. In addition, there is only one mill remaining in Lake County. This mill is critical to our ability to implement forest restoration. Through outreach and education with private landowners and funding through CFLR and Joint Chiefs, the project has resulted in a continued supply of wood to the local mill from federal and private lands. This increase in wood is extremely beneficial to the local economy. Another important highlight is that Red Rock Biofuels broke ground in Lakeview in 2018, which will open up new opportunities for biomass utilization on private land.	2012/2013 and 2014/2105 Social-Economic Reports for the Lakeview CFLR Project. Link to report Ewp.uoregon.edu link

5. Based on your project monitoring plan, **describe the multiparty monitoring process.**

Background

The LSG formed in 1998 to examine the policies tied to the Lakeview Federal Sustained Yield Unit (Unit) and to improve management of the unit. In 2005, the LSG completed a long-range management strategy for the Unit developed with the assistance of the Forest Service. The Fremont-Winema National Forest is currently implementing this strategy. The Long-Range Strategy for the Lakeview Federal Stewardship Unit (Strategy) is the guiding document for the decade-long collaborative effort to help restore the ecological health of the Unit and provide economic and social benefits for the local community. The Strategy is a common vision and set of goals and objectives developed by the LSG and adopted by the U.S. Forest Service. Originally released in November 2005, the Strategy received an update in 2010 and again in 2011. Link to report

In 2002, the LSG developed the Biophysical Monitoring Project. The project was designed to answer questions about current conditions and effects of management within the Unit. Hundreds of permanent-plot transects were established in areas identified as characteristic of the general landscape. These baseline transects were designed to be used as controls in future studies and as indicators of change.

The Lakeview Collaborative Forest Landscape Restoration (CFLR) Project was selected for funding in 2012. Multiparty monitoring, evaluation, and accountability are required to assess the positive or negative ecological, social, and economic effects of projects implementing. To meet this requirement, the LSG developed the Lakeview CFLRP Monitoring Plan that outlines a monitoring strategy for this landscape, while building on the existing monitoring efforts described above that began in 2002. With this incredible dataset, there is an opportunity to summarize and report on the 15 years of data, to answer the questions identified in the Lakeview CFLRP Monitoring Plan, and to allow for adaptive management within the Unit. Link to working paper.

Hiring of Data Analyst

In 2018, LCRI hired a data analyst to focus on the following items:

1. Complete Storage of Data
   The analyst will determine the most appropriate platform for long-term storage of data and GIS products. Consideration will be given to the need for Forest Service or other third party professionals to have ready and user-friendly access to the data, along with the corresponding data collection methodology (metadata) and GIS locations and spatial capability. The data will be stored in one place, readily available for use, and in a format in which the user can also readily access the data collection methodology and GIS locations. The end product would be a tool or package of data, linked to spatial locations, so a user can readily query, analyze, and spatially depict data.

2. Analysis of Data
   The analyst will analyze the data to answer the questions identified in the Lakeview CFLRP Monitoring Plan and pursue opportunities for students on the crew to complete a subset of the data analysis and reporting.

3. Completion of a Final Report
   The analyst will compile all of the analysis in a final ecological monitoring report for the Lakeview CFLR Project. It would be designed to be a final report to the original Lakeview CFLRP Monitoring Plan with an attempt to answer the original questions identified in the plan.

   To meet the intent of managing through an adaptive management framework, in which we are learning through monitoring to influence future management and decisions, the findings from the analysis will be discussed with the LSG and the Forest Service to identify management recommendations. Based upon these discussions, the report will include management implications and recommendations in the final report.

2018 Field Season

The Lake County Resources Initiative (LCRI) oversees the monitoring program for the Lakeview Stewardship CFLRP. The Chewaucan Biophysical Monitoring Team (CBMT) is a student crew comprised of 13 members, of which 3 had been on the crew for 7 or 8 years. This depth of experience greatly increased our ability to focus on data management issues. We also had 2 new apprentices and the new data analyst (above) who is a post graduate student.

The goals specific to the 2018 field season were to:

- Collect more data on steep slope logging and its effects on soils,
- Work on data entry and presentation,
- Revisit woodpecker sites,
- Revisit Crooked Mud Honey sites,
- Revisit aspen sites,
- Revisit prescribed burn sites,
- Establish more sites in the Thomas Creek Project area,
- Establish drone protocols for flying sites,
- Establish methods and ground-truth them for interpreting infra-red photos from drone,
- Select sites and methods to be considered for the Historic Spatial Pattern of Large Trees with Implications for Management to Reduce Fire and Disease Risk, and
- Create videos that describe our protocols.

