

---

**APPENDIX F.11**

**Forest Service Draft Record of Decision**

---

**Jordan Cove Natural Gas Liquefaction and  
Pacific Connector Gas Pipeline Project  
Final EIS**

**Appendix F.11**

**U.S. Department of Agriculture Forest Service**

**Draft Record of Decision**

**Land and Resource Management Plan Amendments for the  
Umpqua, Rogue River, and Winema National Forests**

**Douglas, Jackson, and Klamath Counties, Oregon**

**Pacific Connector Gas Pipeline**

**Prepared for:**

**Federal Energy Regulatory Commission**

**Prepared by:**

**USDA Forest Service**

**November 2019**



# Draft Record of Decision

## Pacific Connector Gas Pipeline Project

### Land and Resource Management Plan

#### Amendments for the Umpqua, Rogue River, and Winema National Forests

#### Douglas, Jackson, and Klamath Counties, Oregon



In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotope, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [http://www.ascr.usda.gov/complaint\\_filing\\_cust.html](http://www.ascr.usda.gov/complaint_filing_cust.html) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: [program.intake@usda.gov](mailto:program.intake@usda.gov).

USDA is an equal opportunity provider, employer and lender.

**Draft Record of Decision**  
**for the**  
**Pacific Connector Gas Pipeline Project Land and**  
**Resource Management Plan Amendments for the**  
**Umpqua, Rogue River, and Winema National Forests**  
  
**Douglas, Jackson, and Klamath Counties, Oregon**

**Lead Agency:** Federal Energy Regulatory Commission

**Cooperating Agency:** U.S. Forest Service

**Responsible Official:** **Alice B. Carlton, Forest Supervisor**  
Umpqua National Forest  
2900 NW Stewart Parkway  
Roseburg, OR 97471

**For Information Contact:** **David Krantz, Project Manager**  
Umpqua National Forest  
3040 Biddle Road  
Medford, OR 97504

Telephone Number: 541-618-2082

---

## Table of Contents

|  |     |
|--|-----|
| List of Acronyms.....  | iii |
| Introduction.....  | 1   |
| Background.....  | 4   |
| Purpose and Need and Proposed Action.....  | 4   |
| Federal Agency Jurisdiction and Other Related Decisions.....   | 5   |
| The Nature of This Decision.....   | 6   |
| Changes from DEIS (Proposed Amendments) to FEIS (Final Amendments).....  | 6   |
| Decision and Rationale for the Decision.....   | 8   |
| Decision.....  | 8   |
| Terms and Conditions.....  | 12  |
| Decision Rationale.....  | 13  |
| Rationale by Topic Area.....   | 13  |
| Purpose of the Amendments.....   | 16  |
| Compliance with the Rule’s Procedural Provisions.....  | 16  |
| Using the best available scientific information to inform the planning process (§ 219.3).....                  | 17  |
| Rare Aquatic and Terrestrial Plant and Animal Communities.....   | 17  |
| Soil, Water, and Riparian Areas.....   | 17  |
| Visual Resources.....  | 18  |
| Providing opportunities for public participation (§ 219.4) and providing public notice (§ 219.16):.....        | 19  |
| Applying the planning rule’s format requirements for plan components (§ 219.13 (b)(4)).....                    | 21  |
| The plan amendment process (§ 219.13):.....  | 21  |
| Compliance with the Rule’s Applicable Substantive Provisions.....  | 21  |
| Scope and scale of the amendments.....   | 21  |
| Description of the Plan Amendments and the Planning Rule requirements associated with the amendments.....      | 22  |
| Rare Aquatic and Terrestrial Plant and Animal Communities.....   | 22  |
| Soil, Water, and Riparian Areas.....   | 26  |
| Visual Resources.....  | 29  |
| Environmental Inspection and Compliance Monitoring.....  | 31  |
| Project Activities Consistency With LRMPs.....   | 32  |
| Project-Specific Plan Amendment Alternatives Considered in Detail.....   | 32  |
| Environmentally Preferable Alternative.....  | 33  |
| Findings Required by Other Laws and Regulations.....   | 34  |
| National Forest Management Act.....  | 34  |
| Northwest Forest Plan.....   | 34  |
| Northwest Forest Plan - Aquatic Conservation Strategy.....   | 36  |
| Northwest Forest Plan – Late Successional Reserves.....  | 36  |
| Consistency Determination with Northwest Forest Plan Objectives and Relevant NFP Standards and Guidelines..... | 37  |
| Northwest Forest Plan Standard C-17 Public Benefit.....  | 39  |
| Northwest Forest Plan – Survey and Manage Species.....   | 39  |
| National Environmental Policy Act.....   | 40  |
| Endangered Species Act (ESA).....  | 40  |
| Mammals.....   | 40  |
| Birds.....   | 40  |
| Fish.....  | 41  |
| Amphibians and Reptiles.....   | 41  |

---

|  |    |
|--|----|
| Invertebrates .....  | 41 |
| Plants .....   | 41 |
| Special-Status Species.....                                      | 43 |
| Bald and Golden Eagle Protection Act .....                       | 43 |
| Migratory Bird Treaty Act of 1918 and Executive Order 13186..... | 43 |
| Regional Forester Sensitive Species .....                        | 43 |
| National Historic Preservation Act .....                         | 63 |
| Consultations with the SHPO.....                                 | 64 |
| Consultations with Indian Tribes.....                            | 64 |
| FERC Staff Consultations with Indian Tribes.....                 | 65 |
| National Trails System Act .....                                 | 66 |
| Clean Air Act .....  | 66 |
| Clean Water Act.....   | 67 |
| Floodplains and Wetlands (Executive Orders 11988 and 11990)..... | 68 |
| Environmental Justice (Executive Order 12898) .....              | 68 |
| Wilderness Act of 1964.....                                      | 69 |
| 2001 Roadless Area Conservation Rule.....                        | 69 |
| Administrative Review/Objections.....                            | 69 |
| Effective Date (§ 219.17(a)) .....                               | 72 |
| Contact Person .....   | 72 |

**List of Tables**

|  |    |
|--|----|
| Table 1. Umpqua, Rogue River, and Winema National Forests Revised Land and Resource Management Plan Amendments Specific to the PCGP Project..... | 8  |
| Table 2. Forest Service Special Status Species With Potential to Occur Near the Project.....   | 44 |

**List of Figures**

|  |   |
|--|---|
| Figure 1. Pacific Connector Pipeline Route across the Umpqua National Forest.....                  | 2 |
| Figure 2. Pacific Connector Pipeline Route across the Rogue River and Winema National Forests .... | 3 |

## List of Acronyms

|                    |  |
|--------------------|--|
| AQRV               | air quality related value  |
| BA                 | Biological Assessment  |
| BE                 | Biological Evaluation  |
| BASI               | Best Available Scientific Information                              |
| BIA                | Bureau of Indian Affairs   |
| BLM                | Bureau of Land Management  |
| BMPs               | Best Management Practices  |
| BO                 | Biological Opinion   |
| CFR                | Code of Federal Regulations  |
| CIT                | Coquille Indian Tribe  |
| CMP                | Compensatory Mitigation Plan                                       |
| Cow Creek Tribe    | Cow Creek Bank of Umpqua Tribe of Indians                          |
| CTCLUSI            | Confederated Tribes of the Lower Umpqua, Coos, and Siuslaw Indians |
| CWA                | Clean Water Act  |
| DEIS               | Draft Environmental Impact Statement                               |
| DOE                | United States Department of Energy                                 |
| DSP                | Distinct Population Segment  |
| EFCC               | East Fork Cow Creek  |
| EIS                | Environmental Impact Statement                                     |
| EO                 | Executive Order  |
| EPA                | Environmental Protection Agency                                    |
| ESA                | Endangered Species Act   |
| ESU                | Evolutionarily Significant Unit                                    |
| FEIS               | Final Environmental Impact Statement                               |
| FERC               | Federal Energy Regulatory Commission                               |
| FS                 | Forest Service   |
| FTE                | full-time equivalent   |
| FWS                | United States Fish and Wildlife Service                            |
| Grand Ronde Tribes | Confederated Tribes of the Grand Ronde Community of Oregon         |
| HUC                |  |
| IRA                | Inventoried Roadless Area  |
| ISSSSP             | Interagency Special Status/Sensitive Species Program               |
| JCLNG              | Jordan Cove Liquefied Natural Gas                                  |
| km                 | kilometer  |
| KOP                | Key Observation Points   |



|               |   |
|---------------|---|
| LRMP          | Land and Resource Management Plan             |
| LSOG          | late successional old growth                  |
| LSR           | Late Successional Reserves                    |
| LWD           | large woody debris                            |
| MBTA          | Migratory Bird Treaty Act                     |
| MLRA          | Major Land Resource Areas                     |
| MP            | Mile Post                                     |
| NEPA          | National Environmental Policy Act             |
| NF            | National Forest                               |
| NFMA          | National Forest Management Act                |
| NFP           | Northwest Forest Plan                         |
| NFS           | National Forest System                        |
| NGA           | National Gas Act                              |
| NHPA          | National Historic Preservation Act            |
| NMFS          | National Marine Fisheries Service             |
| NPS           | National Park Service                         |
| NRF           | nesting, roosting, and foraging               |
| NSR           | North State Resources, Inc.                   |
| NOA           | Notice of Availability                        |
| NOI           | Notice of Intent                              |
| NRCS          | Natural Resources Conservation Service        |
| NSO           | Northern spotted owl                          |
| NTSA          | National Trails System Act                    |
| ODEQ          | Oregon Department of Environmental Quality    |
| PA            | Programmatic Agreement                        |
| PCGP          | Pacific Connector Gas Pipeline                |
| PCT           | Pacific Crest Trail                           |
| POD           | Plan of Development                           |
| RACR          | Roadless Area Conservation Rule               |
| Reclamation   | Bureau of Reclamation                         |
| RFSS          | Regional Forester Sensitive Species           |
| ROD           | Record of Decision                            |
| ROW           | rights-of-way                                 |
| RRNF          | Rogue River National Forest                   |
| SEIS          | Supplemental Environmental Impact Statement   |
| SHN           | SHN Consulting Engineers and Geologists, Inc. |
| SHPO          | State Historic Preservation Office            |
| Siletz Tribes | Confederated Tribes of Siletz Tribes          |
| SLIDE         | Slope Stability Model                         |
| SSURGO        | Soil Survey Geographic Database               |
| STATSGO       | State Geographic Database                     |

|        |  |
|--------|--|
| TEWA   | temporary extra work area                |
| TMDL   | total maximum daily load                 |
| UCSA   | uncleared storage area                   |
| UNF    | Umpqua National Forest                   |
| USACE  | United States Army Corps of Engineers    |
| U.S.C. | United States Code                       |
| USDA   | United States Department of Agriculture  |
| USDI   | United States Department of the Interior |
| VRM    | visual resource management               |
| VQO    | visual quality objective                 |
| WNF    | Winema National Forest                   |

## Introduction

This draft record of decision (ROD) documents my decision and rationale for amendments to the Land and Resource Management Plans (LRMPs or Forest Plans) for the Umpqua, Rogue River, and Winema National Forests as amended by the Northwest Forest Plan (NFP) to accommodate the Jordan Cove Liquefied Natural Gas Project (JCLNG project) and the Pacific Connector Gas Pipeline project (PCGP project or Pacific Connector project). My decision and the rationale for my decision are based on the Final Environmental Impact Statement (FEIS) prepared by the Federal Energy Regulatory Commission (FERC) for the two projects. [The two proposals combined are often called "the Project" in the FEIS.] I have adopted the environmental analysis prepared by FERC (in accordance with 40 CFR § 1506 (a) and (c)) to support my decision. My decision is based on the proposed action described in the FEIS (FEIS, Chapter 2).

This draft ROD documents my approval of, and my rationale for, the following: 12 project-specific amendments to the Umpqua, Rogue River, and Winema LRMPs (USDA Forest Service 1990); three project-specific amendments to a standard (survey and manage) from the NFP (USDA Forest Service 1994; and two Forest Plan-level amendments to land allocations from the NFP (converting matrix lands to Late Successional Reserves (LSR), (USDA Forest Service 1994)<sup>1</sup>. See the "Changes from DEIS to FEIS" section of this ROD for details on modifications made to the Forest Plan amendments since the Draft EIS (DEIS) was made available for comment in April 2019.

Approximately 30.7 miles of the Pacific Connector pipeline route would cross National Forest System (NFS) lands administered by the Umpqua, Rogue River, and Winema National Forests (see figures 1 and 2. The areas affected by this decision include approximately 591 acres of land associated with the proposed construction of the Pacific Connector pipeline project and approximately 186 acres associated with the proposed permanent right-of-way (ROW) for the pipeline project, which would cross approximately 10.8 miles on the Umpqua National Forest in Douglas County, 13.9 miles on the Rogue River National Forest in Jackson County, and 6.0 miles on the Winema National Forest in Klamath County. No permanent access roads (PAR) are authorized by this decision. Table 2.3.2.3-1 in the FEIS provides additional information on the land requirements for the Pacific Connector project on the three National Forests.

---

<sup>1</sup> Amendments specific to the NFP were coordinated with the Regional Interagency Executive Committee.

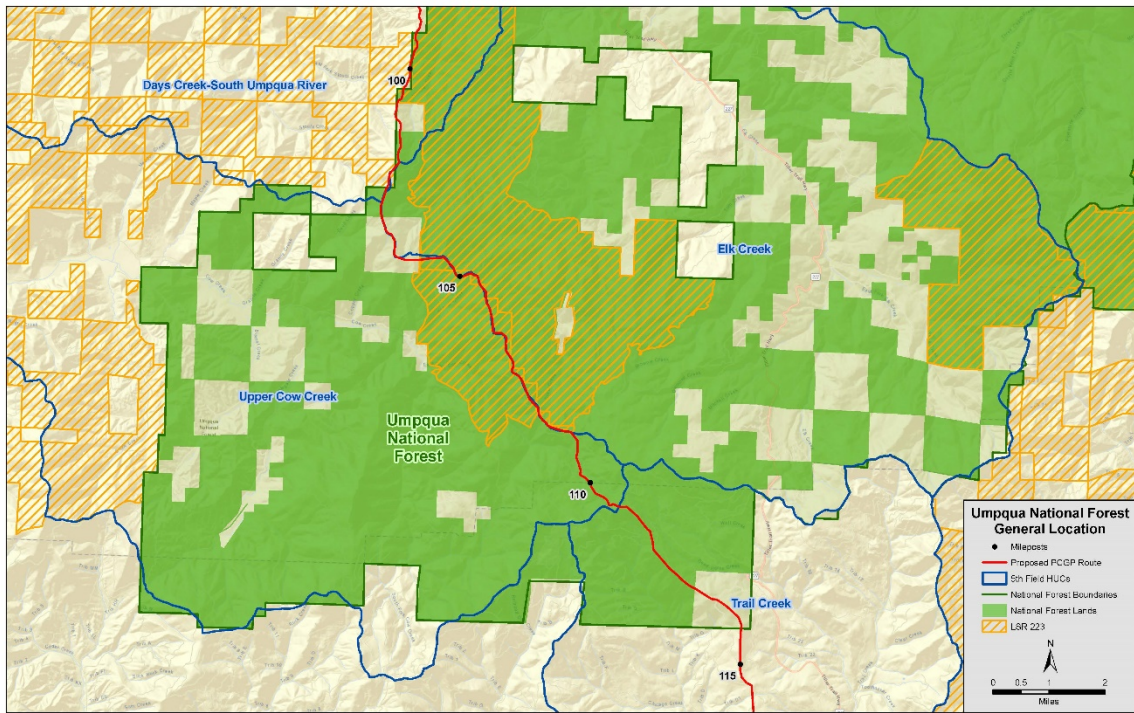


Figure 1. Pacific Connector Pipeline Route across the Umpqua National Forest

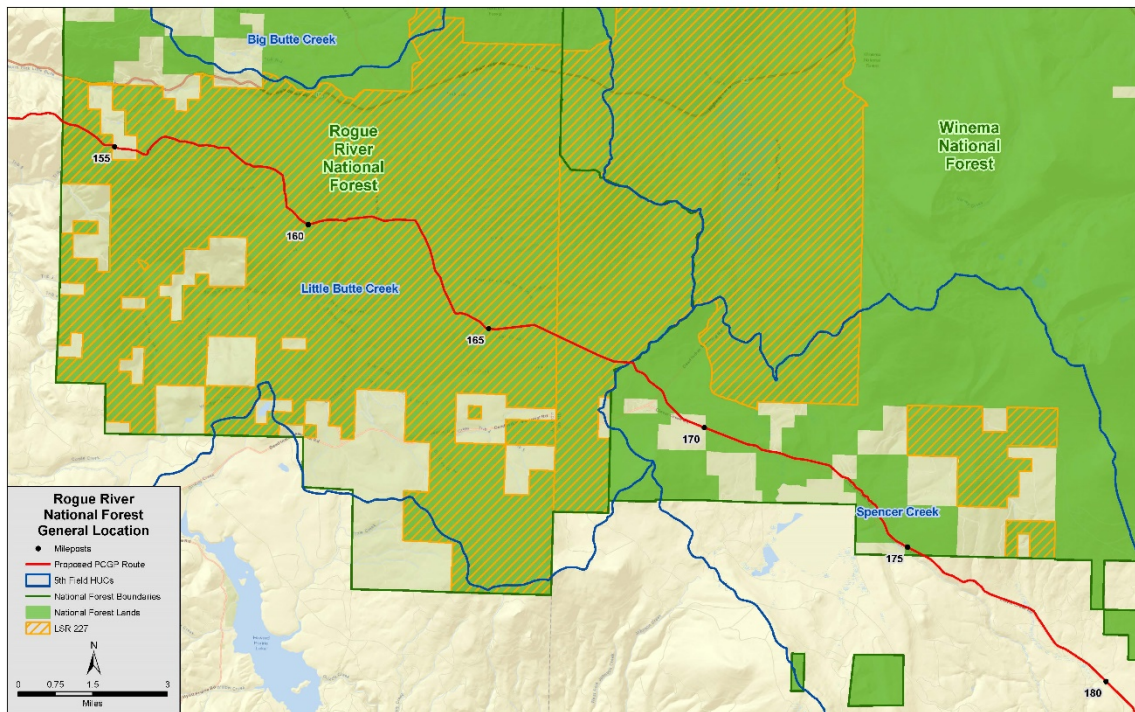


Figure 2. Pacific Connector Pipeline Route across the Rogue River and Winema National Forests

## Background

In accordance with the Natural Gas Act (NGA, Title 15 United States Code (U.S.C.) § 717), FERC is the lead federal agency for the environmental analysis of the construction and operation of the proposed JCLNG and PCGP projects. The 229-mile PCGP project would consist of a 36-inch-diameter natural gas transmission pipeline that would cross Klamath, Jackson, Douglas, and Coos Counties, Oregon. We (the Forest Service) participated as a cooperating agency with FERC and the Bureau of Land Management (BLM) in the preparation of the FEIS. See the “Federal Agency Jurisdiction and Other Related Decisions” section below for additional information on decisions that will be made by other federal agencies with jurisdiction for the PCGP project.

The construction phase of the PCGP project will require use of about 591 acres of NFS lands, consisting of 351 acres of pipeline corridor, 239 acres of additional temporary workspace, and 1.0 acres of access road improvements. The PCGP project will use existing access roads on the three Forests. Some road reconstruction will be necessary, but no new permanent roads will be constructed on the Forests. The pipeline route crosses the Pacific Crest Trail (PCT) at an existing Forest Service-managed road. The operational phase of the PCGP will occupy about 186 acres of the Forests, consisting of a permanent pipeline corridor. The construction corridor for the pipeline in most instances will be 95 feet wide, but will generally be reduced to 75 feet wide when crossing waterbodies and associated Riparian Reserves on NFS lands. The construction corridor will be reclaimed to a final operational corridor width of 50 feet.

The pipeline will be buried, with 3 feet of cover over the pipe within the three Forests in most areas and 24 inches of cover in consolidated rock. When underground boring is used to avoid impacts to sensitive surface resources, the pipeline would be up to 90 feet below the surface. There will be no above-ground facilities located on the Forests.

Construction is expected to begin as soon as all approvals are in place and continue for a period of about 2 years or until all 229 miles have been constructed. Construction on the Forests is projected to be completed in 2022. Operation and maintenance within the ROW will begin shortly thereafter and continue as long as the pipeline is in service.

## Purpose and Need and Proposed Action

In its application, Jordan Cove, L.P. states that the purpose of its project is to export natural gas supplies derived from existing interstate natural gas transmission systems (linked to the Rocky Mountain region and Western Canada) to overseas markets, particularly Asia.<sup>2</sup> According to Jordan Cove, L.P., the JCLNG and the PCGP projects are a market-driven response to increasing natural gas supplies in the U.S. Rocky Mountain and Western Canada production areas and the growth in international demand, particularly in Asia (FEIS, section 1.2). The PCGP project includes the construction, operation, and maintenance of a buried 36-inch-diameter interstate natural gas pipeline that will cross about 31 miles of lands managed by the Forest Service on the Umpqua, Rogue River, and Winema National Forests, as disclosed in the FEIS. The proposed JCLNG terminal would not be located on NFS lands. See section 2.0 of the FEIS for a description of the proposed PCGP and JCLNG projects and section 4.7.3.4 for a description of the project-specific Forest Plan amendments.

---

<sup>2</sup> Note that the FERC will consider as part of its decision whether or not to authorize all factors bearing on the public interest, including the project’s purpose and need. Additional information regarding the FERC’s process and considerations in regard to the project’s purpose and need are provided in section 1.3.1 of the FEIS.

The proposed action by the Forest Service is to amend 15 standards and 2 plan-level land allocation adjustments in the Forest Plans. Our consideration of the plan amendments is triggered by our statutory obligations as a cooperating agency in processing applications for natural gas pipelines involving federal land under provisions of Section 28 of the Mineral Leasing Act of 1920 (30 U.S.C. § 181) and Section 313 of the Energy Policy Act of 2005. The Forest Plans require amending so that the PCGP project would be consistent with specific standards in the Forest Plans that are worded in a manner that precludes alternate means to protect soil, water, riparian, rare plant and animal communities, and visual resources. Forest Plan standards are mandatory constraints on project and activity decision-making, established to help achieve or maintain desired conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements (36 CFR 219.7(e)(1)(iii)).

The National Forest Management Act (NFMA) requires proposed projects, including third-party proposals subject to permits or ROW grants, to be consistent with the LRMP of the administrative unit where the project would occur. When a project is not consistent with the Forest Plan where the project would occur, the Forest Service has the following options: (1) modify the proposed project to make it consistent with the Forest Plan; (2) reject the proposal; (3) amend the Forest Plan so that the project would be consistent with the plan as amended; or (4) amend the Forest Plan simultaneously with the approval of the project so that the project would be consistent with the plan as amended. Limitations may be applied to the fourth option so that it applies only to the proposed project (36 CFR 219.15(c)). Any amendment would have to be approved by the Umpqua Forest Supervisor (Forest Service Authorized Officer) before the Forest Service can issue a letter of concurrence to BLM for the ROW grant.

## Federal Agency Jurisdiction and Other Related Decisions

FERC is responsible for authorizing interstate natural gas transmission facilities and, by law, is responsible for coordinating all applicable federal authorizations and preparing an analysis that complies with the National Environmental Policy Act (NEPA). FERC was the lead federal agency for preparing the FEIS for the construction and operation of the proposed JCLNG and the PCGP projects. Federal agencies with a role in authorizing an application for a natural gas pipeline are required by law to cooperate in processing the application and to comply with the processing schedule established by FERC (Section 313 of Energy Policy Act of 2005). On September 21, 2017, Jordan Cove, L.P. and Pacific Connector<sup>3</sup> filed applications with FERC pursuant to Sections 3 and 7 of the NGA to construct and operate a liquefied natural gas terminal and associated pipeline facilities. A Notice of Application for the JCLNG and PCGP projects<sup>4</sup> was issued by FERC on October 5, 2017.

In addition to the FERC Certificate, PCGP must obtain authorization from BLM to construct and operate the Pacific Connector pipeline on federal lands crossed by the project. Under the Mineral Leasing Act (30 U.S.C. 185 et seq.), BLM is the federal agency responsible for issuing ROW grants for natural gas pipelines across federal lands under the jurisdiction of two or more federal agencies.

---

<sup>3</sup> Jordan Cove and Pacific Connector are both subsidiaries of Pembina Pipeline Corporation (Pembina) of Calgary, Alberta, Canada. They are also referred to in this Draft ROD as the applicants.

<sup>4</sup> Individually, the Jordan Cove proposal was referred to in the FEIS as the Jordan Cove Liquefaction Project, Jordan Cove LNG Project, LNG Project, Jordan Cove facilities, or the JCEP Project; the Pacific Connector proposal was referenced similarly as the Pacific Connector Pipeline Project, Pacific Connector pipeline, pipeline Project, or PCGP Project. The two proposals combined are often called the Project.

FERC's FEIS for the JCLNG and PCGP projects included consideration of a BLM ROW grant to Pacific Connector for pipeline construction and operation across federal lands under the jurisdiction of the Forest Service and Bureau of Reclamation (Reclamation). However, before issuing the ROW grant, BLM must acquire the written concurrence of the Forest Service and Reclamation. Through this concurrence process, the Forest Service may submit to BLM any terms and conditions for inclusion in the ROW grant that are deemed necessary to protect federal property and otherwise protect the public interest.

## The Nature of This Decision

As noted above, FERC's FEIS for the PCGP project included consideration of a BLM ROW grant across federal lands, along with associated Forest Plan amendments (FEIS, section 4.7.3.4).

The decision by the Forest Service amends the Forest Plans for the Umpqua, Rogue River, and Winema Forests, specifically, for the PCGP project. I determined that, based on the scope of the FEIS analysis, this decision is limited to considering the project-specific plan amendments and matrix to Late Successional Reserves (LSR) plan-level amendments related to construction and operation of PCGP. A "project-specific plan amendment" means the amendment is applicable to just the PCGP project and not to any other future projects. The plan-level amendments would change future management direction for the lands reallocated from matrix to LSR (for additional information on consistency with LSR standards and guidelines, see section 4.7.3.6. and appendix F.3 of the FEIS). My decision to amend the Forest Plans has been prepared according to Forest Service NEPA procedures (36 CFR 219.14(a)).