Overall, the CBMT revisited 95, 1 acre sites and established 38 new, 1 acre sites. Revisited sites included:

- 68 sites in the current Crooked Mud Honey harvest area (North Warners),
- 13 sites in aspen,
- 7 sites in steep slope logging soil impacts,
- 6 sites in areas burned 10 years ago, and
- 2 sites in untouched old growth.

New sites were established in the Thomas Creek Project area which is scheduled for harvest in 2020. Power point reports of each revisited project were made and posted at Monitoring reports.

North Warners: Surveys in the North Warners on the White Headed Woodpecker and Crooked Mud Honey sites revealed many stands with a predominance of large, DBH>21", ponderosa pine, scattered across the area. The target basal area (BA=50-60) was reached in 30% of the stands by removing all large white fir and the majority of smaller merchantable trees, leaving a stand of well-spaced large trees. Most of these sites were still stocked with 5-11 large ponderosa pine following harvest leaving little area for natural regeneration to get the sunlight and water needed. Large down wood (diameters >30cm and longer than 2m) was abundant, with about 60% in advanced stages of decay. Healthy fir saplings were scarce and healthy pine saplings were almost non-existent. Pine seedlings greater than 3 years old were also rare. White fir seedlings and saplings were present at most sites, and most had frost damage. We saw a lot of mule deer and had sightings of bear and cougar. Bole scars (potential sites of beetle bores and fungus infections) were present on .45 large trees per acre, a 300% increase from the harvest that occurred in the North Warners along Abert Rim (Lil timber sales) last year. There was also a 200% increase in soil disturbance compared to the Lil Timber sale last year.

Aspen Stands: Thirteen aspen stands were revisited approximately 5 years after they were treated. The expected increase in regeneration, that was apparent in initial stands studied in 2012-2014, did not appear to be sustainable as multiple succors had died, potentially from drought stress. Succor recruitment was low and the number of grazed succors was very high leaving few to become saplings. Saplings that were above the grazing height had grown and a few had become trees, but not as many as was predicted with the conifer thinning was carried out. Most of these sites had 10 -20 conifers under 10" DBH removed, but most still had up to 10 conifers larger than 10" that were left. It could be that there are still too many conifers competing with aspen for sunlight and water. These stands also appeared to have

less mammal and bird use than they had at the same time of year, 4-5 years ago, based on grazing, tree rubbings, nests and observable birds.

Deuce Steep Slope Logging and Soil Impacts: These 7 sites were revisited this year with additional surveys in preparation for the burning that is to occur next year. Large slash piles were burned this year. The site, though mostly disturbed during harvest, did not have severe disturbance when measured last year; most was marginal. This year vegetation has grown over much more of the area and the marginal disturbance areas were difficult to locate. Winter erosion did not appear to play a significant role in soil erosion, even in the more heavily disturbed areas we revisited. There was no mass or sheet erosion.

Stateline Underburn: These sites were thinned and then burned 10 years ago. Surveys completed this year, revealed that the burned sites had lost another quarter of their trees, mostly fir, to root and butt rots following the burn. However the site, though more open, had less brush and individual trees had larger growth rings as well as longer needles on the pines compared to the unburned site. The increase in growth could be due to the prescribed burn, but it could also be due to lower stocking densities since ¼ of the trees were damaged and fell down after the fire. There were also many more seedlings and saplings on the unburned side, many in thickets. It would be interesting to burn the unburned side now to compare its response to that of the burned side.

Morgan Creek Old Growth: These sites occupy a large area below the Coleman Rim that has never been entered and has had no fire for decades. Fire marks seem to go back more than 100 years. This site has large (3' DBH) old growth white fir, ponderosa pine, sugar pine and (28" DBH) lodgepole pine in similar densities. Western white pine is also present, but in small pockets. These sites were last surveyed 11 years ago, and the first surveys were 16 years ago. At that time there were many dying trees under the old canopy. This year the understory was less dense and the ground was littered more heavily with smaller (<14") woody debris. However, a recently fallen large old growth tree was encountered about every 100 steps up the steep slope. This seemed quite high and was definitely affecting the area. These fallen giants left the area even more open, but as of yet, the prolific abundance of ground cones have started few seedlings that have survived over 3 years old. The area is thinning itself out and more of the old growth trees than the monitoring crew expected, appear to be succumbing to the competition or drought. Research on forest health within this area has found where acute and chronic droughts are increasingly coupled with high temperatures there is a strong relationship to forest die-backs.