My decision includes a determination of whether the proposed amendments are directly related to the substantive requirements (36 CFR 219.8 through 219.11) of the Forest Service's planning regulations. The substantive requirements address sustainability, diversity of plant and animal communities, multiple use, and timber requirements. My determination of whether a Forest Plan amendment is "directly related" to a substantive requirement, is based on "the purpose for the amendment and the effects (beneficial or adverse) of the amendment, and informed by the best available scientific information, scoping, effects analysis, monitoring data or other rationale. 36 CFR 219.13(b)(5)(i). I must determine that a specific substantive requirement is directly related to the amendment when the scoping or NEPA effects analysis for the proposed amendment reveals substantial adverse effects associated with that requirement, or when the proposed amendment would substantially lessen protections for a specific resource or use. 36 CFR 219.13(b)(5)(ii)(A).

Recent changes to the planning rule provide that if a proposed amendment is determined to be "directly related" to a substantive rule requirement, the responsible official must apply that requirement within the scope and scale of the proposed amendment and, if necessary, make adjustments to the proposed amendment to meet the requirement (36 CFR 219.13 (b)(5) and (6); 81 FR 90738 (Dec. 15, 2016.)).

## Changes from DEIS (Proposed Amendments) to FEIS (Final Amendments)

In the DEIS, the proposed Forest Plan amendments consisted of modifying the following plan components: management prescriptions for rare plant and animal communities, riparian areas, soils, social/economic sustainability, and visual resources (e.g., scenery). The proposed amendments in the DEIS were based on knowledge about, and anticipated effects of, the proposed project at that time. After it was published, we reviewed new information, analyses, and comments from the public on the



DEIS. We also reviewed analyses from the PCGP applicant and worked with the applicant to develop additional route modifications, project design features, and mitigation measures to protect resources, including soil, riparian, late successional old growth (LSOG), scenery, and the PCT. The additional mitigation measures, project design features, and route modifications related to the proposed amended standards are discussed in FEIS section 3.4, 4.8.1.2 and in appendix F.10, PCGPs Plan of Development (POD).

Public comments submitted on the DEIS and Forest Service internal comments resulted in our modifying the proposed project-specific plan amendments. Proposed amendment UNF-2 for the Umpqua Forest Plan, Prescriptions C2-II (LRMP IV-173 and C2-IV LRMP IV-177), states, "Utility/transportation corridors, roads or transmission lines may cross but must not parallel streams"; we determined that a modification to the pipeline route would preclude the need for this amendment. Proposed amendment RRNF-3 for the Rogue River Forest Plan, Management Strategy 7, Foreground Partial Retention, Standard and Guideline (1), (RRNF LRMP, 4-86), states, "Correct unacceptable form, line, color or texture as a result of management activities either during the operation or within two years after completion of the activity"; we determined that a modification to the route and additional project design features would preclude the need for this amendment.

For the crossings in the East Fork Cow Creek (EFCC) watershed, in section 3.4.2.8 we evaluated and disclosed in the 2019 DEIS a route variation between Mile Posts (MPs) 109.7 and 109.8 that consisted of two modified crossings in the EFCC watershed to avoid the parallel pipeline alignment between the upper reaches of the perennial streams in this watershed. In this variation, the pipeline would proceed southeast from MP 109.6, crossing a reach of the EFCC and then continuing east, crossing an upper reach of the EFCC. The variation then follows a ridgeline to the south, rejoining the proposed route at MP 109.9.

The modified alignment at EFCC would reduce by about 535 feet the length of pipeline parallel to tributaries to the EFCC between MPs 109.7 and 109.8. In this area between the tributaries, the proposed route alignment also traverses a narrow ridgeline that supports old-growth forest/high nesting, roosting, and foraging (NRF) habitat and several sites occupied by Survey and Manage (S&M) species within Riparian Reserves. Avoidance of this area would reduce the need for long-term restoration and monitoring of hydrologic features affected during construction, and decreasing impacts to several S&M species. The route variation incorporates crossings that are perpendicular to the hydrologic features, reducing the risk of site destabilization and increasing the likelihood of successful stream channel restoration. This variation would negate the need for amendment UNF-2 for the Umpqua National Forest.

For the PCT crossing, in section 3.4.2.9 we evaluated and disclosed in the 2019 DEIS that the modified route would co-locate the pipeline corridor with an existing Forest Service Road (3720-700) north of MP 167.8. This variation would minimize potential impacts to trail users by realigning the pipeline to an area of the trail with existing disturbance/intrusion from Forest Service Road 3720-700. In addition, the site will be traversed using a conventional bore method below the roadway surface. Natural vegetation screening along the Forest Service road will be maintained to further reduce visual impacts at the site. This modification will also reduce impacts to old-growth forest and NRF habitat, as well as avoid several sites occupied by S&M species within the previous alignment. This variation would negate the need for amendment RRNF-3 for the Rogue River National Forest.

I have incorporated the East Fork Cow Creek Variation described in section 3.4.2.8 of the DEIS and the Pacific Crest Trail Variation described in section 3.4.2.9 of the DEIS into the proposed action. Therefore, proposed Forest Plan amendments UNF-2 and RRNF-3 are removed from my decision.

## Decision and Rationale for the Decision

### Decision

I have reviewed the environmental analysis disclosed in the FEIS; the project record; Pacific Connector’s POD; comments from the public, partners, and other agencies; and the requirements for plan amendments at 36 CFR Part 219. I have decided to amend the Umpqua, Rogue River, and Winema National Forests’ LRMPs, as shown below in Table 1. As the table shows, the amendments modify plan standards in the following three areas: rare aquatic and terrestrial plant and animal communities; soil, water, and riparian areas; and visual resources. New or modified plan amendment language is in **bold** text in column 2 of the table. All design features and mitigation measures described in the FEIS that are applicable to NFS land are incorporated by reference into my decision. The areas affected by this decision include 591 acres of lands associated with the proposed ROW for the PCGP project that would cross approximately 10.8 miles on the Umpqua National Forest in Douglas County, 13.9 miles on the Rogue River National Forest in Jackson County, and 6.0 miles on the Winema National Forest in Klamath County, comprising a total of approximately 30.7 miles.

**Table 1. Umpqua, Rogue River, and Winema National Forests Revised Land and Resource Management Plan Amendments Specific to the PCGP Project**

| Umpqua, Rogue River, and Winema NF Forest Plan Standards prior to Modification for the PCGP Project  | Standards as Modified for the PCGP Project  |
|--|---|
| <b>Part 1 – Forest Plan Amendments Related to Rare Aquatic and Terrestrial Plant and Animal Communities (FS-1, UNF-4, RRNF-7)</b>  |   |
| Manage All Known Sites (Survey and Manage ROD, Standards and Guidelines Page 8). Current and future known sites will be managed according to the Management Recommendation for the species. Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS, and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations. | Manage All Known Sites (Survey and Manage ROD, Standards and Guidelines Page 8). Current and future known sites will be managed according to the Management Recommendation for the species, <b>with the exception of the operational ROW and the construction zone for the Pacific Connector Pipeline, for which the applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented.</b> Professional judgment, Appendix J2 in the Northwest Forest Plan Final SEIS, and appropriate literature will be used to guide individual site management for those species that do not have Management Recommendations. <b>(FS-1)</b> |

**Table 1. Umpqua, Rogue River, and Winema National Forests Revised Land and Resource Management Plan Amendments Specific to the PCGP Project**

| <b>Umpqua, Rogue River, and Winema NF Forest Plan Standards prior to Modification for the PCGP Project</b>  | <b>Standards as Modified for the PCGP Project</b>  |
|---|--|
| <p>Matrix (C-39). The matrix consists of those federal lands outside the six categories of designated areas. Most timber harvest and other silvicultural activities would be conducted in that portion of the matrix with suitable forest lands according to standards and guidelines.</p>  | <p><b>Change the designation of approximately 585 acres from the matrix land allocation to the LSR land allocation in Sections 7, 18, and 19, T.32S., R.2W.; and Sections 13 and 24, T.32S., R.3W., W.M., OR. This change in land allocation is proposed as mitigation for the potential adverse impact of the Pacific Connector Pipeline project on LSR 223 on the Umpqua National Forest. This is a plan level amendment that would change future management direction for the lands reallocated from matrix to LSR. (UNF-4)</b></p>   |
| <p>Matrix (C-39). The matrix consists of those federal lands outside the six categories of designated areas. Most timber harvest and other silvicultural activities would be conducted in that portion of the matrix with suitable forest lands according to standards and guidelines.</p>  | <p><b>Change the designation of approximately 522 acres from the matrix land allocation to the LSR land allocation in Section 32, T.36S., R.4E. W.M., OR. This change in land allocation is proposed as mitigation for the potential adverse impact of the Pacific Connector Pipeline project on LSR 227 on the Rogue River National Forest. This is a plan level amendment that would change future management direction for the lands reallocated from matrix to LSR. (RRNF-7)</b></p>   |
| <p><b>Part 2 – Forest Plan Amendments Related to Soil, Water, and Riparian Areas (UNF-1, UNF-2, UNF-3, RRNF-5, RRNF-6, WNF-4, and WNF-5)</b></p>  |  |
| <p>Standard &amp; Guideline 1 (UNF LRMP IV-33). Maintain all effective shading vegetation on perennial streams. Utilize silvicultural practices to establish shade on perennial streams where currently lacking.</p>  | <p>Standard &amp; Guideline 1 (UNF LRMP IV-33). Maintain all effective shading vegetation on perennial streams, <b>with the exception of the operational ROW and the construction zone for the Pacific Connector Pipeline, for which the applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented.</b> Utilize silvicultural practices to establish shade on perennial streams where currently lacking <b>(UNF-1).</b></p>   |
| <p>Standard &amp; Guideline 1 (UNF LRMP IV-67). The combined total amount of unacceptable soil condition (detrimental compaction, displacement, puddling or severely burned) within an activity area (e.g., cutting unit, range allotment, site preparation area) should not exceed 20 percent. All roads and landings, unless rehabilitated to natural conditions, are considered to be in detrimental condition, and are included as part of this 20 percent.</p> | <p>Standard and Guideline 1 (UNF LRMP IV-67). The combined total amount of unacceptable soil condition (detrimental compaction, displacement, puddling or severely burned) within an activity area (e.g., cutting unit, range allotment, site preparation area) should not exceed 20 percent. All roads and landings, unless rehabilitated to natural conditions, are considered to be in detrimental condition, and are included as part of this 20 percent, <b>with the exception of the operational ROW and the construction zone for the Pacific Connector Pipeline, for which the applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented (UNF-3).</b></p> |

**Table 1. Umpqua, Rogue River, and Winema National Forests Revised Land and Resource Management Plan Amendments Specific to the PCGP Project**

| Umpqua, Rogue River, and Winema NF Forest Plan Standards prior to Modification for the PCGP Project   | Standards as Modified for the PCGP Project  |
|---|---|
| <p>Management Prescription 26. Restricted Riparian Standard &amp; Guidelines for Facilities (10), (RRNF LRMP 4-308). Helispots and transmission corridors should be located outside this management area.</p>   | <p>Management Prescription 26. Restricted Riparian Standard &amp; Guidelines for Facilities (10), (RRNF LRMP 4-308). Helispots and transmission corridors should be located outside this management area, <b>with the exception of the operational ROW and the construction zone for the Pacific Connector Pipeline, for which the applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented. (RRNF-5)</b></p>   |
| <p>Standard &amp; Guideline for Soils (3) (RRNF LRMP 4-41, 4-83, 4-97, 4-123, 4-177, 4-307). No more than 10 percent of an activity area should be compacted, puddled or displaced upon completion of project (not including permanent roads or landings). No more than 20 percent of the area should be displaced or compacted under circumstances resulting from previous management practices, including roads and landings. Permanent recreation facilities or other permanent facilities are exempt.</p>   | <p>Standard &amp; Guideline for Soils (3) (RRNF LRMP 4-41, 4-83, 4-97, 4-123, 4-177, 4-307). No more than 10 percent of an activity area should be compacted, puddled or displaced upon completion of project (not including permanent roads or landings). No more than 20 percent of the area should be displaced or compacted under circumstances resulting from previous management practices, including roads and landings, <b>with the exception of the operational ROW and the construction zone for the Pacific Connector Pipeline, for which the applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented.</b> Permanent recreation facilities or other permanent facilities are exempt. <b>(RRNF-6)</b></p>  |
| <p>Detrimental Soils Conditions, Standard and Guideline 12-5, (WNF LRMP, 4-73). The cumulative effects of detrimental soil conditions should not exceed 20 percent of the total acreage within the activity area; any reason for exceeding the limitation shall be documented in an environmental assessment. Detrimental soil conditions include compaction, displacement, puddling, and moderately or severely burned soil from all activities (including roads, skid trails, and landings). Sites where the standards for displacement, puddling, and compaction are not currently met will require rehabilitation such as ripping, backblading, or fertilization. The potential for creating detrimental soil conditions will be specifically addressed through project environmental analyses. If needed, alternative management practices will be developed, and mitigating measures will be planned and implemented.</p> | <p>Detrimental Soils Conditions, Standard and Guideline 12-5, (WNF LRMP, 4-73). The cumulative effects of detrimental soil conditions should not exceed 20 percent of the total acreage within the activity area; any reason for exceeding the limitation shall be documented in an environmental assessment, <b>with the exception of the operational ROW and the construction zone for the Pacific Connector Pipeline, for which the applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented.</b> Detrimental soil conditions include compaction, displacement, puddling, and moderately or severely burned soil from all activities (including roads, skid trails, and landings). Sites where the standards for displacement, puddling, and compaction are not currently met will require rehabilitation such as ripping, backblading, or fertilization. The potential for creating detrimental soil conditions will be specifically addressed through project environmental analyses. If needed, alternative management practices will be developed, and mitigating measures will be planned and implemented. <b>(WNF-4)</b></p> |

**Table 1. Umpqua, Rogue River, and Winema National Forests Revised Land and Resource Management Plan Amendments Specific to the PCGP Project**

| <b>Umpqua, Rogue River, and Winema NF Forest Plan Standards prior to Modification for the PCGP Project</b>   | <b>Standards as Modified for the PCGP Project</b>   |
|--|---|
| <p>Soil and Water, Standard &amp; Guideline 3 (WNF LRMP 4-137). The cumulative total area of detrimental soil conditions in riparian areas shall not exceed 10 percent of the total riparian acreage within an activity area. Detrimental soil conditions include compaction, displacement, puddling, and moderately or severely burned soil.</p>  | <p>Soil and Water, Standard &amp; Guideline 3 (WNF LRMP 4-137). The cumulative total area of detrimental soil conditions in riparian areas shall not exceed 10 percent of the total riparian acreage within an activity area, <b>with the exception of the operational ROW and the construction zone for the Pacific Connector Pipeline, for which the applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented.</b> Permanent recreation facilities or other permanent facilities are exempt. <b>(WNF-5)</b></p>   |
| <p><b>Part 3 – Forest Plan Amendments Related to Visual Resources (RRNF-2, RRNF-4, WNF-1, WNF-2, WNF-3)</b></p>  |   |
| <p>Management Strategy 6, Foreground Retention, Standard and Guideline (1) (RRNF LRMP 4-72). Manage the area for Retention Visual Quality Objective. Catastrophic occurrences may dictate a need for short term departure from Retention. Assess the impacts to visual resources in all project environmental analysis. Specifically address how the visual quality objective will be met.</p> | <p>Management Strategy 6, Foreground Retention, Standard and Guideline (1) (RRNF LRMP 4-72). Manage the area for Retention Visual Quality Objective (VQO), <b>with the exception of the Pacific Connector Pipeline ROW, where the VQO would be amended to Foreground Partial Retention where the pipeline would cross the Big Elk Road. The applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented.</b> Catastrophic occurrences may dictate a need for short term departure from Retention. Assess the impacts to visual resources in all project environmental analysis. Specifically address how the visual quality objective will be met. <b>(RRNF-2)</b></p> |
| <p>Management Strategy 7, Foreground Partial Retention, Standard and Guideline (4) (RRNF LRMP 4-86). Correct unacceptable form, line, color or texture as a result of management activities either during the operation or within two years after completion of the activity.</p>  | <p>Management Strategy 7, Foreground Partial Retention, Standard and Guideline (4) (RRNF LRMP 4-86). Correct unacceptable form, line, color or texture as a result of management activities either during the operation or within two years after completion of the activity, <b>with the exception of the Pacific Connector Pipeline ROW, which shall attain the amended VQO within 10 - 15 years after completion of the construction phase of the project where the pipeline crosses Big Elk Road. The applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented.</b> <b>(RRNF-2)</b></p>   |

**Table 1. Umpqua, Rogue River, and Winema National Forests Revised Land and Resource Management Plan Amendments Specific to the PCGP Project**

| <b>Umpqua, Rogue River, and Winema NF Forest Plan Standards prior to Modification for the PCGP Project</b>  | <b>Standards as Modified for the PCGP Project</b>   |
|---|---|
| <p>Management Strategy 9, Middle Ground Partial Retention, Standard and Guideline (1) (RRNF LRMP, 4-112). Manage the area for Partial Retention Visual Quality Objective. Catastrophic occurrences may dictate a need for short-term departure from Partial Retention Visual Quality Objective. Blend and shape regeneration openings with the natural terrain to the extent possible. Assess the impacts to visual resources in all project environmental analysis. Specifically address how the visual quality objective will be met.</p> | <p>Management Strategy 9, Middle Ground Partial Retention, Standard and Guideline (1) (RRNF LRMP, 4-112). Manage the area for Partial Retention Visual Quality Objective, <b>with the exception of the Pacific Connector Pipeline ROW, which shall attain the VQO within 10 - 15 years after completion of the construction phase of the project where the pipeline is adjacent to Highway 140. The applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented.</b> Catastrophic occurrences may dictate a need for short-term departure from Partial Retention Visual Quality Objective. Blend and shape regeneration openings with the natural terrain to the extent possible. Assess the impacts to visual resources in all project environmental analysis. Specifically address how the visual quality objective will be met. <b>(RRNF-4)</b></p> |

## Terms and Conditions

This decision will require compliance with the following measures to ensure consistency with the Umpqua, Rogue River, and Winema LRMPS:

1. PCGP must implement the construction procedures and mitigation measures applicable to the Umpqua, Rogue River, and Winema National Forests contained in the October 2019 version of the POD.
2. PCGP shall comply with applicable provisions of Appendix C – Environmental Conditions of FERC’s Order Issuing Certificates and Granting Abandonment Authority; Docket Nos CP17-494-000.
3. PCGP cannot begin activities associated with the project with the potential to adversely impact historic properties on the National Forests until a Programmatic Agreement (PA) has been executed to satisfy consultation requirements of the National Historic Preservation Act (NHPA) for the PCGP project.
4. PCGP shall obtain Oregon’s Clean Water Act Section 401 Certification (or waiver thereof) before beginning activity on NFS land in Oregon that may impact waters of the U.S.
5. PCGP shall obtain required approvals/certifications for an Erosion and Sediment Control Plan and a Stormwater Management Plan from the Oregon Department of Environmental Quality (ODEQ) before beginning construction on NFS land.
6. PCGP shall obtain and comply with the ROW grant and Temporary Use Permits as approved by the Bureau of Land Management (BLM).

7. PCGP shall comply with the applicable Reasonable and Prudent Measures and Terms and Conditions of the U.S. Fish and Wildlife Service (FWS)/National Marine Fisheries Service (NMFS) Biological Opinion (BO) for the PCGP project (expected January 2020).
8. PCGP shall implement applicable mitigation measures found in the October 2019 *Biological Evaluation for Forest Service Sensitive Species*. PCGP shall also implement applicable mitigation measures recommended by FWS through any future Section 7(a)(4) Endangered Species Act (ESA) conferencing for these species that may occur. If either species is listed as threatened or endangered under the ESA, any Reasonable and Prudent Measures and Terms and Conditions identified in a BO conducted under ESA 7(a)(2), must be implemented.

## Decision Rationale

Based on the analysis provided by FERC in the FEIS, I have decided to amend the Umpqua, Rogue River, and Winema National Forest LRMPs because the decision:

- Can be implemented without impairing the long-term productivity of NFS lands.
- Meets the requirements of the Forest Service planning regulations (36 CFR Part 219).
- Meets the purpose and need of the project to export natural gas supplies derived from existing interstate natural gas transmission systems (linked to the Rocky Mountain region and Western Canada) to overseas markets, particularly Asia.
- Has been developed based on the best available scientific information.
- Has been developed through an extensive public involvement and collaboration effort with our publics, partners, adjacent landowners, and other agencies.
- Is consistent with other federal policy.

## Rationale by Topic Area

### Long-term Productivity of NFS lands

The FERC analysis supports my determination that the project can be implemented without impairing the long-term productivity of NFS lands (FEIS, sections 4.0 and 5.0). The ROW grant to be issued by BLM will be required to include design requirements and mitigation contained in the POD and other terms and conditions of this ROD in order to meet the requirement to be consistent with the Forest Plans. Measures to avoid or minimize environmental harm that are incorporated into this decision include Forest-wide standards and guidelines, which at a minimum, meet all requirements of applicable laws, regulations, state standards, and additional standards and guidelines for the affected NFS lands.

Adverse effects of the proposed pipeline will be mitigated through measures required by FERC, BLM, or other agencies. The complete listing of Construction and Restoration Plans that are applicable to the PCGP project are shown in the FEIS, table 2.6.3-1. Singularly and collectively, they avoid, rectify, reduce, or eliminate potential adverse environmental impacts to the Forests. Also see the “Compliance with the Rule’s Applicable Substantive Provisions” section of this ROD, which provides specific details on how impacts to rare aquatic and terrestrial plant and animal communities; soil, water and riparian areas; and visual resources have been mitigated to the extent practicable.

## **Compliance with Forest Service Planning Regulations 36 CFR 219 and Consistency with the Umpqua, Rogue River, and Winema National Forest LRMPs, as Amended**

Forest Service land management planning requirements were established by the National Forest Management Act (NFMA) and regulations at 36 CFR 219, which require a Forest-specific, multi-year LRMP for each Forest. The Forest Service's planning regulations allow for amending a plan at any time to help units adapt to new information or changing conditions. A plan amendment is required to add, modify, or remove plan components.

The three-part LRMP amendments approved by my decision are needed to allow the PCGP project to be consistent with the LRMPs. Specifically, the amendments modify standards that are intended to protect rare aquatic and terrestrial plant and animal communities; soil, water and riparian areas; and visual resources. Standards are mandatory constraints on project and activity decision-making established to help achieve or maintain desired conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements (36 CFR 219.7(e)(1)(iii)). PCGP modified its proposal with several route adjustments, additional design features, and mitigation measures where feasible to minimize environmental effects to achieve consistency with many of the LRMP standards; however, the amendments described in this decision are necessary to make the PCGP project a conforming use with the LRMPs. Section 4.7.3.4 of the FEIS, "Amendments to BLM and Forest Service Land Management Plans," details how these amendments comply with the planning regulations.

Except for UNF-4 and RRNF-7, the Forest Plan amendments in this decision apply only to the PCGP project and will not change the existing Forest Plan standards for any other existing or future projects. Plan-level amendments UNF-4 and RRNF-7 would change future management direction for the lands reallocated from matrix to LSR. The approved project-specific plan amendments consist of modifying 15 Forest Plan standards to exempt the operational ROW and the construction zone for the PCGP from those standards. All of the modified project-specific Forest Plan standards require the Forest Service to ensure that the PCGP design requirements and mitigation measures identified in the POD are implemented. These 15 standards are associated with rare aquatic and terrestrial plant and animal communities; soil, water, and riparian areas; and visual resources. By requiring the PCGP's project design requirements and the mitigation measures contained in the POD to be a part of these 15 amended standards, this decision will be consistent with the planning rule. The ROW grant that BLM would issue if the project is approved would also require compliance with the project design requirements and mitigation measures in order to be consistent with the Umpqua, Rogue River, and Winema LRMPs as amended.

### **Public Involvement**

The JCLNG and PCGP projects were developed through an extensive public involvement and collaboration effort with the public, our partners, adjacent landowners, and other agencies. Also see "Providing Opportunities for Public Participation (§ 219.4) and Providing Public Notice (§ 219.16)" below.

Forest Plan amendments are guided by direction in the NFMA and its corresponding regulations. In appendix F.2 of the FEIS, proposed amendments to Forest Plans are independently evaluated in the context of the provisions of the Forest Service planning regulations at 36 CFR 219 (2012) as amended in the 2016 (planning rule). On December 15, 2016, the Department of Agriculture Under Secretary for Natural Resources and Environment issued a final rule that amended the planning rule (81 FR 90723, 90737). The amendment to the planning rule clarified the Department's direction for amending Forest Plans. The Department also added a requirement for amending a plan for the



responsible official to provide in the initial notice “which substantive requirements of §§ 219.8 through 219.11 are likely to be directly related to the amendment” (36 CFR 219.13(b)(2), 81 FR at 90738). This initial notice was provided in the June 26, 2018 Notice of Intent (NOI) and, again, with the supplemental Notice issued April 12, 2019 that were filed by FERC and the cooperating agencies.

The Forest Service also reviewed the results of scoping and comments on the DEIS to identify any concerns specific to our proposed plan amendments and the Forest Service’s mitigation actions. Comments were received that addressed concerns about the Forest Service planning regulations that govern amending LRMPs as well as the need for further detail on proposed plan amendments. Comments were also received that identified concerns regarding the need for additional alternatives that would avoid impacts to areas such as LSRs and riparian areas. These issues are addressed in more detail in a scoping report prepared by BLM and Forest Service in appendix F.8 (Federal Lands Review) of the FEIS. We have made changes in this FEIS both in response to comments received on the DEIS and as a result of updated information that became available after issuance of the DEIS. A summary of the comments from the public meetings, as well as written comments on the DEIS submitted by the public and agencies, are provided along with our responses in appendix R of the FEIS.

### **Other Federal Policy Considerations**

In making this decision, I have considered other federal policy that has underscored the development of energy infrastructure as a priority need of the Nation. Executive Order (EO) 13212 directed federal agencies to expedite reviews of authorizations for energy-related projects and to take other action necessary to accelerate the completion of such projects, while maintaining safety, public health, and environmental protections. Executive Order 13604, “Improving Performance of Federal Permitting and Review of Infrastructure Projects” (EO 2012), emphasized that the United States must have a reliable and environmentally sound means of moving energy and that investments in infrastructure provide immediate and long-term economic benefits to the Nation. More recently, EO 13766, “Expediting Environmental Reviews and Approvals for High Priority Infrastructure Projects” (EO 2017), states that it is the policy of the executive branch to “expedite, in a manner consistent with law, environmental reviews and approvals for all infrastructure projects, especially projects that are a high priority for the Nation, such as...pipelines....”

Additional federal policy focuses on encouraging jobs and economic growth. Construction of the PCGP project would have a beneficial impact on employment, local goods and service providers, and the state government in the form of sales tax revenues. ECONorthwest (2017c) used IMPLAN to estimate the total (direct, indirect, and induced) regional economic impacts of pipeline construction and operation. Pacific Connector estimates that constructing the pipeline and related facilities would cost about \$2.46 billion, with an estimated \$1.4 billion expected to be spent in Oregon (ECONorthwest 2017c). ECONorthwest (2017c) estimated that total direct employment over the 24-month construction period would be equivalent to 2,854 full-time equivalent (FTE) jobs, with the equivalent of 1,712 FTE jobs expected to be filled by Oregon workers.<sup>5</sup> Total direct labor income during pipeline construction would be approximately \$926 million, with \$544 million of this total expected to be paid to Oregon workers (see FEIS, table 4.9.2.4-2).

---

<sup>5</sup> Pacific Connector revised its construction workforce estimates in a November 2018 filing with the FERC, increasing the length of the construction period and the total number of FTE workers. These changes would likely result in an increase in direct [economic] impacts in Oregon, as well as potential increases in indirect and induced impacts.

Constructing the pipeline would also support an estimated total of 4,102 indirect and 6,344 induced FTE jobs, with an estimated average of 2,051 indirect and 3,172 induced FTE jobs supported each year. In addition, pipeline construction would support total (direct, indirect, and induced) output, value added, and labor income of \$2.8 billion, \$1.3 billion, and \$1.1 billion, respectively. (See section 4.9.2.4 of the FEIS)

During construction, Pacific Connector estimates that the pipeline would generate approximately \$91 million in federal income tax based on an estimated construction payroll of \$537 million and an average federal income tax rate of 17 percent. The estimated construction payroll would also generate approximately \$40.1 million in state income tax, assuming an average state income tax rate of 9 percent. Temporary workers associated with pipeline construction would generate approximately \$374,000 in state lodging taxes, as well as an estimated \$1.9 million in local lodging taxes that would be distributed across the four counties. Pacific Connector also estimates that personal property taxes on approximately \$728 million worth of equipment and materials either purchased in or brought into Oregon would generate about \$10.9 million in tax revenues.

During operation, Pacific Connector estimates that the pipeline would generate approximately \$518,000 in annual federal taxes based on estimated labor income during the first year of operation, as well as an estimated \$233,000 in annual state income taxes. Pacific Connector would also pay property taxes based on the value of the installed pipeline and associated aboveground facilities and the number of pipeline miles in each county. ECONorthwest estimated pipeline property taxes based on 2016 tax rates and the number of pipeline miles in all taxing jurisdictions crossed by the pipeline. Over the initial 20 years of operations, the pipeline is expected to generate approximately \$4.7 million in average annual property taxes in Coos and Douglas Counties and approximately \$5.3 million in average annual property taxes in Jackson and Klamath Counties (ECONorthwest 2017d). Property tax payments would vary over time due to pipeline depreciation and changing tax rates. (See section 4.9.2.5 of the FEIS)

My decision is consistent with the aforementioned federal policies by accommodating the PCGP project through the three-part project-specific plan amendments that provide for social, economic, and ecological sustainability; maintains the diversity of plant and animal communities; and support integrated resource management for multiple use.

## **Purpose of the Amendments**

The purpose of the amendments is to meet the requirement of Forest Service regulations that projects and activities authorized on NFS lands must be consistent with the LRMP or LRMPs. The amendments are needed because the PCGP project cannot achieve several Forest Plan standards that are intended to protect rare aquatic and terrestrial plant and animal communities; soil, water, and riparian areas; and visual resources.

## **Compliance with the Rule's Procedural Provisions**

The amendment complies with the procedural provisions of 36 CFR Part 219.13(b) as follows.

## Using the best available scientific information to inform the planning process (§ 219.3)

The decision to amend the LRMPs is informed by the FEIS analysis, which used the best available scientific information. Data that informed the analysis are discussed below.

### **Rare Aquatic and Terrestrial Plant and Animal Communities**

Appendix F.5 of the FEIS analyzes the impacts of the PCGP project on Survey and Manage species on NFS lands in southern Oregon. The PCGP project includes construction of a 229-mile-long, 36-inch-diameter high-pressure natural gas pipeline that would extend from interconnections with other interstate pipelines near Malin, Oregon, to the Jordan Cove natural gas liquefaction and terminal at Coos Bay, Oregon. The purpose of this analysis is to determine if the PCGP project would threaten the persistence of any Survey and Manage species within the range of the northern spotted owl (NSO) or otherwise not meet the persistence objectives in the 1994 Northwest Forest Plan Record of Decision (ROD) and 2001 Survey and Manage Species ROD.

The analysis entailed background research on Survey and Manage species that could be affected by the PCGP project; a review of survey reports prepared by others for the PCGP project; and processing and analysis of spatial data obtained from the BLM, Forest Service, and other sources, including Survey and Manage species site data created using a Feature Manipulation Extract tool consistent with the guidance and definitions used by the Forest Service in annual species reviews and other planning and analysis purposes over the past 12 years. The site data were used to describe the distribution patterns and abundance of Survey and Manage species in the NSO range, as well as at local (5th field watersheds) and project area scales, and to assess project-related effects on the species (i.e., their sites). Background information was used in combination with new information available as a result of surveys for the PCGP project and recent surveys in other portions of the NSO range to discuss the currently known distribution of the species in the NSO range. Impacts to sites as a result of the PCGP project were analyzed to determine if the species would continue to have a reasonable assurance of persistence in the NSO range following implementation of the PCGP project, taking into consideration the status and distribution of the species and general habitat in the NSO range.

Environmental consequences to threatened, endangered, and other special-status species are discussed in the FEIS, section 4.6.

### **Soil, Water, and Riparian Areas**

Soils along the proposed pipeline route were identified using Natural Resources Conservation Service (NRCS) surveys for Douglas, Jackson, and Klamath Counties (NRCS 2004; SCS 1985, 1989, 1993); and NRCS State Soil Geographic Database (STATSGO) and Soil Survey Geographic Database (SSURGO) soil classifications (NRCS 2017). The Forest Service soil resource inventories of the Umpqua, Rogue River, and Winema National Forests were used to assess soil resources in the National Forests (Forest Service 1976, 1977, 1979). Information in the Forest Service surveys was supplemented by STATSGO and SSURGO data where available.

According to the NRCS Land Resource Regions and Major Land Resource Areas (MLRAs) (NRCS 2006), the pipeline route across the National Forests would cross two MLRAs:

- the Siskiyou-Trinity Area including portions of Douglas and Jackson Counties, the Umpqua National Forest, and portions of the Rogue River National Forest; and
- the Klamath and Shasta Valleys and Basins in the southern part of Klamath County.

Detailed descriptions of all soil associations crossed by the project and their characteristics are provided in appendix G of the FEIS.

To provide the highest level of detail in quantifying the soil properties and impacts, analysis was based on the characteristics of the individual soil mapping units crossed within each soil association. Major soil characteristics and limitations for the pipeline and aboveground facilities are discussed in the FEIS, section 4.2, and summarized in table 4.2.2.1-1, which provides a summary of soil limitations that could be encountered along the pipeline route.

Information contained in the BLM/Forest Service *Technical Memorandum: Soil Risk and Sensitivity Assessment on BLM and National Forest System Lands* (NSR 2015a) is used to identify and treat areas on BLM and Forest Service lands where specific and focused soils remediation measures may be required to minimize potential erosion and accomplish vegetation objectives (see FEIS, section 4.2.3).

See PODs U and I for required project design and soil remediation measures to protect soil productivity and topsoil segregation requirements for pipeline construction at wetland and waterbody crossings on NFS lands

Environmental consequences to soils, water, and riparian resources are discussed in FEIS sections 4.2 and 4.3.

## Visual Resources

Procedures for describing the existing visual condition of the landscape and assessing the visual effects of the project are similar to and generally consistent with methodologies developed by BLM (1986), Forest Service (1973, 1995b), Federal Highway Administration (FHWA) (2015), and the U.S. Army Corps of Engineers (USACE) (Sardon et al. 1988). This section documents the visual assessment conducted for the Jordan Cove LNG project and the Pacific Connector pipeline, based primarily on the potential visibility of the project facilities and their expected visual effects on the landscape.

A visual assessment was conducted to determine the potential effects on visual resources associated with the pipeline. Representative viewpoint points on NFS lands (also referred to as Key Observation Points (KOPs)) were identified with input from Forest Service Landscape Architects within the viewshed for the pipeline, defined as the area from which the pipeline would be potentially visible. The pipeline viewshed extends to a distance of 5 miles on either side of the pipeline. This distance was defined using aerial and ground photography, local planning documents, computer modeling, and field reconnaissance. Site visits were initially conducted in April 2006 and updated in May 2013 and July 2019 by Forest Service Landscape Architects to document visual conditions along the pipeline route and to identify potentially affected sensitive viewing locations along the proposed route. Based on these site visits, it is anticipated that views of much of the pipeline from within the 5-mile viewshed would be partially or fully screened by existing trees, landforms, or intervening development. Figures 4.8-3 to 4.8-5 in the FEIS show the proposed route as it moves through the various BLM visual resource management (VRM) classifications and Forest Service visual quality objective (VQO) classes<sup>6</sup> as well as the KOP locations along the route.

---

<sup>6</sup> The VRM system has four management classes, with objectives ranging from preserving the existing landscape character (Class I) to providing for management activities that require major

Photographs of existing visual conditions were used in preparing computerized visual simulations for each KOP that are presented in appendix K of the FEIS. Because the appearance of the pipeline right-of-way would change with time, a series of simulations were prepared to illustrate how the pipeline right-of-way would look at different timeframes following construction.

Environmental consequences to recreation and visual resources are discussed in FEIS section 4.8, appendix K and appendix F.8.

## Providing opportunities for public participation (§ 219.4) and providing public notice (§ 219.16):

On January 23, 2017, Jordan Cove and Pacific Connector filed a request with FERC to initiate the Commission's pre-filing environmental review process for the project. During the pre-filing process, during the pre-filing process, Jordan Cove and Pacific Connector (applicants) contacted federal, state, and local agencies to inform them about their respective projects and discuss project-specific issues and concerns. The applicants initiated contact with potentially affected landowners prior to entering the FERC pre-filing process. These initial contacts were in the form of a letter describing each applicant's project and seeking permission to conduct environmental and cultural resource surveys on landowner property. Jordan Cove held an Open House meeting in North Bend on March 21, 2017. Pacific Connector held additional Open House meetings in Canyonville, Medford, and Klamath Falls during the week of March 22, 2017. These Open House meetings were advertised to the public through notices published in local newspapers. FERC staff attended these Open House meetings and were available to answer questions from the public regarding the FERC and NEPA process.

FERC's Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on June 9, 2017 (80 FR 23535). The NOI was sent to affected landowners; federal, state, and local government agencies; elected officials; environmental and public interest groups; interested Indian tribes; and local libraries and newspapers. The NOI described the project; listed currently identified environmental issues; outlined the proposed actions of the Department of Energy (DOE), FERC, BLM, and Forest Service; discussed the scoping and environmental review process; announced the date, location, and time of public scoping meetings; and explained how the public could participate and comment. During the week of June 27, 2017, FERC, BLM, and the Forest Service held joint public scoping sessions in Coos Bay, Roseburg, and Klamath Falls to receive comments about the project.

Between February 10, 2017 (when pre-filing was initiated) and July 10, 2017 (the end of the announced scoping period), FERC received more than 5,100 comments. FERC received a total of 964 comment submittals during the formal public scoping period. These submittals were provided via 1,174 discrete comment letters/documents, including 1,028 letters from individuals, 55 letters from non-governmental organizations, 1 letter from a federal agency, 16 letters from state and local agencies, 64 letters from private companies, 2 letters from members of the U.S. Congress, and 8 letters from federally recognized tribes. We also received 462 form letters during this time. In addition, between July 10, 2017, and issuance of the final EIS, FERC received more than 3,700 additional comments contained within over 700 discrete documents and an additional 14 form letters.

---

modification of the existing landscape character (Class IV). The VQO system has five classes, ranging from Preservation (where most management activities are prohibited) to Maximum Modification (where management activities may dominate the landscape). See section 4.8.2.3 for additional discussion.

The Forest Service, serving as a cooperating agency in the development of the EIS, assisted FERC in using comments from the public, other agencies, elected officials, interested Native American and Indian tribes, affected landowners, and non-governmental organizations, to identify several issues regarding the effects of the proposed action. The most frequently expressed comments concerned property rights, land use, purpose and need, safety and security, potential geological/topographical hazards, and FERC's approach to the NEPA process (e.g., length of scoping periods, number of public meetings, etc.).

The Forest Service also reviewed the results of scoping to identify any concerns specific to our proposed plan amendments and the Forest Service's mitigation actions. Comments were received that addressed concerns about the Forest Service planning regulations that govern amending LRMPs. Comments were also received that identified concerns regarding the proposed mitigation actions of BLM and the Forest Service and the need for additional alternatives that would avoid impacts to areas such as LSRs and riparian areas. These issues are addressed in more detail in a scoping report prepared by BLM and Forest Service provided in appendix F.8 (Federal Lands Review) of the FEIS.

To address these concerns, FERC, in consultation with cooperating agencies, created the alternatives described in section 3.0 of the FEIS.

FERC issued a Notice of Availability (NOA) for the DEIS on March 29, 2019 and a supplemental NOA on April 12, 2019. The March 29, 2019 NOA established a 90-day period for comments on the DEIS, ending on July 5, 2019. The 90-day comment period was established to meet public review requirements of BLM for the proposed amendments to BLM and Forest Service land management plans. A formal notice was also published by the Environmental Protection Agency (EPA) in the *Federal Register* on March 29, 2019, indicating that the DEIS was available. The NOA announced the time, date, and location of four public comment meetings in Oregon to take comments on the DEIS. Dates and locations of the public meetings included Coos Bay on June 24, 2014; Myrtle Creek on June 24, 2019; Medford on June 26, 2019; and Klamath Falls on June 27, 2019. Transcripts of the meetings were placed in the public record for these proceedings.<sup>7</sup>

A summary of the comments from the public meetings, as well as written comments on the DEIS submitted by the public and agencies, are provided along with our<sup>8</sup> responses to these comments in the FEIS, appendix R of the FEIS. Between the issuance of the NOA for the DEIS on March 29, 2019, and the close of the comment period on July 5, 2019, FERC received approximately 1,449 individual written letters commenting on the Draft EIS, including 3 letters from federal agencies, 3 letters from state agencies (including one combined letter from various Oregon state agencies); 27 letters from federal and state senators and congressmen; 33 letters from a local government agency; 7 letters from Indian tribes; 106 letters from companies and organizations (including multiple submittals that combined letters from different organizations/individuals under one accession number); and 1,291 letters from individuals (which also included submittals that combined letters from different individuals under one accession number). These numbers do not include attachments; filings by the applicants; letters that do not contain comments on the DEIS; or duplicate redundant comment letters from individuals (i.e., where a single individual submitted a discrete identical comment letter multiple times).

---

<sup>7</sup> Copies of the transcripts of the public meetings to take comments on the DEIS were placed into the dockets through the FERC's eLibrary system.

<sup>8</sup> The Forest Service was primary author of responses to comments pertaining to Forest Plan amendments.

I have made changes in this FEIS both in response to comments received on the DEIS and as a result of updated information that became available after issuance of the DEIS.

## **Applying the planning rule's format requirements for plan components (§ 219.13 (b)(4)):**

The three-part, project-specific Forest Plan amendments modify 15 forest-wide standards and two plan-level land allocations. Those components conform to the formatting requirements for plan amendments, and the amendment's modifications of them maintained the correct format. See §§ 219.13 (b)(4) and 219.7 (e).

## **The plan amendment process (§ 219.13):**

See the DEIS "Purpose and Need" section, the "Changes from DEIS to FEIS" section, and table 1 in the "Decision" section, and the response provided above in "Providing opportunities for public participation and providing public notice" for details related to the amendment process.

## **Compliance with the Rule's Applicable Substantive Provisions**

Section 219.13 (b)(5) of the planning rule requires that, when amending a plan, the Responsible Official must apply the rule's substantive requirements that are directly related to the amendment within the scope and scale of the amendment. The substantive requirements of the rule are in 36 CFR §§ 219.8 through 219.11 and concern sustainability, diversity of plant and animal communities, multiple use, and timber management. The rule establishes criteria for determining whether any of its substantive requirements are directly related to an amendment. See §219.13 (b)(5)(i), which provides that whether a rule requirement is directly related to an amendment is based on the amendment's purpose or its effect (beneficial or adverse). The rule further provides that an adverse effect finding can be made if scoping or the NEPA effects analysis reveals the amendment would have a substantial adverse effect or would substantially lessen protections for a specific resource or use (§219.13 (b)(5)(ii)(A)). Application of a substantive rule requirement that is directly related to the amendment may demonstrate that the amendment is in compliance with the rule requirements and need not be changed, or may necessitate modification of the amendment to meet the requirement (§219.13 (b)(5)).

## **Scope and scale of the amendments**

I determined the scope and scale of the amendments based on their purpose. (§ 219.13(b)(5)(i)). Overall, the purpose of the amendments is to ensure consistency between provisions of the Forest Plans and the proposal to construct, operate, and maintain a buried 36-inch-diameter natural gas pipeline on NFS land (FEIS, section 1). The scale of the amendments is the PCGP project area, which includes a temporary construction zone through the Umpqua, Rogue River, and Winema National Forests that is approximately 31 miles long and 95 feet wide (approximately 591 acres, including access road use) and a permanent operational ROW 50 feet wide (approximately 186 acres, including access road use). The scope of the amendments is modification of 15 Forest Plan standards and two plan-level land allocation adjustments. These components are intended to protect rare aquatic and terrestrial plant and animal communities; soil, water, and riparian areas; and visual resources. Except for UNF-4 and RRNF-7, the Forest Plan amendments in this decision apply only to the PCGP project and will not change the existing Forest Plan standards for any other project and, because of its protective mitigation measures, to a limited extent.

## Description of the Plan Amendments and the Planning Rule requirements associated with the amendments

The Forest Service amendment process is described in section 1.3.3 of the FEIS and in section 1.1 of appendix F.2. The proposed amendments to Forest Service LRMPs are described in section 2.1.3.2 of the FEIS and in section 2 of appendix F.2. The following three sections discuss the modified standards and whether they are directly related to the substantive requirements of 36 CFR 219:

### Rare Aquatic and Terrestrial Plant and Animal Communities

My decision modifies three Forest Plan standards associated with rare and/or isolated species (FS-1 Survey and Manage) as described in Table 1 above. This standard is designed to protect rare aquatic and terrestrial plant and animal communities on the Forests.

While the amendment would provide an exception to meeting this standard, there would also be requirements to do what is appropriate, applicable, and feasible to minimize, maintain, or restore any effects of the pipeline's construction and operation on Survey and Manage species within the area affected by the pipeline. Consequently, this amended standard includes the requirement that the "applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented."

The purpose of this project-level amendment is to make the proposed Pacific Connector pipeline project consistent with the Forest Plan. Thus, the substantive planning rule requirements that are directly related to this amendment are:

- 36 CFR 219.9(a)(2)(ii) – [the plan must include plan components to maintain or restore "rare aquatic and terrestrial plant and animal communities."
- 36 CFR 219.9(b)(1) – "The responsible official shall determine whether or not the plan components required by paragraph (a) provide ecological conditions necessary to "...maintain viable populations of each species of conservation concern within the plan area."

Because the proposed amendment is "directly related" to these two substantive requirements, I must apply the requirements within the scope and scale of the proposed amendment (36 CFR 219.13 (b)(5)).

In considering the "scope and scale" of the amendment, it is important to recognize that the applicable sections of 36 CFR 219.9(a) and (b) that are described above require plan components to maintain or restore rare aquatic and terrestrial plant and animal communities on NFS lands across the entire planning area (e.g., the Umpqua National Forest).

This plan amendment does not alter these LRMP plan requirements for managing rare plant and animal communities across 99.98 percent of the Umpqua National Forest. The proposed pipeline construction corridor, including the temporary extra work areas (TEWAs) and the uncleared storage areas (UCSAs), is approximately 209 acres of the 983,129-acre Umpqua National Forest. Within this 209-acre construction corridor, surveys have identified 69 Survey and Manage sites that could be potentially impacted by construction activities.

This plan amendment does not alter these LRMP plan requirements for managing rare plant and animal communities across 99.95 percent of the Rogue River National Forest. The proposed pipeline construction corridor, including the TEWAs and the UCSAs, is approximately 281 acres of the



628,443-acre Rogue River National Forest. Within this 281-acre construction corridor, surveys have identified 90 Survey and Manage sites that could potentially be impacted by construction activities.

This plan amendment does not alter these LRMP plan requirements for managing rare plant and animal communities across 99.99 percent of the Winema National Forest. The proposed pipeline construction corridor, including the TEWAs and the UCSAs, is approximately 92 acres of the 1,043,547-acre Winema National Forest. Within this 92-acre construction corridor, surveys have identified 40 Survey and Manage sites that could potentially be impacted by construction activities.

The proposed amendment does not waive the persistence objective for Survey and Manage species. The analysis that was conducted (see section 4.6.4.3 of the FEIS and appendix F.5) determined the Survey and Manage persistence objectives would be met. This means that on NFS lands within the PCGP project area, individual sites of Survey and Manage species may be impacted or lost to construction activities, but affected species are expected to persist within the range of the NSO despite the loss of these individual sites.

Amendment FS-1 modifies this standard for the three LRMPs so that on the 582<sup>9</sup> acres of NFS lands within the PCGP construction corridor on the three National Forests, the project need not be in compliance with this standard-specific requirement but, instead, it is the “applicable mitigation measures identified in the POD and the Pacific Connector project design requirements” that must be implemented. Stated in another way, for the 582 acres of NFS lands that would be within the operational ROW and construction zone for the Pacific Connector project, the management requirement described above would be replaced with the full set of management requirements that comprise the “applicable mitigation measures identified in the POD and Pacific Connector Project Design Requirements.” The inclusion of these management requirements as a part of the plan component language for the LRMP in this plan amendment addresses the applicable 36 CFR 219.9(a) and (b) rule requirements within the “scope and scale” of the proposed plan amendments. The sections below describe in more detail how the applicable 36 CFR 219.9(a) and (b) requirements are being addressed.

The Forest Service has worked to inventory, analyze, and evaluate rare aquatic and terrestrial plant and animal communities that could be affected by the project. In addition, a third-party consultant for technical support was also used to review the information gathered for the project. The POD is a document developed by the Forest Service, BLM, FERC, and Pacific Connector that contains the design features, mitigation measures, roles and responsibilities, monitoring, and procedures for the construction and operation of the pipeline on NFS lands. In addition, FERC’s applicant prepared Plan and Procedures for construction and restoration efforts would be enforceable, where applicable, for additional design features and mitigation. The design requirements and mitigation measures in the POD would be required by the modified standards and incorporated into BLM’s ROW grant.

The mitigation measures incorporated into amendments for Survey and Manage species are designed to minimize, maintain, or restore the potential for habitat fragmentation, edge effects, and loss of long-term habitats associated with affected species. To ensure adequate restoration and revegetation of the ROW, design features are identified in the *Erosion Control and Revegetation Plan* (POD I), *Right-of-Way Clearing Plan* (POD U), and *Leave Tree Protection Plan* (POD P). In addition, routing considerations were identified during project development to ensure avoidance of known populations of rare plant and animal communities (see chapter 3.4 Pipeline Route Alternatives and Variations) as

---

<sup>9</sup> The 591 acres referenced previously includes approximately 9 acres of offsite storage areas (such as existing rock pits) that are not related to the proposed amendments.

well as appendix F.5, *Survey and Manage Persistence Evaluations*, and proposed amendments UNF-4: and RRNF-7 Reallocation of matrix Lands to LSR.

As a basis for Survey and Manage determinations, appendix F.5 of the FEIS provides background research on Survey and Manage species that could be affected by the Pacific Connector project; a review of survey reports prepared by others for the Pacific Connector project; and processing and analysis of spatial data obtained from BLM, Forest Service, and other sources over the past 12 years. Background information was used in combination with new information available as a result of surveys for the Pacific Connector project and recent surveys in other portions of old growth forests to discuss the currently known distribution of the species in old growth forests within the NSO range. Impacts to sites as a result of the Pacific Connector project were analyzed to determine if the species would continue to have a reasonable assurance of persistence in the NSO range following implementation of the Pacific Connector project, taking into consideration the status and distribution of the species and general habitat in the NSO range.

Some of the required mitigation measures in the POD sections to protect rare plant and animal communities include flagging existing snags on the edges of the construction ROW or TEWAs, where feasible, to save them from clearing; snags to be cut down on NFS lands would be saved and used in LWD placement post-construction to benefit primary and secondary cavity-nesting birds, mammals, reptiles, and amphibians; flagging other large-diameter trees on the edges of the construction ROW and TEWAs to save/protect as green tree recruitment or habitat/shade trees, where feasible; girdling trees to create snags to augment the number of snags along the ROW to benefit cavity-nesting birds, mammals, reptiles, and amphibians. (See PODs P and U and FEIS section 2.6.3 (Monitoring by Land Management Agencies on Federal Lands) for a complete list of applicable mitigation measures for pipeline construction). Additional measures include using low ground weight (pressure) vehicle; restricting logging machinery to the 30-foot permanent ROW wherever possible to prevent soil compaction; avoiding removal of soil duff layers in order to maintain a cushion between the soil and overlying logging slash and the logging equipment; using designed skid trails to restrict detrimental soil disturbance (compaction and displacement) to a smaller area of the ROW over the pipeline trenching area; and restoring and revegetating temporary construction area using native seeds, to the extent possible, and saplings (POD I).

In an effort to minimize, maintain, or restore the impacts to Survey and Manage species, Pacific Connector adopted route variations to avoid certain species identified in the Survey and Manage Persistence Evaluations by co-locating the proposed construction corridor adjacent to existing roads through managed timber stands or by otherwise avoiding unique LSOG habitats to the maximum extent practicable (See chapter 3.4 Pipeline Route Alternatives and Variations).

My decision also modifies two land allocations related to rare aquatic and terrestrial plant and animal communities: the modification on the Umpqua National Forest is UNF-4 and the modification on the Rogue River National Forest is RRNF-7, as described in Table 1 above.

The purpose of these amendments is to make the proposed Pacific Connector pipeline project consistent with the Forest Plan. Thus, the substantive planning rule requirements that are directly related to this amendment are:

- 36 CFR 219.8(a)(1)(i) – [the plan must include plan components to maintain or restore] “Interdependence of terrestrial and aquatic ecosystems in the plan area.”

- 36 CFR 219.8(b)(1) – [the plan must include plan components to guide the plan area’s contribution to social and economic sustainability] “Social, cultural and economic conditions relevant to the area influenced by the plan.”
- 36 CFR 219.9(b)(1) “The responsible official shall determine whether or not the plan components required by paragraph (a) of this section provide the ecological conditions necessary to: contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern within the plan area.”
- 36 CFR 219.9(a)(2)(ii) – [the plan must include plan components to maintain or restore] “Rare aquatic and terrestrial plant and animal communities.”