Thomas Creek Project: 38 new sites were established in the Thomas Creek Project area slated to be harvested, beginning in 2020. These FireMon sites were placed randomly in areas where the greatest density of harvestable trees are located. All together there are around 70 sites now in the most productive areas along Thomas creek and Auger creek in the Thomas Creek Project area. Next year, we will begin to put plots in on the area towards Hwy 395, and in the Lower Cottonwood Creek drainage.

Selection of ICO Thinning Plots: (Individual, Clumps, Open) The CBMT also identified 4 sites that could be used as 300 acre research sites investigating forest in areas where the BA targets for harvest cannot be achieved due to the abundance of large trees. A driving force of this research was the realization that 25% of the harvest units in the Crooked Mud Honey Project area were left with only big, evenly spaced trees after their recent harvest. There is concern that the evenly spaced trees will not allow enough sunlight to regenerate the stand. There is also concern that if a ground fire becomes a crown fire that the large evenly spaced trees may burn anyway. On the LSG forest tour at the end of the season, we visited a site that was thinned similarly, and everyone agreed it looked fantastic and was highly fire resistant. We then went to a similar site, ¼ mile away, where the prescribed fire had entered the crown and burned up all the big trees in an 80 acre area. Most of the big trees are now on the ground, because they were not fire hardened, were impacted by beetles and fungus, resulting in weak trunks which could not support the weight of the large trees and fell within 5 years. The study is investigating whether historical spacing of anchor trees (large as well as old) can be replicated in current stands to give more open areas for regeneration as well as snowfall on the ground resulting in more water availability.

Videos of monitoring protocols: The crew also created videos of most of our monitoring protocols. This has been requested by several interested groups over the years, and will be used this year in training teachers at a forestry summit in December. Seven videos were made describing the types of research conducted and site selection as well as all of the protocols tied to canopy, soils, herbaceous vegetation, fuels, photo and drone monitoring. Each video discusses the purpose and use of the data collected and then covers each of the individual protocols within the larger topic in short detailed segments that can be used as teaching snippets by teachers when instructing their students. Several members of the CBMT will help present this material at the forestry summit as well as carry out the protocols with forestry instructors.

Drone Use: We expanded our use of drones this year to include two, infra-red cameras. The purpose of this was to see if we could better understand forest structure and tree density, as well as tree identity and health. We learned many things as we gathered, analyzed and ground trothed the data. We spent two days with Craig Bienz of The Nature Conservancy, Sycan Marsh, discussing TNC's use of drones. They also helped stitch some of our photos and are working with us to help interpret our photos. We did learn to identify different age classes of trees based on growth form, as well as tree health, based on tree stress that showed up in the hot afternoon as some trees shut down while others kept on respiring normally. We were also able to quantify downed wood and large old cut stumps as a way of verifying the historic spatial patterns that were determined from ground surveys. We are currently working to understand ways in which pixel values can be used to evaluate large landscapes quickly.

6. FY 2018 Agency performance measure accomplishments:

Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost ($) *(Contract Costs)*
Acres of forest vegetation improved FOR-VEG-IMP	Acres	2,371 acres	$493,932
Manage noxious weeds and invasive plants INVPLT-NXWD-FED-AC	Acre	722 acres	$129,585
Acres of terrestrial habitat restored or enhanced HBT-ENH-TERR	Acres	14,761 acres	$315,511
Acres of rangeland vegetation improved RG-VEG-IMP	Acres	1,600 acres	unknown
Miles of road decommissioned RD-DECOM	Miles	5 miles*	$32,500
Miles of system trail maintained to standard TL-MAINT-STD	Miles	16 miles	~$50,000
Acres of forestlands treated using timber sales TMBR-SALES-TRT-AC	Acres	5,457 acres	unknown
Volume of Timber Harvested TMBR-VOL-HVST	CCF	65,243 ccf	unknown
Volume of timber sold TMBR-VOL-SLD	CCF	21,267 acres	~$850,680
Acres of hazardous fuels treated outside the wildland/urban interface (WUI) to reduce the risk of catastrophic wildland fire FP-FUELS-NON-WUI	Acre	3,919 acres	$98,800
Acres of wildland/urban interface (WUI) high priority hazardous fuels treated to reduce the risk of catastrophic wildland fire FP-FUELS-WUI	Acres	16,361 acres	$421,200
Please also include the acres of prescribed fire accomplished	Acres	11,040 acres	unknown

Units accomplished should match the accomplishments recorded in the Databases of Record.

* Not entered into INFRA, but accomplished with CFLN funding.

7. **FY 2018 accomplishment narrative** – Summarize key accomplishments and evaluate project progress *not already described elsewhere* in this report. (Please limit answer to three pages.)

North Warner Aspen Meadow and Shrub-steppe Restoration: Aspen, meadow, and sage steppe ecosystems provide important habitat to hundreds of different wildlife species ranging from pollinators to Rocky Mountain elk. Removing encroaching conifers resulting from fire suppression from these important ecosystems helps restore natural function, remove competing vegetation, and improve ecosystem health benefitting wildlife species.

The North Warner Aspen Meadow and IRA Sage Steppe Restoration project treated 696 acres and improved wildlife habitat by removing encroaching conifer from aspen, meadow, and sage steppe habitats. In FY18 funds were obligated to complete 198 acres of aspen restoration and 494 acres of dry meadow and sage steppe habitat in the Drake-McDowell Inventoried Roadless Area (IRA). Aspen unit treatments included felling of all conifer up to 12" DBH and all juniper up to 21" DBH. All material less than 8" at the small end was hand piled for future burning. Meadow and sage-step treatments included felling of all juniper up to 21" DBH. All felled material was slashed to a height of <3' for future jackpot burning.

North Warner Aspen Unit 1093 before (above) and after (below)

IRA Juniper 1 before (above) and after (below)

Invasives: The Forest Service works collaboratively with the Lake County Cooperative Weed Management Area (LCCWMA) on existing projects, which include adjacent private landowners along Thomas Creek, Augur/Camp Creek, and Chewaucan River, Summer Lake, Clover Flat, Crooked Creek, and the north end of the Warner Mountains. Inventorying and treating new populations before they become well established is the most effective means for controlling invasive plants and preventing spread. The project goals and objectives are: suppression of known invasive plants populations, surveying for new invasive plants sites, and restoring treated areas. Currently, a large portion of invasive plants treatments occur along major access roads into the forest. The additional funds provided through CFLRP allow new sites to be treated as well as expanded treatment of existing sites.

In 2018, 636 acres were treated on National Forest System lands with CFLR funds. These acres were treated with a combination of manual control (176.0 acres, 324 sites) and herbicide treatments (460 acres, 439 sites). The Youth Conservation Corp crew assisted with manual treatments in various locations throughout the project area. With the addition of the USFS Matching Funds and Partner Cash Match, another 455.1 acres (482 sites) were treated manually, and another 129.9 acres (178 sites) were treated with herbicide with funding for sage grouse habitat improvement. Using all funding sources within the CFLR Project Area, an additional 457 sites were found to be inactive (71.1 acres), 34 sites were eradicated (6.5 acres), and 161 sites have been inactive long enough that a revisit this season was not needed (35.2 acres). Overall, 1,221 acres (1,423 sites) were treated and an additional 112.8 acres (663 sites) were accounted for within the CFLR Project Area.

Youth Conservation Corp crew gridding and manually controlling Mediterranean sage in the North Warners

Deuce and North Warner Commercial and Non-Commercial Tree Thinning: Commercial harvest (10 mmbf) and non-commercial thinning (1,024 acres) with hand piling, is a key component to reducing stocking levels, reducing ladder fuels, and setting the stage for prescribed fire. Treatments are designed to set stands on a trajectory towards the historic range of variability, undoing the effects of more than a century of successful fire suppression and improving forest resiliency to future natural disturbance such as fire, insect and disease and drought. In addition, these activities provide valuable economic benefits to the local communities, in the form of jobs both in the forest and at the Collins Pine Mill in Lakeview.

Fire/Fuels: Prescribed fire (5,540 acres) and pile burning (5,500 acres) were completed in the West Drew's, Burnt Willow, Jakabe, Deuce, and Launch project areas. The objectives were primarily to reduce the existing wildland fire hazard and the potential negative effects from future wildland fire to both agency and adjacent private lands, while restoring fire-adaptive ecosystems and improving the health of the forest. A burn prescription was used that allowed for a mosaic pattern. A combination of burned and unburned areas is the best mix to restore health, vigor and structure into the vegetative communities. The goal of the Lakeview Stewardship Unit is to return fire to the role it historically filled and thus return sustainability to the forested lands within the Unit (*Lakeview Stewardship Proposal 2011*). Treatment by prescribed burning will reduce fuel loadings and break up vertical and horizontal continuity of fuels within stands across the landscape. This will produce conditions where wildfires will have less damaging effects and can be more readily controlled (*Lakeview Stewardship Proposal 2011*).