Because the proposed amendment is “directly related” to these four substantive requirements, I must apply the requirements to the scope and scale of the proposed amendment (36 CFR 219.13 (b)(5)). However, because this proposed amendment would simply modify the area to which existing direction applies, the existing formatting for the planning requirements listed above would be retained (36 CFR 219.13(b)(4)).

In considering the “scope and scale” of the amendment, it is important to recognize that the applicable sections of 36 CFR 219.8 and 219.9 that are described above require plan components to maintain or restore rare aquatic and terrestrial plant and animal communities and provide for social and economic sustainability across the entire planning area. This plan amendment does not alter these LRMP plan requirements across 99.92 percent of the Rogue River National Forest. The proposed land reallocation is approximately 522 acres of the 628,443 acre Rogue River National Forest. This plan amendment does not alter these LRMP plan requirements across 99.94 percent of the Umpqua National Forest. The proposed land reallocation is approximately 585 acres of the 983,129 acre Umpqua National Forest. The proposed amendment would benefit rare aquatic and terrestrial plant and animal communities by placing these acres in a late successional reserve where providing habitat for these species is the primary goal.

This is a plan-level amendment that would change future management direction for the lands reallocated from matrix to LSR (for additional information on consistency with LSR standards and guidelines, see section 4.7.3.6. and appendix F.3 of the FEIS).

The timber probable sale quantity (directly related to economic conditions) would not be affected before the Umpqua and Rogue River National Forest LRMPs are revised because the Forests have the capacity to maintain probable sale quantity without the acres of matrix lands that would be reallocated to LSR. If a linear relationship between acres and outputs is assumed, the potential effect would be less than one-half of one percent of either Forests probable sale quantity since this proposed amendment would affect less than one-half of one percent of the matrix land base on the Umpqua and Rogue River National Forests. This proposed amendment would not prevent future vegetation management activities such as thinning that would benefit LSR habitat and could also contribute to the local forest products industry.

In addition to the reallocation of 1,107 acres of matrix lands to LSR, the Compensatory Mitigation Plan (CMP) for the Umpqua and Rogue River National Forests includes proposals for stand density management, terrestrial habitat improvements, road improvements that would decrease sediment and improve drainage, and road decommissioning that would benefit rare plant and animal communities. The CMP for the National Forests also includes proposals to improve aquatic and riparian habitat that

would benefit rare aquatic plant and animal communities. See section 4.7.3.6 and appendix F.3 of the FEIS for a full discussion.

## Soil, Water, and Riparian Areas

My decision modifies six Forest Plan standards associated with soil, water, and riparian resources (UNF-1, UNF-3, RRNF-5, RRNF-6, WNF-4, and WNF-5), as described in Table 1 above. The standards are designed to protect soil, water, and riparian resources on the Forest.

While the amendments would provide an exception to meeting these standards, there would also be requirements to do what is appropriate, applicable, and feasible to minimize, maintain, or restore any effects of the pipeline's construction and operation on the soil, water and riparian resources within the area affected by the pipeline. Consequently, each amended standard includes the requirement that the "applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented."

The purpose of these project-level amendments is to make the proposed Pacific Connector pipeline project consistent with the Umpqua National Forest LRMP. Thus, the substantive planning rule requirements that are directly related to these amendments are:

- 36 CFR 219.8(a)(3)(i) – The plan must include plan components "to maintain or restore the ecological integrity of riparian areas in the plan area, including plan components to maintain or restore structure, function, composition, and connectivity."
- 36 CFR 219.8(a)(2)(ii) – [The plan must include plan components to maintain or restore] "soils and soil productivity, including guidance to reduce soil erosion and sedimentation."

Because these proposed amendments are "directly related" to these two substantive requirements, I must apply the requirements to the scope and scale of the proposed amendments (36 CFR 219.13 (b)(5)).

In considering the "scope and scale" of these amendments, it is important to recognize that the applicable sections of 36 CFR 219.8(a) that are described above require plan components to "maintain or restore" the soil, water, and riparian resources across the entire planning area (e.g., the Umpqua National Forest). These plan amendments do not alter these LRMP plan requirements for managing the soil, water, and riparian resources across 99 percent of the three National Forests.

The proposed pipeline construction corridor including the TEWAs and the UCSAs is approximately 209 acres of the 983,129 acre Umpqua National Forest. Of the 209 acres of pipeline corridor construction it is estimated that approximately 3 of these acres would not meet the standards for riparian area management described above and approximately 54 to 127 acres would not meet standards for soils described above.

The proposed pipeline construction corridor, including the TEWAs and the UCSAs, is approximately 281 acres of the 628,443-acre Rogue River National Forest. Of the 281 acres of pipeline corridor construction, it is estimated that approximately 2.5 of these acres would not meet the standards for riparian area management described above and approximately 62 to 144 acres would not meet standards for soils described above.

The proposed pipeline construction corridor, including the TEWAs and the UCSAs, is approximately 92 acres of the 1,043,547-acre Winema National Forest. Of the 92 acres of pipeline corridor

construction, it is estimated that approximately 27 to 62 acres would not meet the standards for soils described above.

The amendments modify six standards so that in the project construction area the project need not be in compliance with these standards' specific requirements but, instead, it is the "applicable mitigation measures identified in the POD and the Pacific Connector project design requirements" that must be implemented. Stated in another way, for the 582 acres of NFS lands that would be within the operational ROW and construction zone for the Pacific Connector Pipeline, the management requirements described above would be replaced with the full set of management requirements that comprise the "applicable mitigation measures identified in the POD and Pacific Connector Project Design requirements."

The inclusion of these management requirements as a part of the plan component language for the LRMP in these Forest Plan amendments, addresses the applicable 36 CFR 219.8(a) rule requirements in the "scope and scale" of these proposed plan amendments. The sections below describe in more detail how the applicable 36 CFR 219.8(a) requirements are being addressed.

The mitigation measures incorporated into amendments for soil, water, and riparian resources are designed to minimize, maintain, or restore the potential for soil movement, slope stability, and water quality and to ensure adequate restoration and revegetation. These measures are identified in the *Erosion Control and Revegetation Plan* (POD I); *Right-of-Way Clearing Plan* (POD U); *Wetland and Waterbody Crossing Plan* (POD BB); the *Forest Service Site Specific Stream Crossing Prescriptions* (NSR 2014, Stantec 2019); the *Stream Crossing Risk Analysis*; and *Stream Crossing Risk Analysis Addendum* (GeoEngineers 2017d, 2018a). Pacific Connector would also follow FERC's applicant-prepared Wetland Procedures and the Best Management Practices (BMPs) for the State of Oregon. To further reduce the potential for landslides on steep slopes, the Forest Service, BLM, and FERC are also recommending that additional industry BMPs and measures identified from the *Technical Report on Soil Risk and Sensitivity Assessment* (NSR 2014) be incorporated into the terms and conditions of the ROW grant, as described in the PODs identified above. See 4.2.3.3 of the FEIS for a description of soil risk and sensitivity assessment.

Areas with soils rated moderate to very high for risk or sensitivity would be recommended for more site-specific validation of the risk criteria used in the *Technical Report on Soil Risk and Sensitivity Assessment* (NSR 2014) to confirm that specific locations merit consideration of the more aggressive soil remediation measures, such as a 2- to 3-inch organic mulch surface application (80 percent coverage) of woodchips, logging slash, and/or straw; adaptive seed mixes and vegetation to better fit site conditions; deep subsoil decompaction with hydraulic excavators that leave the constructed corridor mounded and rough with maximum water infiltration so that water cannot flow downhill for any appreciable distance; more aggressive use of constructed surface water runoff dispersion structures such as closely placed and more pronounced slope dips and water bars, etc.; more aggressive use of constructed surface runoff entrapments such as silt fencing, sediment settling basins, or straw bale structures, etc.; and more aggressive placement (100 percent coverage) and depth (3 to 4 inches) of ground cover using woodchips, logging slash, straw bales, wattles (see PODs U and I). In efforts to protect soil productivity, topsoil segregation would be required for pipeline construction at wetland and waterbody crossings on NFS lands (POD U).

Some of the required mitigation measures in POD BB and *Forest Service Site Specific Stream Crossing Prescriptions* (NSR 2014, Stantec 2019) to protect wetlands and minimize, maintain, or restore compaction include limiting the construction ROW width to 75 feet through wetlands; placing equipment on mats; using low-pressure ground equipment; limiting equipment operation and construction traffic along the ROW; locating TEWAs more than 50 feet away from wetland

boundaries; cutting vegetation at ground level; limiting stump removal to the construction trench; segregating the top 12 inches of soil, or to the depth of the topsoil horizon; using “push-pull” techniques in saturated wetlands; limiting the amount of time that the trench is open by not trenching until the pipe is assembled and ready for installation; not using imported rock and soils for backfill; and not using fertilizer, lime, or mulch during restoration in wetlands. Pacific Connector must also follow the FERC Waterbody and Wetland Construction and Mitigation Procedures. See 4.3.3.2 of the FEIS for a complete list of applicable mitigation measures for pipeline construction at specific waterbody and stream crossings. Section 4.3.4.2 of the FEIS provides additional information regarding mitigation for impacts to waterbodies and Riparian Reserves on federal lands.

In an effort to minimize, maintain, or restore the impacts to streams and riparian areas, Pacific Connector adopted route variations to co-locate the proposed construction corridor adjacent to existing roads and along dry ridge tops (See section 3.4, Pipeline Route Alternatives and Variations). In addition, Pacific Connector has committed to limit construction at waterbody crossings to times of dry weather or low water flow. Pacific Connector would implement the required erosion control measures at the proposed stream crossings to minimize, maintain, or restore potential erosion and sedimentation impacts. The applicable mitigation measures and monitoring requirements in the POD relating to water waterbody crossings are included in the *Site Specific Forest Service Stream Crossing Prescriptions* and the *Wetland and Waterbody Crossing Plan* (POD BB). In addition, applicable mitigation measures from the FERC-approved, applicant-prepared Procedures for Wetland and Waterbody Crossings would be required.

The CMP section specific to the Umpqua National Forest includes proposals to remove 11 old culverts that may block fish passage either by poor design or by failure over time and to decommission and storm proof roads. The CMP section specific to the Rogue River National Forest includes proposals to place large woody debris (LWD) instream for 1.5 miles, repair stream crossings at 32 sites, and decommission approximately 57.5 miles of road. The CMP specific to the Winema National Forest includes proposals to place LWD instream for 1.0 mile, repair stream crossings at 25 sites, provide riparian planting for 0.5 mile, provide riparian fencing for 6.5 miles, and decommission approximately 29.2 miles of road.

Removing culverts that block fish passage and replacing them with fish-friendly road crossings can allow fish and other aquatic organisms to access historically available habitat. Stream crossing replacements would directly improve stream connectivity and habitat for aquatic species by immediately restoring access to formerly inaccessible habitats. Indirectly, these projects would reduce potential sediment levels in the long term by decreasing the potential for road failure at these crossings. Stream crossing improvement projects also reduce stream velocities by increasing stream crossing sizes, eliminating flow restrictions, and allowing passage to additional reaches of habitat by removing barriers to aquatic species to improve access to spawning and rearing habitat and allow unrestricted movement throughout stream reaches during seasonal changes in water levels (Hoffman 2007).

Placement of LWD in streams adds structural complexity to aquatic systems by creating pools and riffles and trapping fine sediments and can contribute to reductions in stream temperatures over time (Tippery et al. 2010). Placing LWD in streams affects channel morphology and the routing and storage of water and sediment and provides structure and complexity to stream systems. Complex pools and side channels created by instream wood provide overwintering habitat to salmonids and other aquatic organisms (Solazzi et al. 2000). They also provide cover from predators during summer low-flow periods when predation is at its highest. Providing more stream channel structure can result in better over-wintering habitat, improved summer pool habitat, and more abundant spawning gravels.

Riparian planting is proposed along Spencer Creek just upstream of Buck Lake. This is a meadow site that has lost streamside vegetation and has compacted soils. There is an overall need to restore health and vigor to riparian stands by maintaining and improving riparian reserve habitat. Shade provided by the plantings would contribute to moderating water temperatures in Spencer Creek. Root strength provided by new vegetation would increase bank stability, decrease erosion and sediment depositions to Spencer Creek, and provide habitat for species that use riparian habitats. Riparian fencing would serve to divide the Buck Indian Allotment into pastures north and south of Clover Creek Road. This fence would keep cattle from grazing newly revegetated areas in the construction corridor, including areas where the corridor crosses Spencer Creek, thus helping to ensure that erosion control and revegetation objectives are met. It would also serve to separate anticipated increased cattle grazing of the construction corridor from the highway, greatly reducing a safety hazard for vehicles traveling the Clover Creek Road.

Decommissioning and storm proofing roads can substantially reduce sediment delivery to streams (Madej 2000, Keppeler et al. 2007). Proposed road decommissioning and storm proofing would increase infiltration of precipitation, reduce surface runoff, and reduce sediment production from road-related surface erosion in the watershed where the impacts from the project would occur. Decommissioning roads would restore natural drainage patterns and thereby avoid large volumes of added sediment to the stream network that would be likely to eventually occur. In addition, limited road maintenance dollars could be focused on the remaining road systems, resulting in more maintenance of culverts and ditchlines and less potential for catastrophic failure. Madej (2000) concluded that by eliminating the risk of stream diversions and culvert failures, road removal treatments significantly reduce long-term sediment production from retired logging roads.

These projects have been designed by an interdisciplinary team of resource professionals on the Umpqua, Rogue River and Winema National Forests with input and coordination with the FWS, NMFS, and state agencies. They were planned within the watersheds that would be affected by the Pacific Connector pipeline project. They are a component of the Pacific Connector application and would be a requirement of the ROW grant. Overall, these projects would help maintain and restore riparian and soil resources on the Umpqua, Rogue River and Winema National Forests (see appendix F.2 for additional information).

## Visual Resources

My decision modifies four Forest Plan standards (RRNF-2, RRNF-4, WNF-2 and WNF-3), as described in Table 1 above. These plan amendments are designed to protect visual resources on the Forests.

While the amendments would provide an exception to meeting these standards, there would also be requirements to do what is appropriate, applicable, and feasible to minimize, maintain, or restore any effects of the pipeline's construction and operation on the visual resources within the area affected by the pipeline. Consequently, each amended standard includes the requirement that the "applicable mitigation measures identified in the POD and Pacific Connector project design requirements must be implemented."

The purpose of these four project-level amendments is to make the proposed Pacific Connector pipeline project consistent with the National Forest LRMPS. Thus, the substantive planning rule requirements that are directly related to these four amendments are:

- 36 CFR 219.10(a)(1) – [...the responsible official shall consider: ...] "(1) Aesthetic values, ... scenery, ... viewsheds...."

- 36 CFR 219.10(b)(i) – [the responsible official shall consider] “Sustainable recreation, including recreation settings, opportunities,...and scenic character....”

Because the proposed amendments are “directly related” to these two substantive requirements, I must apply the requirements within the scope and scale of the proposed amendments (36 CFR 219.13 (b)(5)).

In considering the “scope and scale” of the four amendments, it is important to recognize that the applicable sections of 36 CFR 219.10 that are described above require plan components to provide for aesthetic values and scenic character across the entire planning area (e.g., Rogue River National Forest). These plan amendments do not alter these LRMP plan requirements for managing visual resources across 99.99 percent of the Rogue River and Winema National Forests. The proposed pipeline construction corridor, including the TEWAs and the UCSAs, is approximately 281 acres of the 628,443-acre Rogue River National Forest. Of the 281 acres of pipeline corridor construction, it is estimated that approximately 19 of these acres would not meet the standards for visual resources described above. The proposed pipeline construction corridor, including the TEWAs and the UCSAs, is approximately 92 acres of the 1,043,547-acre Winema National Forest. Of the 92 acres of pipeline corridor construction, it is estimated that approximately 70 of these acres would not meet the standards for visual resources described above.

The amendments for the Rogue River National Forest modify standards so that in the 281 acres of the project construction area, the project need not be in compliance with these standards’ specific requirements but, instead, it is the “applicable mitigation measures identified in the POD and the Pacific Connector project design requirements” that must be implemented. The amendments for the Winema National Forest modify standards so that in the 92 acres of the project construction area, the project need not be in compliance with these standards’ specific requirements but, instead, it is the “applicable mitigation measures identified in the POD and the Pacific Connector project design requirements” that must be implemented. Stated another way, for the acres of NFS lands that would be within the operational ROW and construction zone for the Pacific Connector project, the four management requirements described in FEIS section 4.7.3 would be replaced with the full set of management requirements that comprise the “applicable mitigation measures identified in the POD and Pacific Connector Project Design requirements.” The inclusion of these management requirements as a part of the plan component language for the LRMP in this plan amendment addresses the applicable 36 CFR 219.10 rule requirements within the “scope and scale” of these proposed plan amendments. The sections below describe in more detail how the applicable 36 CFR 219.10 requirements are being addressed.

The Forest Service has worked to inventory, analyze, and evaluate visual resources, viewsheds, and aesthetics that could be affected by this project. Forest Service Landscape Architects provided technical support to FERC and Forest Service third-party contractors by reviewing the information gathered for the project. The POD is a document developed by the Forest Service, BLM, FERC, and Pacific Connector that contains the design features, mitigation measures, roles and responsibilities, monitoring, and procedures for the construction and operation of the pipeline on NFS lands. In addition, FERC’s applicant prepared a Plan and Procedures for construction and restoration that is enforceable, where applicable, for additional design features and mitigation. The design requirements and mitigation measures of the POD would be required by the modified standards and incorporated into BLM’s ROW grant.

The mitigation measures incorporated into amendments for VQOs are designed to minimize, maintain, or restore the potential for long-term impacts to visually sensitive areas. To ensure adequate restoration and revegetation of the ROW, design features are identified in the *Erosion*



*Control and Revegetation Plan (POD I), Right-of-Way Clearing Plan (POD U), Leave Tree Protection Plan (POD P), Aesthetics Management Plan (POD A), and Recreation Management Plan (POD S).*

In addition, routing considerations were identified during project development to ensure reduced visual impacts at the PCT crossing by modifying the route to include: co-location of the crossing with an existing Forest Service road, using conventional bore technology to minimize the footprint of the crossing, and maintain natural screening to avoid impacts that would require a plan amendment at the proposed PCT crossing. See Chapter 3.4, Pipeline Route Alternatives and Variations.

A visual assessment was conducted to determine the potential effects on visual resources associated with the pipeline. Key observation points (KOP) are representative viewpoint points that were identified by the applicant in conjunction with the Forest Service within the viewshed for the pipeline are defined as the area from which the pipeline would potentially be visible. Photographs of existing visual conditions were used in preparing computerized visual simulations for each KOP. Because the appearance of the pipeline ROW would change with time, a series of simulations were prepared to illustrate how the pipeline ROW would look at different timeframes following construction. These KOPs would also serve as monitoring points for mitigation. Appendix K of the FEIS illustrates these photographs and simulations.

Appendix A of the POD outlines measures to reduce visual impacts along the pipeline route. To the extent feasible, Pacific Connector would use revegetation efforts to shape and blend the pipeline easement, enhance the setting, and mimic the natural features of the landscape. These measures would consist of revegetating all disturbed areas and replanting trees in TEWAs and any other areas of the temporary construction ROW that were forested prior to construction (see POD I).

On NFS lands, Pacific Connector would maintain a cleared 30-foot width centered over the pipe, allowing the remainder of the permanent easement to be reforested. This allows trees to naturally reestablish along the edges of the permanent easement at a staggered, more natural-looking interval. Replacing slash in forested areas of the ROW during restoration activities would immediately affect the visual contrast in color and texture of the disturbed ROW areas. Over time, as the ROW revegetates and narrows in width and changes in form, texture and color, potential visual impacts would diminish.

Additionally, a row or, if necessary, clusters of trees and/or shrubs of various age class/size would be planted across the ROW to provide visual screens at key road and trail crossings in sensitive view sheds. For all revegetation practices, Pacific Connector and/or its contractors would only agency-approved tree and plant species in compliance with management plan objectives and in consultation with agency specialists.

In addition to direct mitigation, the CMP section specific to the Winema National Forest includes a proposal to reduce stand densities on 114 acres in a way that would help soften the visual impact of the Pacific Connector project. The Pacific Connector pipeline would create a hard line along the timbered edge of the corridor that does not fit with the visual objectives for the Clover Creek Road or the Dead Indian Memorial Highway. Thinning and fuels treatments can be used to soften the edge to a more natural-appearing texture by restoring stand density to more natural levels and creating small openings that are consistent with the landscape. This mitigation element would restore stand density, species diversity, and structural diversity more characteristic of a natural disturbance regime.

## **Environmental Inspection and Compliance Monitoring**

During construction of the project, Compliance Monitors representing FERC will be present on a full-time basis to inspect construction procedures and mitigation measures and provide regular feedback

on compliance issues to FERC and the Forest Service. Objectives of the Compliance Monitoring program are to facilitate the timely resolution of compliance issues in the field; provide continuous information to FERC regarding noncompliance issues and their resolution; and review, process, and track construction-related variance requests. Changes to previously approved mitigation measures, construction procedures, and construction work areas due to unforeseen or unavoidable site conditions would require various levels of regulatory approval from the applicable land management agencies. FERC's authorized representatives would have the authority to stop any activity that violates an environmental condition of the FERC authorization issued to Pacific Connector.

Additionally, environmental compliance oversight responsibilities for Pacific Connector, FERC, the Forest Service, and BLM are described in appendix G (Environmental Briefings and Compliance Plan) of the POD that would apply to the construction, operation, and maintenance of the project on NFS lands. The Forest Service Authorized Officer would coordinate with BLM in administering and enforcing ROW grant provisions and would have stop-work authority. The Forest Service Authorized Officer's designated representatives would ensure that the stipulations and mitigation measures included in the POD that are designed to minimize, maintain, or restore the effects rare plant and animals, soil, water, riparian and visual resources, are adhered to during project construction, operation, and maintenance. The BLM Authorized Officer would coordinate with the Forest Service to ensure that the work is being conducted in accordance with the ROW grant and agreed-upon conditions. BLM and the Forest Service would have stop-work authority. Field variance requests by the applicant would be coordinated with the Authorized Officers.

## Project Activities Consistency With LRMPs

All future projects and activities must be consistent with the amended plan (16 U.S.C. 1604(i)). The 2012 Planning Rule consistency provisions at 36 CFR 219.15(d) apply only to the plan component(s) added or modified under the 2012 Planning Rule. With respect to determinations of project consistency with other plan provisions, the Forest Services prior interpretation of consistency (that the consistency requirement is applicable only to plan standards and guidelines) applies. (FSH 1909.12, Chapter 20, section 21.33). Through compliance with the terms and conditions contained in this decision and the applicable mitigation measures identified in the POD, I find the PCGP project is consistent with the amended LRMPs.

## Project-Specific Plan Amendment Alternatives Considered in Detail

With respect to this Forest Plan amendment decision, since the amendments are specific to modifying management requirements for the three LRMPs to allow for the proposed pipeline's construction and operation, the range of alternatives was limited to amending the LRMPs and no action.

**Proposed Action - Plan Amendments** – The proposed action is amending the Umpqua, Rogue River, and Winema National Forests LRMPs to allow Pacific Connector to construct a pipeline on approximately 591 acres of lands associated with the proposed 31-mile pipeline corridor for the PCGP project that would cross the three National Forests

**No Action Alternative** - Under the no action alternative, the plans would not be amended and the proposed pipeline would not be constructed on the Forests.

**Route alternatives and variations** – Several alternatives were identified based on public comments, information provided by Pacific Connector, agency consultations, and our independent review of the

project during the public scoping and DEIS comment period. Also, as required by Subsection 28 (p) of the Mineral Leasing Act, the agencies considered opportunities for co-location with existing rights-of-way where the proposed pipeline would cross federally managed lands. In addition to alternatives and variations evaluated in the FEIS, during the course of refining the proposed route, Pacific Connector incorporated a number of minor route modifications to address agency concerns, landowner requests, and constructability issues or constraints to avoid cultural resources or geological hazards, to reduce impacts to Riparian Reserves and LSRs, and to LSRs, or reduce impacts on \threatened, endangered, or other special-status species. These include minor modifications recommended by the Forest Service between MPs 109.7 and 109.8, between MPs 111.5 and 111.6, at MPs 154.7 and 155.1, at MPs 157.1 and 158.7, between 167.7 and 168.9, and at MPs 171.2 and 173.0 (refer to FEIS, section 3.4.2).

## **Environmentally Preferable Alternative**

NEPA regulations require agencies to specify the alternative or alternatives that were considered to be environmentally preferable (40 CFR § 1505.2(b)). Forest Service NEPA regulations define an environmentally preferable alternative as “the alternative that best promotes the national environmental policy as expressed in NEPA’s section 101”. Ordinarily, it is the environmentally preferable alternative that causes the least harm to the biological and physical environment; it is also the alternative which best protects and preserves historic, cultural, and natural resources” (36 CFR § 220.3).

The scope of this decision was limited to considering the project-specific plan amendments related to construction and operation of the PCGP project. The effects analysis in the FEIS for this project shows that the project can be implemented without impairing the long-term productivity of NFS lands (FEIS, sections 4.0 and 5.0). BLM’s ROW grant (if approved) will be subject to required design requirements and mitigation measures contained in the POD and the other terms and conditions of this decision. The decision includes measures to avoid or minimize environmental harm including standards and guidelines, which at a minimum, meet all requirements of applicable laws, regulations, state standards, and additional standards and guidelines for the affected NFS lands. Adverse effects of the proposed pipeline will be mitigated through measures proposed by the applicant and through measures required by FERC or other federal and state agencies.

Compared to the proposed action, the no action alternative would offer a significant environmental advantage. However, if the PCGP project is not authorized or not constructed, proponents may seek other means of transporting the proposed export natural gas supplies derived from existing interstate natural gas transmission to overseas markets, particularly Asia. According to Jordan Cove, the project is a market-driven response to increasing natural gas supplies in the U.S. Rocky Mountain and Western Canada markets and to the growth of international demand, particularly in Asia. Given that the project is market-driven, it is reasonable to expect that if the Jordan Cove LNG project is not constructed (the No Action Alternative), export of LNG from one or more other LNG export facilities could also be authorized by the DOE and eventually be constructed. Thus, although the environmental impacts associated with constructing and operating the project would not occur under the no action alternative, impacts could occur at other location(s) in the region as a result of another LNG export project seeking to meet the demand identified by Jordan Cove.

Given consideration of these factors, I concur with FERC’s conclusion (FEIS, section 3.1) that the no action alternative does not meet the stated purpose of the PCGP project and likely would not offer a significant environmental advantage if another, similar project took its place.

Therefore, I find the plan amendments, complete with required design features and mitigation outlined in the POD, are preferable. When compared to the no action alternative, they best support the purpose and need of exporting natural gas supplies derived from existing interstate natural gas transmission systems (linked to the Rocky Mountain region and Western Canada) to overseas markets, particularly Asia. (FEIS, section 1).

## Findings Required by Other Laws and Regulations

### National Forest Management Act

The National Forest Management Act (NFMA) requires regulations to guide Forest Service land use planning, including the amendment of LRMPs. The Forest Service land management planning rule (the 2012 Rule, as amended) sets out requirements for the amendment of LRMPs. See 36 CFR Part 219; specifically, §219.13 (81 FR 90738 (December 15, 2016)). The discussion in the section of this ROD titled “Compliance with the Rule’s Procedural Provisions” explains how the following procedural rule requirements for these amendments were met, specifically, consideration of the best available scientific information (§219.3), providing opportunities for public participation and public notice (§§219.4, 219.13 (b)(2), and 219.16), and using the correct format for standards (§219.7 (e) and 219.13 (b)(4)). The discussion in this ROD under the section of this ROD titled “Findings Required by Other Laws and Regulations” under the “NEPA heading below, explains that the FEIS is consistent with Forest Service NEPA procedures (§219.13 (b)(3)). The discussion under the section of this ROD titled “Compliance with the Rule’s Applicable Substantive Provisions” explains how the substantive requirements for these amendments were met. Specifically, I concluded that the modifications to standards via FS-1, UNF-1, UNF-3, UNF-4, RRNF-2, RRNF-4, RRNF-5, RRNF-6, RRNF-7, WNF-1, WNF-2, WNF-3, WNF-4, and WNF-5 concerning: rare aquatic and terrestrial animal communities (i.e., S&M species), soils, water and riparian areas, and VQOs meet the relevant requirements of the rule.

The discussions in this ROD under the sections titled “Rationale,” “Compliance with the Rule’s Procedural Provisions,” “Compliance with the Rule’s Applicable Substantive Provisions,” and “Use of Best Available Scientific Information” explain how my decision meets the applicable requirements of the 36 CFR § 219 planning rule and is consistent with the NFMA.

Based on the information and evidence contained in the 2019 FEIS and its appendices and as further documented within this ROD, I find that my decision is consistent with the Umpqua, Rogue River, and Winema National Forests LRMPs, as amended by the NFP; other amendments; and other laws, regulations and agreements applicable to the management of NFS lands and resources.

Pursuant to 40 CFR § 1502.20, the NFMA requires a specific determination of consistency with the Forests’ LRMPs and their standards and guidelines. Appendix F.1 of the FEIS provides an exhaustive list of relevant LRMP standards and guidelines considered for the PCGP project. The analysis prepared for this project fulfills my responsibilities pursuant to 36 CFR § 219.13(b)(1). My decision has been developed to be in full compliance with NFMA. Overall, while there will be varying levels of impacts, with appropriate mitigation, I find that my decision will be in compliance with all applicable management direction.

### Northwest Forest Plan

In 1994, the Secretaries of Agriculture and Interior jointly signed a *Record of Decision for Amendments to Forest Service and BLM Planning Documents within the Range of the Northern*

*Spotted Owl* (referred to as the NFP throughout this document; Forest Service and BLM 1994a). This decision amended national forest LRMPs and established the following land allocations to be used on NFS lands in the area covered by the NFP.<sup>10</sup>

- **Congressionally Reserved Areas** - Lands reserved by act of Congress including National Parks and Monuments, Wilderness Areas, Wild and Scenic Rivers, National Wildlife Refuges and Department of Defense lands.
- **Late Successional Reserves (LSRs)** - In combination with other land allocations and standards and guidelines, are intended to maintain functional, interactive LSOG forest ecosystems for species that are dependent on this type of habitat.<sup>11</sup>
- **Adaptive Management Areas** - Areas designed to develop and test new management approaches to integrate and achieve ecological, economic and other social and community objectives.
- **Administratively Withdrawn Areas**—Areas identified in Forest Service LRMPs not scheduled for timber harvest (e.g., recreation sites, administrative facilities).
- **Key Watersheds**—Large watersheds that are a system of refugia that either provide, or are expected to provide, high-quality habitat that is crucial for maintaining and recovering habitat for at-risk stocks of anadromous salmonids and resident fish species. Key Watersheds are not a designated area or matrix but overlay all land allocations. Tier 1 Key Watersheds contribute directly to conservation of at-risk stocks of anadromous salmonids, bull trout and resident fish. While Tier 2 Key Watersheds may not contain at-risk fish species, they are important sources of high-quality water.
- **Riparian Reserves**—Areas along all streams, wetlands, ponds, lakes and unstable and potentially unstable areas where the conservation of aquatic and riparian-dependent terrestrial resources receives primary emphasis. Riparian Reserves are also intended to serve as connectivity corridors between other reserves and the matrix lands.<sup>12</sup> Riparian Reserves exist within all land allocations of the NFP.
- **Matrix**—The lands outside the other designated areas listed above. Matrix lands are the area in which most timber harvest and other silvicultural activities would be conducted.

Attachment A to the NFP ROD, “Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Species within the Range of the Northern Spotted Owl,” provides detailed requirements and instructions for how land managers should treat forest lands subject to the

---

<sup>10</sup> When the NFP was signed in 1994, it applied to both national forest and BLM lands in the range of the northern spotted owl. Subsequently in August 2016, the BLM revised its management plans in southwest Oregon and replaced the management direction from the NFP. As a result, the NFP no longer applies to BLM lands.

<sup>11</sup> Appendix F.3 of this EIS provides a comprehensive discussion of LSRs as they relate to the PCGP project.

<sup>12</sup> Appendix F.4 of this EIS provides a comprehensive discussion of ACS, including Riparian Reserves as they relate to the PCGP project.

NFP (Forest Service and BLM 1994b).<sup>13</sup> Some standards and guidelines apply to all NFS lands, while others are only applicable to certain land allocations or activities. More than one set of standards and guidelines may apply in some areas. Where standards and guidelines overlap, both are applied. Where there are conflicts, the standard and guideline that provides the most protection for LSOG-associated species governs. The acres of NFP allocations affected by the Pacific Connector pipeline are disclosed in table 4.7.3.3-2 of the FEIS.

## **Northwest Forest Plan - Aquatic Conservation Strategy**

According to the NFP standards and guidelines, the Aquatic Conservation Strategy (ACS) was developed to improve and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. Riparian Reserves are established as a component of the Aquatic Conservation Strategy, designed under the NFP primarily to restore and maintain the health of aquatic systems and their dependent species. Riparian Reserves also help to maintain riparian structures and functions and conserve habitat for organisms dependent on the transition zone between riparian and upland areas.

The analysis of the existing conditions relative to Riparian Reserve standards and guidelines (1994 NFP ROD, pages C-31 through C-39) and the nine ACS objectives is presented in the FEIS, section 4.3.4, and in detail in appendix F.4. These findings are supported by professional judgement and scientific literature used by agency resource specialists analyzing project actions related to all nine ACS objectives. In particular, the Hydrology, Fisheries, Soils, and Wildlife sections of the FEIS all analyze project actions as they relate to the nine ACS objectives and form the basis of my findings. Watershed analyses have been completed for all fifth-field watersheds of the Umpqua, Rogue River and Winema National Forests that would be crossed by the PCGP project. Appendix F.4 of the FEIS provides a list and a summary of these analyses. These documents describe existing watershed conditions and the level of deviation from known historical conditions, as well as the human and natural disturbance mechanisms operating within the watershed. Although these documents do not make land management decisions, they provide recommendations for management at the watershed scale that are designed to meet the goals and objectives of the NFP. Information from the Forest's watershed analyses was used to characterize current watershed conditions with respect to cumulative watershed effects, road density data, stream temperature information, and site-specific descriptions. Therefore, these watershed analysis documents form the basis for describing and analyzing PCGP impacts in the context of the ACS impacts on NFS lands described within the PCGP project area.

On the basis of the analysis referenced above, I conclude that my decision is compliant with all applicable standards and guidelines. Additionally, as an overall determination, the impacts associated with my decision would neither directly, indirectly, individually, or cumulatively prevent attainment of the nine ACS objectives and ensure compliance with ACS standards and guidelines at any spatial scale.

## **Northwest Forest Plan – Late Successional Reserves**

The 1994 NFP ROD created a new land use allocation designated as LSRs. National Forest System lands designated as LSRs are designed to maintain late-successional (mature or old-growth) forests in a well-distributed pattern across federal lands within the range of the NSO (Mouer et al. 2011). The

---

<sup>13</sup> Standards and Guidelines: “the rules and limits governing actions, and the principles specifying environmental conditions or level to be achieved or maintained” (Forest Service and BLM 1994b: C-1).

NFP contains standards and guidelines for LSRs. As defined in the NFP ROD, these standards and guidelines constitute the “rules and limits governing actions, and the principles specifying the environmental conditions or levels to be achieved” in each LSR (USDA and USDI 1994, page F-4).<sup>14</sup>

The proposed PCGP project would cross the Umpqua, Rogue River and Winema National Forests. The LRMPs of these National Forests were amended by the NFP to include LSR designations and standards and guidelines.

The LSR standards and guidelines provide the framework upon which the proposed LSR mitigation actions and related plan amendments for the PCGP project are evaluated.

## **Consistency Determination with Northwest Forest Plan Objectives and Relevant NFP Standards and Guidelines**

The applicable LSRs implementing standards and guidelines are found in sections C-9 through C-21 of the NFP ROD. They are designed to protect and enhance conditions of LSOG forest ecosystems that serve as habitat for LSOG species. They are written to apply to specific management actions such as silviculture, range management, mining, new developments, etc., and should be interpreted in that context. In determining that the proposed amendments are consistent with LSR objectives, I followed the direction in the 2001 USDI/USDA memorandum regarding new developments in LSRs (IM-OR 2001-016). In that memorandum, the Regional Interagency Executive Committee stated, “New developments should not be placed in LSRs unless the development is designed and mitigated to a condition that is neutral or beneficial to the creation and maintenance of late-successional habitat at the appropriate spatial and temporal scales.” (NFP C-16). Amendments concerning LSRs associated with the PCGP project have been coordinated with the Regional Ecosystem Office as required by the Northwest Forest Plan.<sup>15</sup>

The memorandum also stated that all five of the following Council on Environmental Quality (CEQ) mitigation measures should be considered:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments

---

<sup>14</sup> Originally the NFP covered federal lands managed by the Bureau of Land Management (BLM) and Forest Service within the range of the NSO. However, in August 2016, the BLM issued new Resource Management Plans that replaced the management direction for BLM lands. Therefore, the management direction in the NFP no longer applies to BLM lands.

<sup>15</sup> A submission package was sent to the Regional Interagency Executive Committee (RIEC) on June 28, 2019. A response to the RIECs comments was sent by Forest Supervisor, Alice Carlton, in October 2019, which concluded the RIEC review process (October 28, 2019, 2600 memo to Glen Casamassa, Chair, Regional Interagency Executive Committee).

In working with FERC and the applicant in routing the proposed pipeline and developing project design criteria, I considered all of the mitigation measures described above. This included the development of a CMP specific to NFS lands. Under the CMP, unavoidable impacts to LSOG forest habitats within LSRs on NFS lands would be compensated for by a combination of reallocation of matrix lands to LSR (LRMP amendments UNF-4 and RRNF-7) and implementing off-site mitigation projects. The off-site mitigation actions are consistent with the recommendations in the Late-Successional Reserve Assessments and are designed to increase the effectiveness of the LSOG forest habitat in the LSRs by improving the quantity, quality, and distribution of high-quality habitat.

I find that the Forest Service has provided input to the applicant regarding project design. First, in routing the proposed PCGP project, LSRs have been avoided where possible. Second, where impacts to LSRs are unavoidable, onsite “Design Features” or “Project Requirements”<sup>16</sup> have been developed to minimize the impacts. Third, in order to ensure that the objectives would continue to be achievable in these LSRs, land reallocations are being proposed as part of a CMP. These proposed land reallocations would take non-LSR (i.e., matrix) lands and designate them as LSRs. The reallocations will require amendments to the LRMPs for the Umpqua National Forest and Rogue River National Forest. Fourth, off-site compensatory mitigation actions have been proposed to aid in off-setting unavoidable adverse impacts.

Therefore, the project design features, the reallocation of matrix to LSR, and the off-site mitigation actions for LSRs 223 and 227 on the Umpqua and the Rogue River National Forests, respectively, have been designed with the goal that the overall impact of the PCGP project would be either neutral or beneficial to the creation and maintenance of late-successional habitat. These actions combined would maintain or improve the functionality of LSRs 223 and 227.

In addition, the proposed LRMP amendments would remove matrix acres from the Forests’ regulated timber harvest base. Matrix land base objectives (NFP B-5) include production of commercial yields of timber and other commodity production. However, I have determined that the timber probable sale quantity would not be affected before the Umpqua and Rogue River National Forests LRMPs are revised because the Forests have the capacity to maintain probable sale quantity without the acres of matrix lands that would be reallocated to LSR under these amendments. If a linear relationship between acres and outputs is assumed, the potential effect would be less than one-half of one percent of each Forests’ probable sale quantity since these proposed amendments would affect less than one-half of one percent of each Forests’ matrix land base. The proposed LRMP amendments would also not prevent future vegetation management activities such as thinning in younger forests (less than 80 years old) that could be designed to promote the development LSR habitat and could also contribute to the local forest products industry.

The analysis in appendix F.3 and summarized in FEIS section 4.7.3.6 demonstrates that the proposed Forest Plan amendments are consistent with the objectives for LSR and that the PCGP project, as mitigated, has been designed to achieve a condition that is neutral or beneficial to the creation and maintenance of late-successional habitat within the affected LSRs.

---

<sup>16</sup> The Forest Service uses the term “Design Features” or “Project Requirements” rather than “mitigation” to describe elements of a plan that occur within a project area and are standard requirements of a project. The Forest Service reserves the term “mitigation” to describe measures taken to reduce or compensate for otherwise unavoidable impacts.



## **Northwest Forest Plan Standard C-17 Public Benefit**

The standards and guidelines that apply to new developments such as pipelines are addressed on page C-17 of the NFP standards and guidelines. The standard on page C-17 states:

*Developments of new facilities that may adversely affect Late-Successional Reserves should not be permitted. New development proposals that address public needs or provide significant public benefits, such as powerlines, pipelines, reservoirs, recreation sites, or other public works projects will be reviewed on a case-by-case basis and may be approved when adverse effects can be minimized and mitigated. These will be planned to have the least possible adverse impacts on Late-Successional Reserves. Developments will be located to avoid degradation of habitat and adverse effects on identified late-successional species.*

### **Addressing Public Benefit**

I have concluded that FERC will consider the need and public benefit of the Pacific Connector pipeline when making its decision on whether or not to authorize it, as documented in its Project Order. DOE determines the public benefits of exporting LNG from terminals in the United States. The cooperating agencies will consider public benefit within the context of each agency's respective authorities after FERC has issued its order.

### **Northwest Forest Plan – Survey and Manage Species**

The applicable Survey and Manage species implementing standards and guidelines are found in sections C-4 to C-6 of the NFP ROD. I have determined that the proposed Survey and Manage species amendment (FS-1) complies with the persistence objectives for Survey and Manage species. The analysis that was conducted determined that the Survey and Manage persistence objectives would be met for all species impacted by the PCGP project. This means that for all National Forest lands within the project area, individual sites of Survey and Manage species may be impacted or lost to construction activities, but affected species are expected to persist within the range of the NSO despite the loss of these individual sites.

Specifically, the amendment modifies the management standard of buffering and protecting known sites. Therefore, 582 acres of the project construction area will not be in compliance with these site-specific standard requirements, but, instead, it is the “applicable mitigation measures identified in the POD (and its appendices) and the Pacific Connector project design requirements” that must be implemented. As such, the management requirement described above would be replaced with the full set of management requirements that comprise the “applicable mitigation measures identified in the PODs and Pacific Connector Project Design requirements.”

The analysis in appendix F.5, as summarized in FEIS section 4.6.4, demonstrates that the proposed amendment to the Umpqua, Rogue River and Winema LRMPs is consistent with the objectives found in sections C-4 to C-6 of the NFP ROD for Survey and Manage species and that the PCGP project as mitigated has been designed to ensure the persistence of those species affected by the PCGP project and would be achieved consistent with the requirements of the NFMA and the LRMPs.

The discussion under the sections of this decision document titled “Decision Rationale,” “Compliance with the Rule’s Procedural Provisions,” “Compliance with the Rule’s Applicable Substantive Provisions,” “Rare Aquatic and Terrestrial Plant and Animal Communities,” and “Use of Best Available Scientific Information” explain how my decision meets the applicable requirements of the 36 CFR 219 planning rule and is consistent with the NFMA concerning the Survey and Manage species amendment.

## National Environmental Policy Act

I adopted the FEIS developed by FERC pursuant to 40 CFR 1506.3(c) to support my decision to amend the LRMPs as outlined in this ROD. Our independent review of the FERC FEIS finds it meets the requirements of NEPA, CEQ (40 CFR 1500-1508), and Forest Service regulations (36 CFR Part 220). Forest Service direction pertaining to implementation of NEPA and CEQ regulations is contained in chapters 10 and 20 of Forest Service Handbook 1909.15 (Environmental Policy and Procedures). FERC provided opportunities for public involvement, and the comments received were used to develop a range of reasonable alternatives that addressed the issues identified (FEIS, sections 1.0 to 3.0). Using the best available scientific information, the FEIS provides an adequate analysis and discloses the environmental effects related to modifying Forest Plan standards in order for the PCGP to be consistent with the LRMPs. The analysis adequately addresses agency comments and design features as well as mitigation measures designed to reduce environmental impacts to rare aquatic and terrestrial plant and animal communities; soil, water, and riparian areas; and visual resources. All practicable means to avoid or minimize environmental harm from the alternative selected have been identified in the POD, and the monitoring and enforcement requirements in the Environmental Compliance Management Plan (POD, appendix F10) will be implemented.

## Endangered Species Act (ESA)

The Endangered Species Act of 1973 (ESA) requires federal agencies to ensure that any agency action does not jeopardize the continued existence of federally threatened or endangered species or adversely modify their designated critical habitat. FERC, as lead federal agency, consulted with the FWS and NMFS to determine whether any federally listed (or proposed for listing) species or their designated critical habitats would be affected by the PCGP.

FERC prepared a Biological Assessment (BA), FERC Docket Nos. CP17-494-000 and CP17-495-000, ascension number 20190730-3071, to identify the nature and extent of adverse impacts and to recommend measures that would avoid, reduce, or mitigate impacts on habitats and/or species that are federally listed and those that are proposed for listing. FERC provided the BA to FWS and NMFS to initiate formal consultation on August 27, 2019, and August 8, 2019, respectively. Both agencies expect to have BOs completed on or before January 10, 2020. Based on FERC's review of existing records and informal consultations with FWS and NMFS, the following species include federally threatened or endangered species, other potential candidates for listing (species currently under FWS and NMFS review), special-status species (including species of concern), as well as the BA's determination of effect. The species are known to occur or could occur within the PCGP project area as described in section 4.6.1 of the FEIS. The following is a list of species organized by common and scientific name, status, and the determination of effect on the species and on critical habitat related to NFS lands.

### Mammals

- Gray wolf (*Canis lupus*) – Endangered – Not likely to adversely affect
- Pacific fisher (West Coast DPS) (*Pekania pennant*) – Proposed Endangered – Likely to adversely affect, not likely to jeopardize continued existence

### Birds

- Northern spotted owl (*Strix occidentalis caurina*) – Threatened; critical habitat – Likely to adversely affect; likely to adversely affect

## Fish

- Coho salmon (Oregon Coast ESU) (*Oncorhynchus kisutch*) – Threatened; critical habitat – Likely to adversely affect; likely to adversely affect
- Coho salmon (South OR/North CA Coast ESU (*Oncorhynchus kisutch*) – Threatened; critical habitat – Likely to adversely affect; not likely to adversely affect

## Amphibians and Reptiles

- Oregon spotted frog (*Rana pretiosa*) – Threatened; critical habitat – Not likely to adversely affect; not likely to adversely affect

## Invertebrates

- Franklin’s Bumblebee (*Bombus franklini*) – Endangered – Not Likely to adversely affect

## Plants

- Gentner's fritillary (*Fritillaria gentneri*) – Endangered – Likely to adversely affect
- Cook's lomatium (*Lomatium cookii*) – Endangered; critical habitat – Not likely to adversely affect; no effect
- Kincaid's lupine (*Lupinus sulphureus* var. *kincaidii*) – Threatened; critical habitat – Likely to adversely affect; no effect
- Rough popcornflower (*Plagiobothrys hirtus*) – Endangered – Not likely to adversely affect

The FEIS (section 4.6) describes the surveys conducted and the measures that would be implemented to avoid impacts to species from the construction and operation of the PCGP project.

FERC requested FWS and NMFS concurrence on the determination of effects described in the BA and their respective BOs on whether any federally listed species or habitats would be placed in jeopardy because of the Jordan Cove and PCGP project. Additional information regarding the BA can be found in section 4.6 of the FEIS. FERC will receive final determinations with the BO by January 10, 2020. FERC’s BA addresses 32 federally listed species, for which certain activities associated with the PCGP project are likely to have an adverse effect. These determinations are based on publicly available information and input from FWS (2018a, 2018b; FERC 2013) and NMFS (Wheeler 2006a, 2006b; NMFS 2009a, 2018a). The effects analysis in the BA is for the project in its entirety, including the portion on NFS lands. Of the 32 species addressed in the BO, 11 species potentially have habitat on the NFS lands and would be crossed by the project.

Information concerning listed and proposed species’ distributions, habitat requirements, and occurrence in the action area as set forth in section 1.3 of the FEIS was gathered from numerous sources, including (1) published scientific literature; (2) agencies’ published reports; (3) agencies’ unpublished raw and/or compiled data; (4) agencies’ geo-spatial databases, which document species observations; (5) field surveys for species and habitats ; and (6) personal communications with agency personnel knowledgeable about species’ ecological status in the PCGP project area and vicinity. FERC representatives also met regularly with FWS and NMFS throughout the development of the BA, including ongoing biweekly conference calls with federal cooperating agencies starting on November 2, 2017; ongoing weekly conference calls with FWS and NMFS starting on April 9, 2019; and various other meetings and calls since 2017 to discuss ESA-related topics. FERC provided preliminary drafts of select sections of the BA to FWS and NMFS in May and June 2019.

Existing vegetation within the pipeline project PCGP project area was classified using several reference/data sources, including (1) wetland delineation surveys conducted between 2006 and 2017; (2) 2016 county-based aerial photography; (3) BLM Forest Operations Inventory digital geographic information system (GIS) coverage (BLM 2016c); (4) digital GIS data coverage and vegetation categories described by the Oregon Gap Analysis Project (Kagan et al. 1999); and (5) current wildlife-habitat types described and delineated by the Northwest Habitat Institute in 1999 (Kiilsgaard and Garrett 1999). Vegetation cover types within at least 100 meters of the PCGP project area were digitized with GIS from 2016 aerial photography and delineated based on the predominant vegetation physiognomy (e.g., trees, shrubs, herbaceous vegetation) and the dominant species present. Existing vegetation cover types within the Jordan Cove project area were determined from field surveys conducted by Jordan Cove, including wetland delineations that were approved by USACE and Oregon Department of State Lands (ODSL; Stuntzner Engineering and Forestry 2005, SHN Consulting Engineers and Geologists, Inc. [SHN] 2013a), and botanical surveys (SHN 2006, 2013b).

Fisheries (ESA-listed species and species with Essential Fish Habitat) information was gathered from many sources, including (1) NMFS (Wheeler 2006a, 2006b, 2018; NMFS 2017a, 2018a, 2018b, 2018c); (2) FWS (FWS 2018b, 2017a); (3) Oregon Department of Fish and Wildlife (ODFW) Natural Resources Information Management Program (ODFW 2017a), which documents observations of species in the project area; (4) species' population and distribution information available online at StreamNet (StreamNet 2012); and (5) published scientific literature and agency reports. Information on other listed species was gathered from (1) *Wildlife-Habitat Relationships in Oregon and Washington* (Johnson and O'Neil 2001), which provides relationships between specific habitats and the wildlife species that may occur in the PCGP project area; (2) Oregon Biodiversity Information Center (ORBIC; 2017a), GeoBOB (BLM 2017), and Natural Resource Information System (Forest Service 2017) databases; FWS GIS database and NSO demographic database; (3) National Biological Breeding Bird Survey routes and Audubon Christmas Bird Counts; (4) published scientific literature and agency reports; and (5) other state and federal databases and literature available online.

Pacific Connector conducted botanical and biological surveys for the area associated with the PCGP project for terrestrial sensitive species between 2007 and 2018 where survey access was granted. Based on literature reviews, 108 species of mammals and 281 bird species may be present in habitats that coincide with the PCGP project area. Pacific Connector surveys focused on NSO, marbled murrelet, great gray owl, red tree vole, and northern goshawk, as well as terrestrial and aquatic mollusks. Botanical surveys also focused on ESA- and state-listed vascular plant species; Survey and Manage vascular, lichen, bryophyte, and fungi species; vascular, lichen, and bryophyte species on the Oregon BLM Special Status Strategic or Sensitive Plant Lists; and vascular, lichen, and bryophyte species on Forest Service Region 6 Sensitive and Strategic Plant Lists. The results of these surveys relevant to federally listed or proposed species are included in section 3 of the FERC's BA.

The BA divided the proposed action into discrete subactivities to standardize the effects analysis and focused its discussion on subactivities of the PCGP project that are likely to adversely affect the listed species. The new construction subactivity will impact suitable habitat and/or individuals. Incorporation of avoidance and minimization measures would lessen adverse effects.

When received from FWS/NMFS, the BO may contain Reasonable and Prudent Measures and associated Terms and Conditions. These are mandatory, nondiscretionary items that must be implemented. It should be noted that FWS does not provide these nondiscretionary items for plant species.

The Forest Service will require that the mandatory measures from the BO applicable to species and habitat on NFS land be implemented as a condition of approving the Forest Plan amendments. In

addition, we will require PCGP to implement mitigation measures contained in the Biological Opinions; as well as any recommended FWS and NMFS measures that may result from any future Section 7(4)(a) conferencing on these species. Accordingly, I find this decision will be compliant with the ESA prior to signing my final decision.