Road Decommissioning: Five miles of National Forest System (NFS roads), that had been determined to no longer needed for resource management or fire suppression, were decommissioned. These roads were ripped (compaction was mostly eliminated), drainage (rolling dips) was installed, and the road surface was covered with debris and slash. These roads are no longer hydrologically connected to any streams and are no longer routing extra water and sediment down the roadway and into streams. Sediment loads into these streams will be reduced back to a near natural rate which will improve water quality and aquatic habitat. Fewer roads, especially those along streams, will result in reduced peak flows due to compacted road surfaces routing rain and snow melt into creeks/streams.

Road decommissioning in the West Drews Project area

Recreation/Trails: Two youth crews consisting of four leaders and 18 crew members maintained 7 miles of the Fremont National Recreation Trail 160 between July 30 and August 10. Work performed included clearing brush, removing downed trees, restoring tread, and performing general trail maintenance.

Two Youth Conservation Corps crews were hosted on the Fremont-Winema National Forest from June 11 to August 3. Both crews consisted of one crew leader and four crew members. One crew was hosted on the Paisley Ranger Districts and one on the Lakeview Ranger District. Tasks performed by these crews included: (1) surveys for wildlife, geology, archeology, botany, and weeds, (2) weed abatement, (3) trail maintenance, and (4) recreation site maintenance.

A participating agreement was entered into by the Fremont-Winema National Forest and Lake County School District 7 to utilize the services of the Step Up Youth Crew to complete various trail and recreation maintenance projects on National Forest System lands. The agreement is valid through July 16, 2023, and makes available $64,999.53 to the Step Up Program to employ a crew leader and six crew members for four weeks each summer. Work to be performed by the youth crew includes: trail tread repair and maintenance, trail clearing and brushing, trail sign and reassurance marker installation, micro trash cleanup, recreation facility painting, and recreation site ground maintenance.

Crew members benefit from this work by developing career enhancing knowledge and skills. Tasks performed involve physical activity that promotes healthy living and inspires pursuit of outdoor recreational activities. Projects completed teach crew members about nature, promote an awareness of the value of public lands, and may generate interest in a future career with a natural resource agency or other land management organization.

Property Lines: CFLN funds were used to award a Cadastral Surveying contract with a private land surveying firm. The work involved in the contract was located in the Thomas Creek Project Area, in support of future timber sales. The contract supports boundary management and accomplished 10.75 miles of NFS boundary maintenance and the maintenance of 25 corner monuments that define the boundary lines, along with associated paperwork. The work involves marking and posting NFS boundaries so they are visible and readily apparent to the on looker. Corner monuments that define the lines were maintained and any accessories (bearing trees) were painted and properly signed. Where corners needed new accessories, they were established and the proper paperwork was filed with the Lake County Surveyor.

Boundary maintenance in the Thomas Creek Project area

Lidar Acquisition and Plot Data: Lidar was acquired to cover 434,000 acres within the Lakeview Stewardship CFLRP. In addition, contracted vegetation plots were completed to validate the lidar data. This data will be extremely helpful for project planning and monitoring.

8. **The WO (EDW) will use spatial data provided in the databases of record to estimate a treatment footprint for your review and verification**.

Fiscal Year	Footprint of Acres Treated (without counting an acre of treatment on the land in more than one treatment category)
FY 2018	FY18 - 29,654 acres
Estimated Cumulative Footprint of Acres (2010 or 2012 through 2018)	FY12 – 17,166 acres FY13 – 6,378 acres FY14 – 20,523 acres FY15 – 15,076 acres FY16 – 12,143 acres FY17 – 20,632 acres

9. **Describe any reasons that the FY 2018 annual report does not reflect your project proposal, previously reported planned accomplishments, or work plan.** Did you face any unexpected challenges this year that caused you to change what was outlined in your proposal? (Please limit answer to two pages).

Some of the CFLN funding did not come until late in the fiscal year. This presented challenges with meeting the early obligation strategy and the ability to put those funds towards implementation because there is no time to plan and layout additional units and put them onto contracts. The only option at that point in the year is to obligate additional funds to agreements. This resulted in more funding being obligated to the monitoring agreement with LCRI, which will partially help with funding the five year monitoring requirement after 2019. Some funding also went to fire agreements with ODF and the BLM for assistance with future pile burning and prescribed fire.