## **Special-Status Species**

### **Bald and Golden Eagle Protection Act**

Bald and golden eagles are not listed species under the ESA; however, they are protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act. Federal protection of bald and golden eagles and their presence in the vicinity of the PCGP project area are discussed in the FEIS in section 4.5.1.2. Bald eagles are known or suspected to nest, migrate, and seasonally reside in the general vicinity of the PCGP project area. FWS has drafted *Guidelines for Raptor Conservation in the Western United States* (Whittington and Allen 2008). The draft guidelines recommend spatial buffers for nests of breeding raptors during the breeding periods, which vary by location across the western states. With incorporation of the FERC's final *Migratory Bird Conservation Plan*, we conclude that the PCGP project would not significantly affect migratory bird species. For these reasons, this decision is compliant with the Bald and Golden Eagle Protection Act.

### **Migratory Bird Treaty Act of 1918 and Executive Order 13186**

Laws and regulations regarding the treatment of migratory birds, including the MBTA and EO 13186, are described in section 4.5.1.2 of the FEIS. In accordance with the March 2011 Memorandum of Understanding between FERC and FWS to implement the policies of EO 13186, a draft *Migratory Bird Conservation Plan* was filed with FERC on August 31, 2018. The draft *Migratory Bird Conservation Plan* identifies avoidance and minimization strategies, as well as habitat restoration measures. With incorporation of the draft and anticipated final *Migratory Bird Conservation Plan*, FERC concludes that the project would not significantly affect migratory bird species. Because impacts would be reduced to the extent practicable, this decision is compliant with the MBTA and EO 13186.

### **Regional Forester Sensitive Species**

Federal law and direction applicable to Regional Forester Sensitive Species (RFSS) are included in the NFMA and the Forest Service Manual (2670). Under FSM 2670.44 the Regional Forester is responsible for designating sensitive species for which population viability is a concern. Species considered in the Biological Evaluation (BE) included as appendix F.7 of the FEIS are those listed by the Forest Service as sensitive species based on the July 21, 2015 Regional Forester's Special Status Species List for Region Six which can be found on the Interagency Special Status/Sensitive Species Program (ISSSSP) website (ISSSSP 2015).

The Forest Service prepared a BE for the PCGP project in October 2019 that is included as appendix F.7 in the FEIS. The BE identified 271 sensitive species that could potentially occur in the vicinity of the PCGP project area on the three National Forests. Of the 271 Forest Service sensitive species, 38 had impact determinations of May Impact Individuals or Habitat (MIIH). Of those, 36 are discussed in detail in section 6.2 of the BE, and the remaining 2 are discussed in more detail in the Survey and Manage Persistence Evaluation (FEIS appendix F.5). As identified in the FEIS, table 4.6.4.1-2, the determinations in Table 2 below were made.

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| Common Name and/or Scientific Name <sup>1/</sup>                         | Documented or Suspected Occurrence Within Forest <sup>2/</sup> | Potential Habitat <sup>3/</sup> | Surveys Performed <sup>4/</sup> | Species Present <sup>5/</sup> | Impact Determination <sup>6/</sup> |
|--|--|---------------------------------|---------------------------------|-------------------------------|------------------------------------|
| <b>Mammals</b>   |  |                                 |                                 |                               |                                    |
| Pallid bat<br><i>Antrozous pallidus pacificus</i>                        | D – UMP <sup>d/</sup><br>D – RRS<br>D – FWI                    | Y                               | N                               | U                             | MIIH                               |
| Townsend's big-eared bat<br><i>Corynorhinus (Plecotus) townsendii</i>    | D – UMP<br>D – RRS<br>D – FWI                                  | Y                               | N                               | U                             | MIIH                               |
| Fringed myotis<br><i>Myotis thysanodes</i>                               | D – UMP<br>D – RRS<br>D – FWI                                  | Y                               | N                               | U                             | MIIH                               |
| Pygmy rabbit<br><i>Brachylagus idahoensis</i>                            | S – FWI  | N                               | N                               | U                             | NI f/                              |
| Wolverine<br><i>Gulo</i> <sup>a/</sup>                                   | S – UMP<br>S – RRS<br>S – FWI                                  | N                               | N                               | N                             | NE                                 |
| Gray wolf<br><i>Canis lupus</i> <sup>a/</sup>                            | D – UMP <sup>d/</sup><br>D – RRS<br>D – FWI                    | Y                               | N                               | U                             | NLAA                               |
| Pacific fisher (West Coast DPS)<br><i>Pekania pennanti</i> <sup>a/</sup> | D – UMP<br>D – RRS<br>D – FWI                                  | Y                               | N                               | U                             | MIIH/NJ/LAA                        |
| Pacific marten (Coastal population)<br><i>Martes caurina</i>             | D – RRS  | N                               | N                               | U                             | NJ/LAA f/                          |
| Sierra Nevada red fox<br><i>Vulpes vulpes necator</i>                    | D – RRS<br>D – UMP<br>D – FWI <sup>d/</sup>                    | N                               | N                               | N                             | NI                                 |
| <b>Birds</b>   |  |                                 |                                 |                               |                                    |
| Red-necked grebe<br><i>Podiceps grisegena</i>                            | D – UMP<br>D – FWI   | Y                               | N                               | U                             | MIIH                               |
| Horned grebe<br><i>Podiceps auritus</i>                                  | D – UMP  | Y                               | N                               | U                             | MIIH                               |
| American white pelican<br><i>Pelecanus erythrorhynchos</i>               | D – RRS <sup>d/</sup><br>D – FWI                               | Y                               | N                               | U                             | MIIH                               |
| Harlequin duck<br><i>Histrionicus histrionicus</i>                       | D – UMP<br>D – RRS   | Y                               | N                               | U                             | MIIH                               |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>                  | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|---|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Bufflehead<br><i>Bucephala albeola</i>                                  | D – UMP<br>D – RRS <sup>d/</sup><br>D – FWI                          | Y                                     | N                                     | U                                   | MIIH                                     |
| Yellow rail<br><i>Coturnicops noveboracensis</i>                        | S – UMP<br>D – FWI   | N                                     | N                                     | U                                   | NI                                       |
| Upland sandpiper<br><i>Bartramia longicauda</i>                         | S – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| White-tailed kite<br><i>Elanus leucurus</i>                             | S – RRS  | Y                                     | N                                     | U                                   | MIIH                                     |
| Bald eagle<br><i>Haliaeetus leucocephalus</i>                           | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| American peregrine falcon<br><i>Falco peregrinus anatum</i>             | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Greater sage-grouse<br><i>Centrocercus urophasianus</i>                 | D – FWI  | N                                     | N                                     | N                                   | NI <sup>f/</sup>                         |
| Northern spotted owl<br><i>Strix occidentalis caurina</i> <sup>a/</sup> | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | Y                                   | LAA                                      |
| Great gray owl<br><i>Strix nebulosa b/</i>                              | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | Y                                   | MIIH                                     |
| Black swift<br><i>Cypseloides niger</i>                                 | D – UMP  | N                                     | N                                     | U                                   | NI                                       |
| White-headed woodpecker<br><i>Picoides albolarvatus</i>                 | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Lewis' woodpecker<br><i>Melanerpes lewis</i>                            | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Purple martin<br><i>Progne subis</i>                                    | S – UMP<br>S – RRS<br>S – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Northern waterthrush<br><i>Parkesia noveboracensis</i>                  | S – RRS  | N                                     | N                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| Common Name and/or Scientific Name <sup>1/</sup>  | Documented or Suspected Occurrence Within Forest <sup>2/</sup> | Potential Habitat <sup>3/</sup> | Surveys Performed <sup>4/</sup> | Species Present <sup>5/</sup> | Impact Determination <sup>6/</sup> |
|---|--|---------------------------------|---------------------------------|-------------------------------|------------------------------------|
| Tricolored blackbird<br><i>Agelaius tricolor</i>  | S – RRS<br>D – FWI   | Y                               | N                               | U                             | MIIH                               |
| <b>Amphibians</b>   |  |                                 |                                 |                               |                                    |
| Siskiyou Mountains salamander<br><i>Plethodon stormi b/</i>   | D – RRS  | N                               | N                               | N                             | NI                                 |
| Black salamander<br><i>Aneides flavipunctatus</i>   | D – RRS  | N                               | N                               | N                             | NI                                 |
| California slender salamander<br><i>Batrachoseps attenuates</i>   | D – RRS  | N                               | N                               | N                             | NI                                 |
| Foothill yellow-legged frog<br><i>Rana boylei</i>   | D – UMP<br>D – RRS   | Y                               | N                               | U                             | MIIH                               |
| Northern leopard frog<br><i>Lithobates pipiens</i>  | S – FWI  | N                               | N                               | N                             | NI                                 |
| Oregon spotted frog<br><i>Rana pretiosa</i> <sup>a/</sup>   | D – FWI  | Y                               | N                               | U                             | NLAA                               |
| Columbia spotted frog<br><i>Rana luteiventris</i>   | S – FWI  | N                               | N                               | U                             | NI                                 |
| <b>Reptiles</b>   |  |                                 |                                 |                               |                                    |
| Western pond turtle<br><i>Actinemys marmorata</i><br>(formerly Pacific pond turtle)   | D – UMP<br>D – RRS<br>D – FWI                                  | Y                               | N                               | U                             | MIIH                               |
| <b>Non-anadromous Fish</b>  |  |                                 |                                 |                               |                                    |
| Umpqua chub<br><i>Oregonichthys kalawatseti</i>   | D – UMP  | Y                               | N                               | U                             | MIIH                               |
| <b>Anadromous Fish</b>  |  |                                 |                                 |                               |                                    |
| Pacific lamprey<br><i>Entosphenus tridentatus</i>   | D – RRS<br>D – UMP<br>D – FWI                                  | Y                               | N                               | N                             | NI <sup>r/</sup>                   |
| Chinook salmon<br><i>Oncorhynchus tshawytscha</i><br>Southern Oregon /Northern California Coastal ESU, Fall-run, Spring-run; Rogue SMU Spring-run | D – RRS  | N                               | N                               | N                             | NI <sup>r/</sup>                   |



**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>  | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|---|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Steelhead<br><i>Oncorhynchus mykiss</i><br>Oregon Coast ESU<br>Coastal SMU – Summer-run   | D – UMP<br>D – RRS   | N                                     | N                                     | N                                   | NI <sup>r/</sup>                         |
| Coho salmon<br><i>Oncorhynchus kisutch</i><br>Southern Oregon/Northern California Coast ESU <sup>a/</sup><br>Rogue SMU<br>Klamath SMU | D – RRS  | Y                                     | N                                     | U                                   | LAA                                      |
| Coho salmon<br><i>Oncorhynchus kisutch</i><br>Oregon Coast ESU <sup>a/</sup><br>Coastal SMU   | D – UMP<br>D – RRS   | Y                                     | N                                     | U                                   | LAA                                      |
| Green sturgeon<br><i>Acipenser medirostris</i><br>Southern DPS <sup>a/</sup>  | I – RRS  | Y                                     | N                                     | U                                   | LAA                                      |
| <b>Terrestrial Invertebrates</b>  |  |                                       |                                       |                                     |  |
| Oregon shoulderband<br><i>Helminthoglypta hertleini b/</i>  | S – RRS<br>D – UMP   | Y                                     | Y                                     | N                                   | NI <sup>f/</sup>                         |
| Green sideband<br><i>Monadenia fidelis beryllica</i>  | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Traveling sideband<br><i>Monadenia fidelis celeuthia</i>  | D – RRS<br>D – FWI <sup>d/</sup><br>D – UMP <sup>d/</sup>            | Y                                     | Y                                     | Y                                   | MIIH                                     |
| Modoc Rim sideband<br><i>Monadenia fidelis ssp. nov.</i>  | D – RRS<br>D – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| Crater Lake tightcoil<br><i>Pristiloma crateris b/</i>  | D – UMP<br>S – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Harney Basin duskysnail<br><i>Colligyrus depressus</i>  | D – FWI  | Y                                     | N                                     | N                                   | NI                                       |
| Siskiyou hesperian<br><i>Vespericola sierranas</i>  | D – UMP <sup>d/</sup><br>D – RRS<br>D – FWI                          | Y                                     | Y                                     | Y                                   | MIIH                                     |
| Franklin's bumble bee<br><i>Bombus franklini</i>  | D – UMP <sup>d/</sup><br>D – RRS                                     | Y                                     | N                                     | U                                   | NJ/LAA                                   |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>                  | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|---|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Western bumblebee<br><i>Bombus occidentalis</i>                         | D – UMP<br>S – RRS<br>D – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Siskiyou short-horned grasshopper<br><i>Chloealtis aspasma</i>          | S – UMP<br>D – RRS<br>S – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Gray-blue butterfly<br><i>Plebejus podarce klamathensis</i>             | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Coastal greenish blue butterfly<br><i>Plebeius saepiolus littoralis</i> | S – RRS  | N                                     | N                                     | U                                   | NI                                       |
| Johnson’s hairstreak<br><i>Callophrys johnsoni</i>                      | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Mardon skipper<br><i>Polites mardon</i>                                 | S – UMP<br>D – RRS<br>S – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Leona’s little blue butterfly<br><i>Philotiella leona</i>               | D – FWI  | N                                     | N                                     | N                                   | NI                                       |
| Coronis fritillary<br><i>Speyeria coronis</i>                           | S – UMP<br>S – RRS   | Y                                     | N                                     | U                                   | MIIH                                     |
| <b>Aquatic Invertebrates</b>  |  |                                       |                                       |                                     |  |
| Turban pebblesnail<br><i>Fluminicola turbiniformis</i>                  | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| California floater mussel<br><i>Anodonta californiensis</i>             | S – UMP<br>S – RRS<br>D – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Western ridged mussel<br><i>Gonidea angulata</i>                        | S – UMP<br>S – RRS<br>D – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Great Basin ramshorn<br><i>Helisoma newberryi</i>                       | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Highcap lanx<br><i>Lanx alta</i>  | D – UMP<br>S – RRS<br>D – FWI  | N                                     | N                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>              | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|---|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Scale lanx<br><i>Lanx klamathensis</i>                              | S – RRS<br>D – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| Rotund lanx<br><i>Lanx subrotunda</i>                               | D – UMP<br>S – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| A caddisfly (no common name)<br><i>Rhyacophila chandleri</i>        | D – UMP  | Y                                     | N                                     | U                                   | MIIH                                     |
| Montane peaclam<br><i>Pisidium ultramontanum</i>                    | D – FWI  | N                                     | N                                     | N                                   | NI <sup>f/</sup>                         |
| Robust walker<br><i>Pomatiopsis binneyi</i>                         | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Pacific walker<br><i>Pomatiopsis californica</i>                    | S – RRS  | N                                     | N                                     | N                                   | NI                                       |
| <i>Archimedes springsnail</i><br><i>Pyrgulopsis archimedis</i>      | D – FWI  | Y                                     | N                                     | U                                   | MIIH                                     |
| Haddock's Rhyacophilan caddisfly<br><i>Rhyacophila haddocki</i>     | S – RRS  | Y                                     | N                                     | U                                   | NI                                       |
| Lined ramshorn<br><i>Vorticifex effusa diagonalis</i>               | D – FWI  | N                                     | N                                     | U                                   | NI                                       |
| <b>Vascular Plants</b>  |  |                                       |                                       |                                     |  |
| California maiden-hair<br><i>Adiantum jordanii</i>                  | S – UMP<br>D – RRS<br>S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Peninsular onion<br><i>Allium peninsulare</i>                       | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Rogue Canyon rockcress<br><i>Arabis modesta</i>                     | D – RRS  | Y                                     | Y                                     | N e/                                | NI f/                                    |
| <i>Gasquet (hairy) manzanita</i><br><i>Arctostaphylos hispidula</i> | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Shasta arnica<br><i>Arnica viscosa</i>                              | D – UMP<br>S – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>  | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|---|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Grass-fern<br><i>Asplenium septentrionale</i>   | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Lemmon's milkvetch<br><i>Astragalus lemmonii</i>  | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Peck's milk-vetch<br><i>Astragalus peckii</i>   | D – FWI  | N                                     | N                                     | N                                   | NI                                       |
| Bensonia<br><i>Bensoniella oregana</i>  | D – RRS  | Y                                     | Y                                     | N <sup>e/</sup>                     | NI                                       |
| Crenulate moonwort<br>(Crenulate grape-fern)<br><i>Botrychium crenulatum</i>                                    | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Pumice grape-fern<br><i>Botrychium pumicola</i>   | S – UMP<br>S – RRS<br>D – FWI  | N                                     | Y                                     | N                                   | NI                                       |
| <i>Brewer's reedgrass</i><br><i>Calamagrostis breweri</i>   | S – UMP  | Y                                     | Y                                     | N                                   | NI                                       |
| <i>Greene's mariposa lily</i><br><i>Calochortus greenei</i>   | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Umpqua mariposa lily<br><i>Calochortus umpquaensis</i>  | D – UMP  | Y                                     | Y                                     | Y                                   | MIH                                      |
| Howell's camassia<br><i>Camassia howellii</i>   | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Slender-flowered evening primrose<br><i>Camissonia graciliflora</i><br>(syn. <i>Tetrapteron graciliflorum</i> ) | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Washoe suncup<br><i>Camissonia pusilla</i>  | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Capitate sedge<br><i>Carex capitata</i>   | D – RRS<br>D – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| Bristly sedge<br><i>Carex comosa</i>  | S – RRS<br>S – FWI   | Y                                     | Y                                     | N <sup>e/</sup>                     | NI <sup>f/</sup>                         |
| Cordilleran sedge<br><i>Carex cordillerana</i>  | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>            | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|---|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Lesser panicled sedge<br><i>Carex diandra</i>                     | S – UMP<br>S – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| A sedge<br><i>Carex klamathensis</i>                              | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Slender sedge<br><i>Carex lasiocarpa</i> var.<br><i>americana</i> | S – UMP<br>S – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Pale sedge<br><i>Carex livida</i>                                 | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Spikenard sedge<br><i>Carex nardina</i>                           | D – UMP  | Y                                     | Y                                     | N                                   | NI                                       |
| Sierra nerved sedge<br><i>Carex nervina</i>                       | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Russet sedge<br><i>Carex saxatilis</i>                            | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Native sedge<br><i>Carex vernacula</i>                            | S – UMP<br>D – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| Green-tinged paintbrush<br><i>Castilleja chlorotica</i>           | D – FWI  | N                                     | N                                     | N                                   | NI                                       |
| Split-hair paintbrush<br><i>Castilleja schizotricha</i>           | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Coville's lip-fern<br><i>Cheilanthes covillei</i>                 | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Fee's lip-fern<br><i>Cheilanthes feei</i>                         | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Coastal lip-fern<br><i>Cheilanthes intertexta</i>                 | S – RRS<br>S – FWI   | Y                                     | Y                                     | N e/                                | NI f/                                    |
| Narrow-leaved amole<br><i>Chlorogalum angustifolium</i>           | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Oregon timwort<br><i>Cicendia quadrangularis</i>                  | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Mt. Mazama collomia<br><i>Collomia mazama</i>                     | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>                    | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|---|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Coldwater corydalis<br><i>Corydalis aquae-gelidae</i>                     | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| <i>Milo baker's cryptantha milobakeri</i>                                 | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Pine woods cryptantha<br><i>Cryptantha simulans</i>                       | D – RRS<br>D – FWI   | Y                                     | Y                                     | Y                                   | MIIH                                     |
| Short-pointed cyperus<br><i>Cyperus acuminatus</i>                        | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Clustered lady's slipper<br><i>Cypripedium fasciculatum</i> <sup>b/</sup> | D – UMP<br>D – RRS   | Y                                     | Y                                     | Y                                   | MIIH                                     |
| Red larkspur<br><i>Delphinium nudicaule</i>                               | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Few-flowered bleedingheart<br><i>Dicentra pauciflora</i>                  | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Howell's whitlow-grass<br><i>Draba howellii</i>                           | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Short seeded waterwort<br><i>Elatine brachysperma</i>                     | S – UMP<br>S – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| Bolander's spikerush<br><i>Eleocharis bolanderi</i>                       | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Oregon willow herb<br><i>Epilobium oreganum</i>                           | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Siskiyou willow herb<br><i>Epilobium siskiyouense</i>                     | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Golden fleece<br><i>Ericameria arborescens</i>                            | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Siskiyou daisy<br><i>Erigeron cervinus</i>                                | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Cliff (rock) daisy<br><i>Erigeron petrophilus</i>                         | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Lobb's buckwheat<br><i>Eriogonum lobbii</i>                               | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Prostrate buckwheat<br><i>Eriogonum prociduum</i>                         | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>                                 | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|--|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Green buckwheat<br><i>Eriogonum umbellatum</i> var. <i>glaberrimum</i>                 | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Acker Rock wild buckwheat<br><i>Eriogonum villosissimum</i>                            | D – UMP  | N                                     | N                                     | N                                   | NI                                       |
| Howell's adder's tongue<br><i>Erythronium howellii</i>                                 | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Gold poppy<br><i>Eschscholzia caespitosa</i>   | S – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Wayside aster <sup>b/</sup><br><i>Eucephalus vialis</i><br>(syn. <i>Aster vialis</i> ) | S – UMP  | Y                                     | Y                                     | N                                   | NI f/                                    |
| Umpqua swertia<br><i>Frasera umpquaensis</i>   | D – UMP<br>D – RRS   | Y                                     | Y                                     | N                                   | NI                                       |
| Gentner's fritillary<br><i>Fritillaria gentneri</i> <sup>a/</sup>                      | D – RRS  | Y                                     | Y                                     | N e/                                | LAA                                      |
| Warner Mt. bedstraw<br><i>Galium serpticum</i> ssp. <i>warnerense</i>                  | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Newberry's gentian<br><i>Gentiana newberryi</i> var. <i>newberryi</i>                  | S – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Elegant gentian<br><i>Gentiana plurisetosa</i>   | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Waldo gentian<br><i>Gentiana setigera</i>  | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Boggs lake hedge-hyssop<br><i>Gratiola heterosepala</i>                                | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Beautiful stickseed<br><i>Hackelia bella</i>   | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Purple-flowered rush-lily<br><i>Hastingsia bracteosa</i> var. <i>atropurpurea</i>      | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Large-flowered rush-lily<br><i>Hastingsia bracteosa</i> var. <i>bracteosa</i>          | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>   | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|--|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Salt heliotrope<br><i>Heliotropium curassavicum</i>  | D – FWI  | N                                     | N                                     | N                                   | NI                                       |
| Baker's cypress<br><i>Hesperocyparis bakeri</i><br>(syn. <i>Cupressus bakeri</i> )                                       | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Shaggy hawkweed<br><i>Hieracium horridum</i>   | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Henderson's horkelia<br><i>Horkelia hendersonii</i>  | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Three-toothed horkelia<br><i>Horkelia tridentata</i> ssp.<br><i>tridentata</i>   | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| California globe mallow<br><i>Iliamna latibracteata</i>  | D – UMP<br>D – RRS   | Y                                     | Y                                     | Y                                   | MIIH                                     |
| Shockley's ivesia<br><i>Ivesia shockleyi</i>   | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Tiehm's rush<br><i>Juncus tiehmii</i>  | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Fragrant kalmiopsis<br><i>Kalmiopsis fragrans</i>  | D – UMP  | Y                                     | Y                                     | N                                   | NI                                       |
| Bush beardtongue<br><i>Keckiella lemmonii</i>  | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Columbia lewisia<br><i>Lewisia columbiana</i> var.<br><i>columbiana</i>  | D – UMP  | Y                                     | Y                                     | N                                   | NI                                       |
| Lee's lewisia<br><i>Lewisia leana</i>  | S – UMP<br>D – RRS   | Y                                     | Y                                     | N                                   | NI                                       |
| Bellinger's meadowfoam<br><i>Limnanthes floccosa</i> ssp.<br><i>bellingeriana</i>  | D – RRS  | Y                                     | Y                                     | Y                                   | MIIH                                     |
| Slender meadow-foam<br><i>Limnanthes gracilis</i> ssp.<br><i>gracilis</i><br>(syn. <i>L. alba</i> ssp. <i>gracilis</i> ) | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Aristulate lipocarpha<br><i>Lipocarpha aristulata</i>  | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |



**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>  | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|---|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Cook's lomatium<br><i>Lomatium cookii</i> <sup>al</sup>   | S – RRS  | Y                                     | Y                                     | N                                   | NLAA                                     |
| Englemann's desert-parsley<br><i>Lomatium engelmannii</i>   | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Stipuled trefoil<br><i>Lotus stipularis</i>   | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Mt. Ashland lupine<br><i>Lupinus aridus</i> ssp. <i>ashlandensis</i><br>(syn. <i>L. lepidus</i> var. <i>ashlandensis</i> )            | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Kincaid's lupine<br><i>Lupinus oregonus</i> var. <i>kincaidii</i> <sup>al</sup><br>(syn. <i>L. sulphureus</i> var. <i>kincaidii</i> ) | D – UMP  | Y                                     | Y                                     | N e/                                | LAA                                      |
| Tracy's lupine<br><i>Lupinus tracyi</i>   | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Bog club-moss<br><i>Lycopodiella inundata</i>   | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| White meconella (fairy poppy)<br><i>Meconella oregana</i>   | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Bolander's monkeyflower<br><i>Mimulus bolanderi</i><br>(syn. <i>Diplacus bolanderi</i> )  | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Congdon's monkeyflower<br><i>Mimulus congdonii</i><br>(syn. <i>Diplacus congdonii</i> )   | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Disappearing monkeyflower<br><i>Mimulus evanescens</i><br>(syn. <i>Erythranthe inflatula</i> )  | D – FWI  | N                                     | N                                     | N                                   | NI                                       |
| Tri-colored monkeyflower<br><i>Mimulus tricolor</i><br>(syn. <i>Diplacus tricolor</i> )   | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Siskiyou monardella<br><i>Monardella purpurea</i>   | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>                                     | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|--|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Annual dropseed<br><i>Muhlenbergia minutissima</i>   | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Slender nemacladus<br><i>Nemacladus capillaris</i>   | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Adder’s-tongue<br><i>Ophioglossum pusillum</i>   | D – UMP<br>D – RRS   | Y                                     | Y                                     | N                                   | NI                                       |
| Coffee fern<br><i>Pellaea andromedifolia</i>   | S – UMP<br>S – RRS   | Y                                     | Y                                     | N                                   | NI                                       |
| Bird’s-foot fern<br><i>Pellaea mucronata ssp. mucronata</i>                                | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Blue-leaved penstemon<br><i>Penstemon glaucinus</i>  | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Red-rooted yampah<br><i>Perideridia erythrorhiza</i>                                       | S – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Siskiyou phacelia<br><i>Phacelia leonis</i>  | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| American pillwort<br><i>Pilularia americana</i>  | S – RRS<br>D – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| Whitebark pine<br><i>Pinus albicaulis</i>  | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Coral seeded allocarya<br><i>Plagiobothrys figuratus var. coralllicarpus</i>               | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Greene’s popcorn flower<br><i>Plagiobothrys greenei</i>                                    | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Rough popcorn flower<br><i>Plagiobothrys hirtus</i> <sup>a/</sup>                          | S – UMP  | Y                                     | Y                                     | N                                   | NLAA                                     |
| Desert allocarya<br><i>Plagiobothrys salsus</i>  | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Oregon semaphoregrass<br><i>Pleuropogon oregonus</i><br>(syn. <i>Lophoclaena oregana</i> ) | D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>                                     | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|--|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Timber bluegrass<br><i>Poa rhizomata</i>   | S – UMP<br>D – RRS   | Y                                     | Y                                     | N                                   | NI                                       |
| Profuse-flowered mesa mint<br><i>Pogogyne floribunda</i>                                   | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| California sword-fern<br><i>Polystichum californicum</i>                                   | D – UMP<br>S – RRS   | Y                                     | Y                                     | N                                   | NI                                       |
| Rafinesque's pondweed<br><i>Potamogeton diversifolius</i>                                  | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Siskiyou fairy bells<br><i>Prosartes parvifolia</i>  | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Toothleaf pyrola<br><i>Pyrola dentata</i>  | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| California chicory<br><i>Rafinesquia californica</i>                                       | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Redberry<br><i>Rhamnus ilicifolia</i>  | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| White beakrush<br><i>Rhynchospora alba</i>   | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Straggly gooseberry<br><i>Ribes divaricatum</i> var.<br><i>pubiflorum</i>                  | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Thompson's Mistmaiden<br><i>Romanzoffia thompsonii</i>                                     | D – UMP<br>D – RRS   | Y                                     | Y                                     | N                                   | NI                                       |
| Columbia cress<br><i>Rorippa columbiae</i>   | S – RRS<br>D – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| Lowland toothcup<br><i>Rotala ramosior</i>   | S – UMP<br>S – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| Joint-leaved saxifrage<br><i>Saxifragopsis fragarioides</i>                                | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Scheuchzeria<br><i>Scheuchzeria palustris</i> ssp.<br><i>americana</i>                     | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Water clubrush<br><i>Schoenoplectus subterminalis</i> (syn. <i>Scirpus subterminalis</i> ) | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>                    | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|---|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Drooping bulrush<br><i>Scirpus pendulus</i>                               | D – RRS<br>S – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| California fetid adderstongue<br><i>Scoliopus bigelovii</i>               | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Rogue river stonecrop<br><i>Sedum moranii</i>                             | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Verrucose sea-purslane<br><i>Sesuvium verrucosum</i>                      | S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Coast checkermallow<br><i>Sidalcea malviflora ssp. patula</i>             | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Bolander's catchfly<br><i>Silene hookeri ssp. bolanderi</i>               | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Parish's horse-nettle<br><i>Solanum parishii</i>                          | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Western sophora<br><i>Sophora leachiana</i>                               | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Common jewel flower<br><i>Streptanthus glandulosus ssp. josephinensis</i> | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Howell's Streptanthus<br><i>Streptanthus howellii</i>                     | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Howell's tauschia<br><i>Tauschia howellii</i>                             | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Siskiyou trillium<br><i>Trillium kurabayashii</i>                         | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Lesser bladderwort<br><i>Utricularia minor</i>                            | D – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| Northern bladderwort<br><i>Utricularia ochroleuca</i>                     | S – UMP<br>S – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| Western bog violet<br><i>Viola primulifolia ssp. occidentalis</i>         | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Dotted water-meal<br><i>Wolffia borealis</i>                              | S – UMP  | Y                                     | Y                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| Common Name and/or Scientific Name <sup>1/</sup>                                       | Documented or Suspected Occurrence Within Forest <sup>2/</sup> | Potential Habitat <sup>3/</sup> | Surveys Performed <sup>4/</sup> | Species Present <sup>5/</sup> | Impact Determination <sup>6/</sup> |
|--|--|---------------------------------|---------------------------------|-------------------------------|------------------------------------|
| Columbia water-meal<br><i>Wolffia columbiana</i>                                       | S – UMP<br>S – RRS   | Y                               | Y                               | N                             | NI                                 |
| Small-flowered death camas<br><i>Zigadenus fontanus</i>                                | D-RRS  | Y                               | Y                               | N                             | NI                                 |
| <b>Fungi</b>   |  |                                 |                                 |                               |                                    |
| <i>Albatrellus avellaneus</i> <sup>b/ cl</sup>   | D – RRS  | Y                               | Y                               | N                             | NI                                 |
| <i>Chamonixia caespitosa</i> <sup>b/ cl</sup>  | D – RRS  | Y                               | Y                               | N                             | NI                                 |
| <i>Cortinarius barlowensis</i> (syn. <i>Cortinarius azureus</i> ) <sup>b/ cl</sup>     | D – UMP  | Y                               | Y                               | N                             | NI                                 |
| <i>Dermocybe humboldtensis</i> <sup>b/ cl</sup>  | S – UMP<br>S – RRS   | Y                               | Y                               | N                             | NI                                 |
| <i>Gastroboletus vividus</i> <sup>b/ cl</sup>  | S – UMP<br>D – RRS<br>S – FWI                                  | Y                               | Y                               | N                             | NI                                 |
| <i>Gastrolactarius camphoratus</i> <sup>c/</sup>                                       | D – RRS  | Y                               | Y                               | N                             | NI                                 |
| <i>Gymnomyces fragrans</i> <sup>c/</sup>   | S – UMP<br>D – RRS   | Y                               | Y                               | N                             | NI                                 |
| <i>Phaeocollybia californica</i> <sup>b/ cl</sup>                                      | D – RRS  | Y                               | Y                               | N                             | NI                                 |
| <i>Pseudorhizina californica</i> (syn. <i>Gyromitra californica</i> ) <sup>b/ cl</sup> | D – UMP<br>D – RRS<br>D – FWI                                  | Y                               | Y                               | N                             | NI                                 |
| <i>Ramaria amyloidea</i> <sup>b/ cl</sup>  | D – UMP<br>S – RRS<br>D – FWI                                  | Y                               | Y                               | N                             | NI                                 |
| <i>Ramaria rubella</i> var. <i>blanda</i> <sup>b/ cl</sup>                             | D – RRS  | Y                               | Y                               | N                             | NI                                 |
| <i>Rhizopogon chamaleontinus</i> <sup>b/ cl</sup>                                      | D – RRS  | Y                               | Y                               | N                             | NI                                 |
| <i>Rhizopogon ellipsosporus</i> <sup>b/ cl</sup>                                       | D – RRS  | Y                               | Y                               | N                             | NI                                 |
| <i>Rhizopogon exiguus</i> <sup>b/ cl</sup>   | S – UMP<br>D – RRS   | Y                               | Y                               | N                             | NI                                 |
| <i>Rhizopogon inquinatus</i> <sup>b/ cl</sup>  | S – UMP  | Y                               | Y                               | N                             | NI                                 |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| Common Name and/or Scientific Name <sup>1/</sup>                | Documented or Suspected Occurrence Within Forest <sup>2/</sup> | Potential Habitat <sup>3/</sup> | Surveys Performed <sup>4/</sup> | Species Present <sup>5/</sup> | Impact Determination <sup>6/</sup> |
|---|--|---------------------------------|---------------------------------|-------------------------------|------------------------------------|
| <i>Stagnicola perplexa</i> <sup>b/ c/</sup>                     | S – UMP<br>D – RRS   | Y                               | Y                               | N                             | NI                                 |
| <b>Lichens</b>  |  |                                 |                                 |                               |                                    |
| <i>Bryoria subcana</i> <sup>b/ c/</sup>                         | D – RRS  | Y                               | Y                               | N e/                          | NI f/                              |
| <i>Leptogium cyanescens</i> <sup>b/ c/</sup>                    | S – RRS  | Y                               | Y                               | N                             | NI                                 |
| <i>Lobaria linita</i> <sup>b/ c/</sup>                          | D – UMP<br>S – RRS   | Y                               | Y                               | N                             | NI                                 |
| <i>Ramalina pollinaria</i> <sup>b/ c/</sup>                     | S – UMP<br>S – RRS   | Y                               | Y                               | N                             | NI                                 |
| Woven spore lichen<br><i>Texosporium sancti-jacobi</i>          | S – FWI  | Y                               | Y                               | N                             | NI                                 |
| <b>Bryophytes</b>   |  |                                 |                                 |                               |                                    |
| Tiny notchwort<br><i>Anastrophyllum minutum</i>                 | S – UMP<br>S – RRS<br>S – FWI                                  | Y                               | Y                               | N                             | NI                                 |
| Broad-leaved lantern moss<br><i>Andreaea schofieldiana</i>      | S – UMP<br>D – RRS   | N                               | N                               | N                             | NI                                 |
| Spidery threadwort<br><i>Blepharostoma arachnoideum</i>         | D – UMP  | Y                               | Y                               | N                             | NI                                 |
| Giant fourpoint<br><i>Barbilophozia lycopodioides</i>           | S – FWI  | Y                               | Y                               | N                             | NI                                 |
| Beautiful bryum<br><i>Bryum calobryoides</i>                    | D – UMP<br>D – RRS   | Y                               | Y                               | N                             | NI                                 |
| Bog pouchwort<br><i>Calypogeia sphagnicola</i>                  | D – UMP<br>D – RRS   | N                               | N                               | N                             | NI                                 |
| Spiny threadwort<br><i>Cephaloziella spinigera</i>              | S – UMP<br>D – RRS<br>D – FWI                                  | Y                               | Y                               | N                             | NI                                 |
| <i>Cryptomitrium tenerum</i> <sup>c/</sup>                      | D – RRS  | Y                               | Y                               | N                             | NI                                 |
| White-mouthed extinguisher-moss<br><i>Encalypta brevicollis</i> | S – UMP<br>D – RRS   | Y                               | Y                               | N                             | NI                                 |
| Candle snuffer moss<br><i>Encalypta brevipes</i>                | S – UMP<br>D – RRS   | N                               | N                               | N                             | NI                                 |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| <b>Common Name and/or Scientific Name<sup>1/</sup></b>  | <b>Documented or Suspected Occurrence Within Forest<sup>2/</sup></b> | <b>Potential Habitat<sup>3/</sup></b> | <b>Surveys Performed<sup>4/</sup></b> | <b>Species Present<sup>5/</sup></b> | <b>Impact Determination<sup>6/</sup></b> |
|---|--|---------------------------------------|---------------------------------------|-------------------------------------|--|
| Banded cord-moss<br><i>Entosthodon fascicularis</i>   | S – UMP<br>S – RRS   | Y                                     | Y                                     | N                                   | NI                                       |
| Braided frostwort<br><i>Gymnomitrium concinatum</i>   | S – UMP  | Y                                     | Y                                     | N                                   | NI                                       |
| Great mountain flapwort<br><i>Harpanthus flotovianus</i>  | S – UMP<br>D – RRS<br>D – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| <i>Jamesoniella autumnalis</i> var.<br><i>heterostipa</i> <sup>cl</sup>   | S – UMP  | Y                                     | Y                                     | N                                   | NI                                       |
| <i>Kurzia makinoana</i> <sup>b/ cl</sup>  | S – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Gillman's pawwort<br><i>Lophozia gillmanii</i>  | S – UMP<br>D – RRS<br>S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |
| <i>Marsupella emarginata</i> var.<br><i>aquatica</i> <sup>b/,cl</sup>   | S – UMP  | Y                                     | Y                                     | N                                   | NI                                       |
| <i>Orthodontium gracile</i> <sup>b/ cl</sup>  | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Translucent orthodontium<br><i>Orthodontium pellucens</i>   | D – RRS  | N                                     | N                                     | N                                   | NI                                       |
| Tuberous hornwort<br><i>Phymatoceros phymatodes</i>   | D – RRS  | Y                                     | Y                                     | N                                   | NI                                       |
| Dwarf rock haircap<br><i>Polytrichastrum sexangulare</i><br>var. <i>vulcanicum</i><br>(syn. <i>Polytrichum sphaerothecium</i> ) | S – UMP<br>S – FWI   | Y                                     | Y                                     | N                                   | NI                                       |
| Hummock haircap moss<br><i>Polytrichum strictum</i> <sup>cl</sup>   | S – UMP  | Y                                     | Y                                     | N                                   | NI                                       |
| Bolander's scalemoss<br><i>Porella bolanderi</i>  | S – UMP<br>D – RRS   | Y                                     | Y                                     | N                                   | NI                                       |
| Blunt water moss<br><i>Pseudocalliergon trifarium</i><br>(syn. <i>Calliergon trifarium</i> )                                    | S – RRS<br>D – FWI   | N                                     | N                                     | N                                   | NI                                       |
| Racomitrium moss<br><i>Racomitrium depressum</i><br>(syn. <i>Codriophorus depressus</i> )                                       | S – UMP<br>S – RRS<br>S – FWI  | Y                                     | Y                                     | N                                   | NI                                       |

**Table 2. Forest Service Special Status Species With Potential to Occur Near the Project**

| Common Name and/or Scientific Name <sup>1/</sup>  | Documented or Suspected Occurrence Within Forest <sup>2/</sup> | Potential Habitat <sup>3/</sup> | Surveys Performed <sup>4/</sup> | Species Present <sup>5/</sup> | Impact Determination <sup>6/</sup> |
|---|--|---------------------------------|---------------------------------|-------------------------------|------------------------------------|
| <i>Rivulariella gemmipara</i><br>(syn. <i>Chiloscyphus gemmiparus</i> )   | S – UMP<br>D – RRS<br>S – FWI                                  | Y                               | Y                               | N                             | NI                                 |
| <i>Scapania obscura</i> <sup>b/ c/</sup>  | S – UMP  | Y                               | Y                               | N                             | NI                                 |
| Schistidium moss<br><i>Schistidium cinclidodonteum</i>  | D – RRS<br>S – FWI   | Y                               | Y                               | N                             | NI                                 |
| Alpine masterwort<br><i>Schofieldia monticola</i>   | S – UMP  | Y                               | Y                               | N                             | NI                                 |
| <i>Tetraphis geniculata</i> <sup>b/ c/</sup>  | S – UMP  | Y                               | Y                               | N                             | NI                                 |
| Mucronleaf tortula moss<br><i>Tortula mucronifolia</i>  | D – RRS  | Y                               | Y                               | N                             | NI                                 |
| Asano's trematodon moss<br><i>Trematodon asanoi</i>   | S – UMP<br>S – FWI   | Y                               | Y                               | N                             | NI                                 |
| <p>General Notes</p> <p>1/ Sensitive species located in the Project area were documented by SBS (2008, 2010, 2011a, 2011b, 2011c), presented in Pacific Connector's April 27, 2015 response to FERC data request, and provided by the Forest Service (Krantz 2018). Forest Service sensitive species that are also Survey and Manage species were documented; however, these species are not discussed here but are included in the Survey and Manage Report submitted as a stand-alone document.<br/>ESU = Evolutionarily Significant Unit</p> <p>2/ Occurrence Key:<br/>National Forest: FWI = Winema National Forest, RRS = Rogue River National Forest, UMP = Umpqua National Forest<br/>D = Documented occurrence – A species located on land administered by the Forest Service based on historic or current known sites of a species reported by a credible source for which the Forest Service has knowledge of written, mapped or specimen documentation of the occurrence.<br/>S = Suspected occurrence – Species is not documented on land administered by the Forest Service, but may occur on the unit because: 1) National Forest is considered to be within the species' range and 2) appropriate habitat is present or 3) known occurrence of the species (historic or current) in vicinity such that the species could occur on FS land.<br/>I = Downstream Influence by Forest Service Actions<br/>Note: ISSSSP 2015 and 2019 lists documented and suspected occurrence status by grouping Fremont-Winema national forests together, and Rogue River-Siskiyou national forests together. We are assuming that this status information pertains to the forests crossed by the Project.</p> <p>3/ Potential Habitat: Y = Yes, suitable habitat present; N = no suitable habitat present</p> <p>4/ Surveys Performed: Y = Yes, surveys were conducted; N = No surveys were conducted for the species.</p> <p>5/ Species Present: Y = Yes; N = No; U = Unknown because no targeted surveys were conducted for the species.</p> <p>6/ Impact Determination: NI = No Impact, MIIH = May Impact Individuals or Habitat, but is not likely to contribute to a trend toward federal listing or loss of viability of the species. For federally listed or proposed species: NE=No effect, NLAA= Not likely to adversely affect, LAA= Likely to adversely affect, NJ = not likely to jeopardize the continued existence for proposed species.</p> <p>Species-Specific Notes</p> <p>a/ Denotes listing under ESA as endangered or threatened, or a species proposed for ESA listing. Full analysis available in FERC's BA for this project.</p> <p>b/ Denotes a species on the Survey and Manage list under the Northwest Forest Plan. These species are analyzed in Appendix F.5 of the FEIS, Survey and Manage Species Persistence Evaluation.</p> <p>c/ No common name found for this species.</p> <p>d/ Documented based on recent observations.</p> <p>e/ Detected on private, state, or BLM-managed lands but not on Forest Service-managed lands crossed by the Project.</p> <p>f/ The Project may impact this species; however, no impacts would occur on Forest Service-managed lands.</p> |  |                                 |                                 |                               |                                    |



Federally listed or proposed species that are documented or suspected to occur on NFS lands are also included in Table 2 (four mammals, one bird, one amphibian, three fish, one terrestrial invertebrate, and four plants). These species are addressed in FERC's BA. Preliminary impact determinations in Table 2 are from FERC's BA, and thus do not use Forest Service terminology. Four possible impact determinations are shown for federally listed or proposed species: 1) No effect (NE); 2) Not likely to adversely affect (NLAA); 3) Likely to adversely affect (LAA); and (4) Not likely to jeopardize the continued existence for proposed species (NJ).

To minimize or avoid adverse effects on aquatic and wildlife habitat that support RFSS, Pacific Connector would adhere to measures established in the POD (appendix F.10) and the BE (appendix F.7, Conservation Measures and Mitigation). Other measures that will contribute to minimizing impacts to RFSS are included in the FERC Plan and Procedures, Erosion and Sediment Control Plan; its Upland Erosion Control, Revegetation, and Maintenance Plan; its Wetland and Waterbody Construction and Mitigation Procedures (Jordan Cove's Procedures); and the Migratory Bird Conservation Plan (see FEIS, sections 4.5 and 4.6). The BE determined that Pacific Connector would not cause a trend toward federal listing or loss of viability for any of the above-listed species. I find this decision meets the direction in FSM 2670.12 regarding sensitive species, as described above.

## National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires each federal agency to take into account the effects of its actions on historic properties prior to approving expenditure of federal funds for an undertaking or prior to issuing any license. Historic properties include prehistoric or historic sites, districts, buildings, structures, objects, or properties of traditional religious or cultural importance that are listed or eligible for listing on the National Register of Historic Places (NRHP).

FERC, as the lead federal agency for NEPA compliance, is required to consult with the appropriate State Historic Preservation Office(s) (SHPO), interested Indian tribes, and other consulting parties; identify historic properties in the area of potential effect; assess project effects on historic properties; and resolve adverse effects. FERC has consulted with the Oregon SHPO, interested Indian tribes, government agencies, and the public regarding potential impacts on historic properties resulting from construction and operation of the PCGP (FEIS, section 4.11).

To identify historic properties potentially affected by the project and in accordance with Section 106, FERC, on behalf of all of the federal cooperating agencies, consulted with the Oregon SHPO,<sup>17</sup> interested Indian tribes, and other consulting parties prior to making our determinations of NRHP eligibility and project effects. We also consulted with the SHPO, interested Indian tribes, and other consulting parties to determine a resolution for adverse effects on historic properties that cannot be avoided. All correspondence related to these consultations can be found in the FERC's administrative record. A detailed listing of communications, comments received from Indian tribes and ongoing Section 106 consultation efforts are included in appendix L of the FEIS.

Consultations began with the issuance of the NOI on June 9, 2017. The NOI was sent to a wide range of stakeholders, including other federal agencies, such as the Advisory Council on Historic Preservation, U.S. Department of the Interior Bureau of Indian Affairs (BIA), BLM, USACE, Forest Service, Reclamation, and NPS; state and local government agencies, such as the Oregon SHPO; affected landowners; regional environmental groups and non-governmental organizations; and Indian

---

<sup>17</sup> In all cases, the SHPO refers to the staff of the Oregon State Historic Preservation Office within the Oregon State Parks and Recreation Department, including the State Archaeologist.

tribes that may have an interest in the project area. The NOI contained Section 106-specific text initiating consultations with the SHPO and soliciting its views and those of other government agencies, interested Indian Tribes, and the public on the project's potential effects on historic properties.

## Consultations with the SHPO

Throughout the planning process, FERC staff have consulted with and the applicants have communicated with the Oregon SHPO regarding the PCGP project<sup>18</sup>. While not specific to the current application, FERC consultations and applicant communications regarding previous versions of the project occurred between 2006 and 2015 and informed our current consultations. Those efforts were summarized in the relevant FEISs prepared for Docket Nos. CP07-441-000, CP07-444-000, CP13-483-000, and CP13-492-000. Consultations between FERC and the SHPO after September 2015 related to Docket Nos. CP17-494-000 and CP17-495-000 are summarized in table L-1 in appendix L.

## Consultations with Indian Tribes

The unique and distinctive political relationship between the United States government and Indian tribes is defined by treaties, statutes, executive orders, judicial decisions, and agreements. These have resulted in differentiating tribes from other entities that deal with, or are affected by, the federal government. This relationship has given rise to a special federal trust responsibility involving the legal obligations of the United States government toward Indian tribes and the application of fiduciary standards of due care with respect to Indian lands, tribal trust resources, and the exercise of tribal rights. Indian tribes are defined in 36 CFR 800.16(m), as: “an Indian tribe, band, nation, or other organized group or community, including a Native village, Regional Corporation, or Village Corporation, as those terms are defined in Section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their special status as Indians.”

FERC acknowledges that it has trust responsibilities to Indian tribes, and so, on July 23, 2003, it issued a “Policy Statement on Consultations with Indian Tribes in Commission Proceedings” in Order 635. That policy statement included the following key objectives:

- The Commission will endeavor to work with Indian tribes on a government-to-government basis, and will seek to address the effects of proposed projects on tribal rights and resources through consultations; and
- The Commission will ensure that tribal resources and interests are considered whenever the Commission's actions or decisions have the potential to adversely affect Indian tribes or Indian trust resources.

FERC contacted Indian tribes that may attach religious or cultural significance to sites in the project region or may be interested in potential PCGP project impacts on cultural resources. We identified Indian tribes that historically used or occupied the project area through basic ethnohistorical sources, such as the *Handbook of North American Indians* (Suttles 1990), communications with the Oregon SHPO and the Oregon Legislative Commission on Indian Services, information provided by the applicants, and scoping responses to our June 9, 2017 NOI, including letters from interested Indian tribes.

---

<sup>18</sup> FERC Section 106 consultation includes both Jordan Cove and PCGP projects.

Indian tribes identified in the region are the Burns Paiute Tribe, CTCLUSI, CIT, Cow Creek Tribe, Fort Bidwell Paiute Tribe, Grand Ronde Tribes, Hoopa Valley Tribe, Karuk Tribe, Klamath Tribes, Modoc Tribe of Oklahoma, Pit River Tribe, Siletz Tribes, Tolowa Dee-ni Nation (formerly Smith River Rancheria), and Yurok Tribe.

A context that identifies Indian tribes that historically used or occupied the area affected by the PCGP project, as well as details of the FERC consultations and the applicants' communications with Indian tribes, can be found in appendix L of the FEIS.

## **FERC Staff Consultations with Indian Tribes**

Government-to-government consultations between FERC and Indian tribes from 2006 to 2009 were summarized in section 4.10.1.2 of FERC's May 2009 FEIS for the Jordan Cove LNG import proposal and original Pacific Connector send out pipeline in Docket Nos. CP07-441-000 and CP07-444-000. Consultations between FERC and Indian tribes from May 2009 to September 2015 were documented in section 4.11.1.2 of the FEIS issued in September 2015 for Docket Nos. CP13-483-000 and CP13-492-000.

Consultations between FERC and Indian tribes after September 2015, related to Docket Nos. CP17-494-000 and CP17-495-000, are listed in table L-4 in appendix L of the FEIS. Some Indian tribes have questioned the nature of the consultations.<sup>19</sup> Consultations between FERC staff and Indian tribes are still ongoing. Tribal consultation efforts were initiated with an e-mail sent to tribes on May 9, 2017, inviting them to participate in a telephone conference call about the PCGP project. This was followed by the NOI issued by FERC on June 9, 2017, requesting comments about the PCGP project. On April 5, 2018, FERC staff sent out letters to individual Indian tribal leaders. In response to those letters, the CTCLUSI, Coquille Tribe, Grand Ronde Tribes, Karuk Tribe, and Yurok Tribe requested meetings with FERC staff. FERC staff met in person with representatives of the CTCLUSI in Coos Bay, Oregon, on March 22 and June 28, 2017, July 17, 2018, and June 25, 2019; with the Coquille Tribe in North Bend, Oregon, on July 16, 2018, and June 12, 2019; with the Cow Creek Tribe in Roseburg, Oregon, on June 28, 2017, and June 12, 2019; with the Grand Ronde Tribes at Grand Ronde, Oregon, on June 11, 2019; with the Karuk Tribe in Happy Camp, California, on July 18, 2018; with the Klamath Tribes in Chiloquin, Oregon, on June 29, 2017, and June 13, 2019; and with the Yurok Tribe in Klamath, California on July 18, 2018. Additional emails and telephone conference calls have occurred between FERC staff and some of these tribes to discuss specific concerns about the PCGP projects (see table L-4 in appendix L).

The PCGP project is a complex multi-jurisdictional project, and effects on all historic properties cannot be determined prior to agencies approval of the undertaking. FERC has developed a Programmatic Agreement (PA), under 36 CFR Part 800.14.b, to resolve adverse effects for the PCGP project as a whole. The PA contains stipulations that will be implemented in order to take into account the effect of the undertaking on historic properties and will satisfy all responsibilities under Section 106 of the NHPA. The Forest Service is a signatory to the PA. I will sign the PA on behalf of the Forest Service prior to issuance of the final ROD. Execution and implementation of the PA will satisfy Section 106 responsibilities for all individual actions of the PCGP project. With execution of the PA, the Forest Service will satisfy its responsibilities under Section 106 of the NHPA. The LRMP amendments will be conditioned so that they will not go into effect until the PA has been executed

---

<sup>19</sup> For example, the CTCLUSI, in their July 5, 2019 letter (accession number 20190708-5040) to FERC commenting on our DEIS issued March 29, 2019, made a distinction between "staff-to-staff" consultations and consultations among decision-makers.

and any additional treatment plans for NFS lands have been completed. I find this decision is compliant with the NHPA.