10. Planned FY 2019 Accomplishments

Performance Measure Code	Unit of measure	Work Plan 2019	Planned Accomplishment For 2019	Amount ($)
Acres of forest vegetation established FOR-VEG-EST	Acres	pending	730 acres	$256,000
Manage noxious weeds and invasive plants INVPLT-NXWD-FED-AC	Acre	pending	1,000 acres	$195,000
Miles of stream habitat restored or enhanced HBT-ENH-STRM	Miles	pending	5 miles	$195,000
Acres of terrestrial habitat restored or enhanced HBT-ENH-TERR	Acres	pending	560 acres	$195,000
Miles of system trail maintained to standard TL-MAINT-STD	Miles	pending	15 miles	$80,000
Miles of road decommissioned RD-DECOM	Miles	pending	5 miles	$50,000
Volume of timber sold TMBR-VOL-SLD	CCF	pending	29,600 ccf	$360,000
Acres of hazardous fuels treated outside the wildland/urban interface (WUI) to reduce the risk of catastrophic wildland fire FP-FUELS-NON-WUI	Acre	pending	2,000 acres	$200,000
Acres of wildland/urban interface (WUI) high priority hazardous fuels treated to reduce the risk of catastrophic wildland fire FP-FUELS-WUI	Acres	pending	2,000 acres	$200,000

Please include all relevant planned accomplishments, assuming that funding specified in the CFLRP project proposal for FY 2019 is available. Use actual planned funding if quantity is less than specified in CFLRP project work plan.

11. **Planned accomplishment narrative and justification if planned FY 2019 accomplishments and/or funding differs from CFLRP project work plan** (no more than 1 page): If do want to compare lifetime goals to date, link here.

Two additional important accomplishments not covered in the FY19 table above, but will yield long-term results if funded, include ecological, social, and economic monitoring completed by LCRI and the University of Oregon ($200,000) and contracted cultural surveys in the next landscape restoration project area ($150,000).

12. **Please include an up to date list of the members of your collaborative if it has changed from previous years**. If the information is available online, you can simply include the hyperlink here. If you have engaged new collaborative members this year, please provide a brief description of their engagement.

Jim Walls - LCRI	Barry Imler – Fremont-Winema NF	Brad Winters – Lake Co. Commissioner
Nick Johnson - LCRI	Mike Ramsey – Fremont-Winema NF	Dan Shoun – Lake Co. Commissioner
Clair Thomas – LCRI Monitoring	Chuck Burley – Fremont-Winema NF	Amy Amrhein – Sen. Merkley' s Office
Julia Olszewski – LCRI Monitoring	Amy Markus – Fremont-Winema NF	Rebecca Wolfe – Private citizen
Craig Bienz - TNC	Mike Anderson – The Wilderness Society	Martin Goebel – Private citizen
Mark Stern - TNC	Danial Leavel – OSU Extension	Rick Brown – Private citizen
Cale Graves – ODF	Dee Brown – Collin's Pine	Rick Elliott – Private citizen
Jason Pettigrew – ODF	Jess Spradley – Collin's Pine	Sandi Wenzel – Private citizen
Ginger Casto - SCOEDD	Doug Heiken – Oregon Wild	Marc Valens – Private citizen
Emily Jane Davis - OSU	Dustin Gustaveson - ODF	Deanna Walls – Private citizen
Eric White – Pacific Northwest Research Station	Dylan Kruse – Sustainable Northwest	Jane O'Keefe – Private Rancher
Jeff Manternach – Red Rock Biofuels	Autumn Ellison – University of Oregon	Bob Carlon - Contractor

13. **Media recap**. Please share with us any hyperlinks to videos, newspaper articles, press releases, scholarly works, and photos of your project in the media that you have available. You are welcome to include links or to copy/paste.

The new publication "Planning and Implementing Cross-Boundary, Landscape-Scale Restoration and Wildfire Risk Reduction Projects" highlights the process used to plan and implement the North Warner Multi-Ownership Forest Health Project, which is located within the Lakeview Stewardship CFLRP. This publication was written by the partners involved with the KLFHP. Link

Signatures:

Recommended by (Project Coordinator):_____
Amy Markus, Cohesive Strategy Coordinator

Approved by (Forest Supervisor(s)): _____
Barry Imler, Forest Supervisor

Draft reviewed by (collaborative chair or representative): _____
Nick Johnson, Lake County Resources Initiative