## National Trails System Act

The National Trails System Act (NTSA) established the PCT as a National Scenic Trail. The Act authorized a national system of trails to provide outdoor recreation opportunities and to promote the preservation of access to the outdoor areas and historic resources of the nation. The NTSA provides authority for the Secretary of the Interior or the Secretary of Agriculture to grant easements and rights-of-way upon, over, under, across, or along any component of the national trails system in accordance with the laws applicable to the NPS and the NFS, respectively, provided that any conditions contained in such instruments shall be related to the policy and purposes of the NTSA.

Installation of the pipeline would affect PCT users for a short duration of time. Pacific Connector proposes to use a conventional vertical boring technique to bore underneath the PCT at the trail crossing location in order to minimize effects to trail users. Construction of the bore crossing would take approximately 1 to 2 weeks, and it is not expected that PCT closures or detours would be required. There would be no surface disturbance or vegetation removal on the PCT or immediately adjacent areas. For public safety, temporary construction fencing would be installed around construction work areas that could potentially be accessed from the PCT. This fencing would be dark green, dark brown, or black to minimize effects. Pacific Connector has identified site-specific mitigation measures to reduce potential effects on the PCT in appendix S (Recreation Management Plan) of the POD. Therefore, this decision is compliant with the NTSA.

## Clean Air Act

The Clean Air Act contains provisions to control common air pollutants, requires the EPA to establish national ambient air quality standards, and requires states to develop plans to achieve the standards. EPA has delegated to states the responsibility of issuing permits to protect air quality. Section 4.12 of the FEIS discloses the air quality impacts of the PCGP project. The pipeline route would pass closest to the Mountain Lakes Wilderness Class I area. The shortest distance between the Mountain Lakes Wilderness boundary and the pipeline is 4.5 miles (7.3 km), located at about MP 172.5. Pipeline construction spread 5 would operate between MPs 169.5 and 228.8, a total distance of 59.3 miles (95.4 km). Thus, emission sources for construction spread 5 would vary in distance from Mountain Lakes as the spread moves along the right-of-way. The potential air quality impact on Mountain Lakes would decrease as the distance between construction spread activity and Mountain Lakes increases. Pipeline construction would generally occur at a steady pace; therefore, it is reasonable to expect that these construction emissions for spread 5 would be evenly distributed throughout the spread 5 construction corridor, except for in areas where terrain or other factors slow the rate of construction. For the pollutants of highest concern, emissions expected per kilometer of pipeline route would only be 0.21 ton/km of NO<sub>x</sub>, 0.01 ton/km of SO<sub>2</sub>, and 1.56 ton/km of PM<sub>10</sub>. Applying the Class I air quality related value (AQRV) screening analysis to these emissions results in impacts far below the screening criteria. The LRMP amendments approved by my decision will not directly authorize any ground-disturbing activities or projects that would generate emissions. As discussed in the FEIS, the applicant will implement the measures from its Fugitive Dust Control Plan to reduce construction impacts on air quality. Therefore, I conclude that the construction-related impacts of PCGP project will not result in a significant impact on the local or regional air quality.

## Clean Water Act

The Clean Water Act (CWA) establishes the basic structure for regulating the discharges of pollutants into waters of the United States and regulating quality standards for surface waters. The EPA has delegated to the State of Oregon the authority to issue discharge permits under the CWA.

Constructing the pipeline would modify streambanks, resulting in an increase in the rates of erosion, turbidity, and sedimentation into crossed waterbodies. An increase in soil compaction and vegetation clearing could also potentially increase runoff and subsequent streamflow or peak flows. Representatives of the Forest Service have worked cooperatively with FERC staff and the project proponent to incorporate best management practices (BMPs), project design features, and project requirements which would avoid, minimize, rectify, reduce, or eliminate environmental consequences (40 CFR 1502.14(f) and 1508.20(a-d)). The BMPs, project design features, and requirements specific to the authorized use of NFS lands are included as attachments to the applicant's POD. There are 28 appendices in the POD, which is included as appendix F.10 to the FEIS; they include draft monitoring elements to ensure that the wide array of actions are implemented and to assess consistency of the actions relative to the goals and objectives of the respective LRMPs. Collectively, the POD is incorporated into the project description and is summarized in section 2.6.3 of the FEIS. The mitigation measures incorporated into LRMP amendments for soil, water, and riparian resources are designed to minimize, maintain, or restore the potential for soil movement, slope stability, and water quality, and to ensure adequate restoration and revegetation. These measures are identified in the following documents available in the FEIS and/or FERC's administrative record: the *Erosion Control and Revegetation Plan* (POD appendix I); *Right-of-Way Clearing Plan* (POD appendix U); *Wetland and Waterbody Crossing Plan* (POD appendix BB); the *Forest Service Site Specific Stream Crossing Prescriptions* (NSR 2014, Stantec 2019); the *Stream Crossing Risk Analysis*; and *Stream Crossing Risk Analysis Addendum* (GeoEngineers 2017d, 2018a). Pacific Connector would also follow FERC's applicant-prepared Wetland Procedures and the BMPs for the State of Oregon.

During the ODEQ CWA Section 401 process, Pacific Connector will develop a source-specific implementation plan in accordance with OAR 340-042-0080 for areas with existing total maximum daily loads requirements, and Pacific Connector would be identified as a new nonpoint source. For perennial stream crossings on federal lands, this plan would incorporate the requirements of the site-specific restoration plans (NSR 2015b, c). The source-specific implementation plan would outline mitigation for predicted thermal impacts (GeoEngineers 2013i). This mitigation will have as its goal restoring shade along affected stream channels and nearby channels within the same fourth-field river basins. Mitigation for construction-related impacts would occur to the extent allowed by landowners on the affected streambanks.

Project impacts to groundwater are expected to be limited to those associated with clearing, grading, and trenching during construction, although it is unlikely the trench would be deep enough to significantly affect aquifers. The project's use of water control practices will result in unquantifiable impacts to water infiltration rates for the life of the project.

While some additional sediment may enter streams, several factors would minimize or eliminate these occurrences:

- the relatively small area that would be disturbed from the actions,
- the provisions in the *Transportation Management Plan* that would be followed, and
- the *Erosion Control and Revegetation Plan* and BMPs that would be implemented for PCGP project roads, right-of-way clearing, and TEWAs.

The result would be that noticeable adverse effects on stream sediment or water quality are unlikely to occur.

I find my decision is compliant with the CWA. The LRMP amendments approved by my decision will not directly authorize any ground-disturbing activities or projects; however, the plan amendment approved by this decision will ensure that applicable mitigation measures identified in Pacific Connectors project design requirements and mitigation measures of the POD will be implemented should BLM approve the PCGP ROW grant. These measures are designed to minimize sediments and other pollutants related to construction of the pipeline from impacting surface waters.

## **Floodplains and Wetlands (Executive Orders 11988 and 11990)**

These EOs require federal agencies to avoid, to the extent possible, short- and long-term effects resulting from the occupancy and modification of flood plains and the modification or destruction of wetlands. Forest-wide standards and guidelines are provided in the LRMPs for soil and water, wetlands, and riparian areas to minimize effects to floodplains and wetlands.

My decision incorporates the applicable mitigation measures in the Erosion Control and Revegetation Plan (POD I); Right-of-Way Clearing Plan (POD U); Wetland and Waterbody Crossing Plan (POD BB); and the Forest Service Site Specific Stream Crossing Prescriptions (NSR 2014, Stantec 2019) to protect wetlands and minimize compaction. The mitigations measures include limiting the construction ROW width to 75 feet through wetlands; placing equipment on mats; using low-pressure ground equipment; limiting equipment operation and construction traffic along the ROW; locating temporary work space more than 50 feet away from wetland boundaries; cutting vegetation at ground level; limiting stump removal to the trench; segregating the top 12 inches of soil, or to the depth of the topsoil horizon; using “push-pull” techniques in saturated wetlands; limiting the amount of time that the trench is open by not trenching until the pipe is assembled and ready for installation; not using imported rock and soils for backfill; and not using fertilizer, lime, or mulch during restoration in wetlands. Pacific Connector will also follow the FERC Waterbody and Wetland Construction and Mitigation Procedures. Surveys indicate that less than 0.2 acre of jurisdictional wetlands will be impacted by the PCGP project on the Umpqua, Rogue River, and Winema National Forests.

Portions of the pipeline would be located within floodplains. However, because the pipeline would occupy a very limited space within the floodplain, it would not result in a discernable reduction in flood storage capacity. No permanent facilities would be placed on floodplains on NFS lands and PARs on NFS lands would not substantially impact floodplains. Therefore, the PCGP project is not likely to substantially impact flood attenuation and dispersal in each watershed because of the small footprint of the PCGP project within each floodplain.

I find my decision is compliant with the EOs related to floodplains and wetlands. The LRMP amendments approved by my decision will not directly authorize any ground-disturbing activities or projects; however, the LRMP amendments approved by this decision will ensure that applicable mitigation measures identified in PCGP’s project design requirements and the mitigation measures of the POD will be implemented should BLM approve the ROW grant. These measures are designed to minimize sediments and other pollutants related to construction of the pipeline from impacting surface waters.

## **Environmental Justice (Executive Order 12898)**

EO 12898 requires federal agencies to consider the adverse health or environmental effects of their programs, policies, and activities on minority and low-income populations. The FERC analysis

(FEIS, section 4.9.2.9) evaluated potential impacts to minority populations as well as other vulnerable populations in the project area, including children, the elderly, the disabled, non-English speakers, and other disadvantaged people who may be disproportionately affected by the projects. Adverse impacts on water and air quality resulting from construction and operation of the projects were identified as concerns that should be addressed. The FERC analysis determined that, although low-income populations exist in the PCGP project area, impacts from the projects will not disproportionately affect environmental justice populations and would not be appreciably higher than impacts on the general population.

The analysis concludes there is no evidence that the project will cause significant adverse health or environmental harm to any community with a disproportionate number of minorities or low-income or other vulnerable populations. I find the FERC analysis has adequately addressed potential impacts to minority, low-income, and vulnerable populations.

## Wilderness Act of 1964

There are several federally designated Wilderness Areas in the Umpqua, Rogue River, and Winema National Forests, but none of them would be crossed by the Pacific Connector pipeline. The pipeline does, however, pass in the general vicinity of two Wilderness Areas: the Sky Lakes Wilderness (113,590 acres), which is located in both the Winema and Rogue River National Forests and the Mountain Lakes Wilderness (23,071 acres), which is located in the Winema National Forest. The pipeline would pass approximately 3.7 miles south of the Sky Lakes Wilderness and 1.3 miles south of the Mountain Lakes Wilderness. These wildernesses would not be affected by pipeline construction or operation because of these distances and the intervening forested landscapes.

## 2001 Roadless Area Conservation Rule

Inventoried Roadless Areas (IRAs) were identified in the 2001 Roadless Area Conservation Rule (RACR) in a set of IRA maps contained in *Forest Service Roadless Area Conservation Final Environmental Impact Statement, volume 2*, dated November 2000, which are held at the national headquarters office of the Forest Service, or any subsequent update or revision to these maps (36 CFR 294.11). These areas were set aside through administrative rulemaking and have provisions, within the context of multiple use management, for the protection of IRAs.

The pipeline route and related facilities would not be located in any IRA. The nearest IRA is the Brown Mountain IRA, located on the Rogue River National Forest approximately 0.6 mile north of the pipeline route at MP 162.0. On the Winema National Forest, the West Boundary IRA is about 2.2 miles northeast of MP 172.25. Construction and operation of the PCGP project would have no direct effects on these IRAs.

## Administrative Review/Objections

The proposed Forest Service plan amendments are being developed in accordance with the planning regulations at 36 CFR 219 (2012). Decisions by the Forest Service to approve “plan level” amendments to LRMPs (proposed amendments UNF-4 and RRNF-7) are subject to the Pre-Decisional Administrative Review Process Regulations at 36 CFR 219 Subpart B. The term “plan level” refers to plan amendments that would apply to future management actions.

The Forest Service will accept mailed, emailed, faxed, and hand-delivered objections concerning this action for 60-calendar days following the date of publication of the legal notice in the newspapers of

record for the Umpqua, Rogue River-Siskiyou and Fremont-Winema National Forests. The publication date of the legal notice in these newspapers is the exclusive means for calculating the time to file an objection, and those wishing to object should not rely upon dates or time frame information provided by any other source. It is the responsibility of the objector to ensure that the Reviewing Officer receives the objection in a timely manner. The regulations prohibit extending the length of the objection filing period.

Incorporation of documents by reference is permitted only as provided in 219.54(b).

An objection must include the following (36 CFR 219.54(c)):

- (1) The objector's name and address along with a telephone number or email address if available;
- (2) Signature or other verification of authorship upon request (a scanned signature for electronic mail may be filed with the objection);
- (3) Identification of the lead objector, when multiple names are listed on an objection (219.62). Verification of the identity of the lead objector if requested;
- (4) The name of the plan, plan amendment, or plan revision being objected to, and the name and title of the responsible official;
- (5) A statement of the issues and/or parts of the plan, plan amendment, or plan revision to which the objection applies;
- (6) A concise statement explaining the objection and suggesting how the proposed plan decision may be improved. If applicable, the objector should identify how the objector believes that the plan, plan amendment, or plan revision is inconsistent with law, regulation, or policy; and
- (7) A statement that demonstrates the link between prior substantive formal comments attributed to the objector and the content of the objection, unless the objection concerns an issue that arose after the opportunities for formal comment (219.53(a)).

Decisions by the Forest Service to approve "project-specific" plan amendments (proposed amendments UNF-1 thru 3, RRNF-2 thru 6, and WNF-1 thru 5) are subject to the Administrative Review Process of 36 CFR 218 Subpart A and B, in accordance with 36 CFR 219.59 (b). The term "project specific" refers to amendments that would only apply to the proposed project and would not apply to any future management actions. Refer to the applicable administrative review regulations for eligibility requirements.

The opportunity to object ends 45-calendar days following the date of publication of the legal notice in the newspapers of record for the Umpqua, Rogue River-Siskiyou and Fremont-Winema National Forests. The publication date of the legal notice in these newspapers is the exclusive means for calculating the time to file an objection, and those wishing to object should not rely upon dates or time frame information provided by any other source.

Objections will be accepted only from those who have previously submitted timely, specific written comments regarding the Forest Service portion of the proposed project during scoping or other designated opportunity for public comment. Issues raised in objections must be based on issues raised in the previously submitted specific written comments unless the issues are based on new information



arising after designated comment opportunities (§218.7(c)(2)(ii)). Only objections that are within the Forest Service's decision space will be considered.

Incorporation of documents by reference is permitted only as provided in §218.8(b). It is the objector's responsibility to ensure timely filing of a written objection with the reviewing officer. All objections are available for public inspection during and after the objection process.

At a minimum, objections must include the following (§218.8(d)):

- (1) List the name, address, and if possible, a telephone number of the objector;
- (2) Provide a signature or other verification of authorship (a scanned signature for electronic mail may be filed with the objection);
- (3) Identify the lead objector, when multiple names are listed on an objection;
- (4) Provide the name of the project being objected to, the name and title of the responsible official, and the name of the National Forest on which the project is located;
- (5) A description of those aspects of the proposed project addressed by the objection, including specific issues related to the proposed project; if applicable, how the objector believes the environmental analysis or draft decision specifically violates law, regulation, or policy; suggested remedies that would resolve the objection; supporting reasons for the reviewing officer to consider; and;
- (6) A statement that demonstrates the connection between prior specific written comments on the particular proposed project or activity and the content of the objection, unless the objection concerns an issue that arose after the designated opportunity(ies) for comment.

Mail: Objections can be mailed to the Reviewing Officer at the address below. Objections delivered by mail must be postmarked by the closing day of the objection filing period and received before close of the fifth business day following the end of the objection period.

**Regional Forester (Reviewing Officer)**  
**Pacific Northwest Regional Office**  
**Attn: 1570 Objections**  
**P.O. Box 3623**  
**Portland, OR 97208-3623**

Email: Objections can be filed electronically at: <https://cara.ecosystem-management.org/Public/CommentInput?project=28132>. Attachments must be submitted in Microsoft Word (.doc), rich text format (.rtf), or portable document format (.pdf) only.

**Hand-delivery:** Objections can be hand delivered to the Pacific Northwest Regional Office, 1220 SW 3rd Avenue, Portland, Oregon, between 8:00 AM and 4:30 PM, Monday through Friday except legal holidays. Please note that this is a new physical address as of September, 2013.

**Fax:** Objections can be faxed to the Regional Forester, Attn: 1570 Objections at **(503) 808-2339**. Please verify receipt.

## **Effective Date (§ 219.17(a))**

These amendments to the LRMPs for the Umpqua, Rogue River, and Winema National Forests will become effective upon BLM issuing the appropriate permits/right-of-way grant to authorize the project and providing PCGP with a Notice to Proceed.

## **Contact Person**

For additional information concerning this decision, contact David Krantz, Project Manager for the Umpqua National Forest, at 541-608-2082, or via email at [david.krantz.@usda.gov](mailto:david.krantz.@usda.gov)

---

ALICE B. CARLTON  
Forest Supervisor  
Umpqua National Forest

---

[DATE]

---

**APPENDIX F.12**

**Applicant Proposed Compensatory Mitigation on BLM Lands**

---

Jordan Cove Natural Gas Liquefaction and  
Pacific Connector Gas Pipeline Project  
Final EIS

**Appendix F.12**

**Applicant Proposed Compensatory Mitigation on BLM Lands**

**USDOI Bureau of Land Management**

**Pacific Connector Gas Pipeline**

Prepared for:

**USDOI Bureau of Land Management**

Prepared by:

**Stantec Consulting Services Inc.**

**October 2019**

| Admin Unit | Water-shed  | ProjType         | MitGroup                | Project Name                          | Project Rationale   | Qty | Unit  | Estimated Cost* |
|------------|-------------|------------------|-------------------------|---------------------------------------|---|-----|-------|-----------------|
| CB         | EF Coquille | Road Surfacing   | Road Sediment Reduction | Road Surfacing - South Fork Elk Creek | Road-related sediment has negatively impacted the EF Coquille. The effects of the PCGP are similar to a road, including possible impacts to flow and sediment regimes. Improvement of existing roads restores hydrologic connectivity and reduces sediment by managing drainage and restoring surfacing where needed. Surfacing the BLM road which is parallel to the South Fork Elk Creek would reduce if not eliminate sediment input to adjacent Chinook, coho, steelhead, and cutthroat habitat.  | 2.6 | miles | \$1,614,602     |
| CB         | EF Coquille | Road Surfacing   | Road Sediment Reduction | Road Surfacing - Yankee Run Mainline  | Road-related sediment has negatively impacted the EF Coquille. The effects of the PCGP are similar to a road, including possible impacts to flow and sediment regimes. Improvement of existing roads restores hydrologic connectivity and reduces sediment by managing drainage and restoring surfacing where needed. Surfacing the BLM road which is parallel to Yankee Run Creek would reduce if not eliminate road-related sediment input to coho, steelhead, and cutthroat habitat.   | 2   | miles | \$1,204,174     |
| CB         | EF Coquille | Road Surfacing   | Road Sediment Reduction | Road Surfacing - Yankee Run Spurs     | Road-related sediment has negatively impacted the EF Coquille. The effects of the PCGP are similar to a road, including possible impacts to flow and sediment regimes. Improvement of existing roads restores hydrologic connectivity and reduces sediment by managing drainage and restoring surfacing where needed. Surfacing the BLM road which is parallel to Yankee Run Creek would reduce if not eliminate road-related sediment input to coho, steelhead, and cutthroat habitat.   | 0.9 | miles | \$499,000       |
| CB         | EF Coquille | Fire Suppression | Fire suppression        | Heli-Pond construction                | High intensity fire has been identified as the single factor most impacting late successional and old growth forest habitats on federal lands in the area of the NWFP. Construction of the pipeline and associated activities removes both mature and developing stands and will increase fire suppression complexity, however the corridor also provides a fuel break. Within the East/Middle Fork watersheds, there is an 18+ mile gap between helicopter accessible waterholes. Quick response time is imperative for successful control in wildfire situations during initial attack. Most water sources in this area are low in the drainage and accessible only by truck. Heliponds at these locations would enable a 2-3 mile radius for aerial application. Fire control is necessary to protect Late Successional Reserves and endangered species habitat should a wildfire occur. | 2   | ea    | \$272,000       |

| Admin Unit | Water-shed  | ProjType         | MitGroup                | Project Name                                      | Project Rationale   | Qty | Unit  | Estimated Cost* |
|------------|-------------|------------------|-------------------------|---|---|-----|-------|-----------------|
| CB         | MF Coquille | Fire Suppression | Fire Suppression        | Helipond Construction                             | High intensity fire has been identified as the single factor most impacting late successional and old growth forest habitats on federal lands in the area of the NWFP. Construction of the pipeline and associated activities removes both mature and developing stands and will increase fire suppression complexity, however the corridor also provides a fuel break. Within the East/Middle Fork watersheds, there is an 18+ mile gap between helicopter accessible waterholes. Quick response time is imperative for successful control in wildfire situations during initial attack. Most water sources in this area are low in the drainage and accessible only by truck. Heliponds at these locations would enable a 2-3 mile radius for aerial application. Fire control is necessary to protect Late Successional Reserves and endangered species habitat should a wildfire occur. | 1   | ea    | \$136,000       |
| CB         | MF Coquille | LWD instream     | Aquatic Habitat         | Upper Rock Creek In-stream Large Wood Placement   | Lack of large wood and recruitment of LWD into streams is a consistent factor limiting aquatic habitat quality in all watersheds crossed by the Pacific Connector pipeline. There are approximately 7.3 miles of corridor and 9 stream crossings in the MF Coquille. Implementation of the PCGP project would result in the removal of large woody debris from the Riparian Reserves associated with intermittent and perennial streams. The removal of vegetation within and adjacent to the channel will preclude future recruitment of large woody debris into the channel and associated Riparian Reserves. Placing large woody debris at key locations within the channel and associated Riparian Reserves would offset both the short-term and long-term impacts from loss of LWD recruitment to Riparian Reserves and associated aquatic and riparian habitat.                       | 2.1 | miles | \$191,750       |
| CB         | MF Coquille | Road Surfacing   | Road Sediment Reduction | Road Surfacing - Fall Creek System                | Road-related sediment has negatively impacted the MF Coquille. There are approximately 7.3 miles of corridor and 9 stream crossings in the MF Coquille. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Surfacing the BLM road which is parallel to Fall Creek would reduce if not eliminate sediment input to coho, steelhead, and cutthroat habitat.   | 0.9 | miles | \$597,584       |
| CB         | MF Coquille | Road Surfacing   | Road Sediment Reduction | Bridge Approach paving -Sandy & Jones Creek Roads | Road-related sediment has negatively impacted the MF Coquille. There are approximately 7.3 miles of corridor and 9 stream crossings in the MF Coquille. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Surfacing the bridge approach would reduce if not eliminate sediment input to coho, steelhead, and cutthroat habitat from this location..  | 2   | ea    | \$50,800        |

| Admin Unit | Water-shed  | ProjType       | MitGroup                | Project Name   | Project Rationale   | Qty | Unit  | Estimated Cost* |
|------------|-------------|----------------|-------------------------|--|---|-----|-------|-----------------|
| CB         | NF Coquille | LWD instream   | Aquatic Habitat         | Woodward and Steinnon Creek In-stream Large Wood Placement | Lack of large wood and recruitment of LWD into streams is a consistent factor limiting aquatic habitat quality in all watersheds crossed by the Pacific Connector pipeline. Implementation of the PCGP project would result in the removal of large woody debris from the Riparian Reserves associated with intermittent and perennial streams. The removal of vegetation within and adjacent to the channel will preclude future recruitment of large woody debris into the channel and associated Riparian Reserves. Placing large woody debris at key locations within the channel and associated Riparian Reserves would offset both the short-term and long-term impacts from loss of LWD recruitment to Riparian Reserves and associated aquatic and riparian habitat.  | 1.5 | miles | \$209,500       |
| CB         | NF Coquille | LWD instream   | Aquatic Habitat         | Upper North Fork Coquille In- stream Large Wood Placement  | Lack of large wood and recruitment of LWD into streams is a consistent factor limiting aquatic habitat quality in all watersheds crossed by the Pacific Connector pipeline. Implementation of the PCGP project would result in the removal of large woody debris from the Riparian Reserves associated with intermittent and perennial streams. The removal of vegetation within and adjacent to the channel will preclude future recruitment of large woody debris into the channel and associated Riparian Reserves. Placing large woody debris at key locations within the channel and associated Riparian Reserves would offset both the short-term and long-term impacts from loss of LWD recruitment to Riparian Reserves and associated aquatic and riparian habitats. | 2.2 | miles | \$275,000       |
| CB         | NF Coquille | Road Surfacing | Road Sediment Reduction | Bridge Approach paving - Woodward & Alder Creek Roads      | Road-related sediment has negatively impacted the NF Coquille. While BMPs will be implemented, construction of the PCPG will likely cause sediment to enter stream channels and may affect aquatic habitat. Surfacing the bridge approach would reduce if not eliminate sediment input to coho, steelhead, and cutthroat habitat.   | 2   | ea    | \$64,848        |
| KF         | Spencer Cr. | Road Closure   | Road Sediment Reduction | Spencer Cr. Repair Existing Road Closure                   | Roads negatively impact wildlife. Implementation of the PCGP project would have road-like impacts on wildlife and require use of a large number of permanent and temporary roads and other access routes. Road closures (barricades) were established in the watershed to reduce road density to meet Resource Management Plan objectives for both the aquatic conservation strategy and reduce impacts to wildlife. This project repairs the existing closure structures to ensure that road closures remain effective. Spencer Cr. is a Tier One, Key Watershed. Maintaining road closures also reduces sediment by keeping closed roads revegetated.   | 12  | sites | \$10,012        |

| Admin Unit | Water-shed    | ProjType            | MitGroup                 | Project Name  | Project Rationale  | Qty | Unit  | Estimated Cost* |
|------------|---------------|---------------------|--------------------------|---|--|-----|-------|-----------------|
| KF         | Spencer Cr.   | Road Drainage       | Road Sediment Reduction  | Spencer Cr. Drainage Improvements and Sediment Trap Removal | Spencer Cr. is a Tier One, Key Watershed. Although BMP's and other project measures would be implemented, the PCGP would have road- like watershed impacts if constructed, including mobilization of sediment and possible alteration of hydrologic regimes. The project also uses a number of roads for access and construction. Drainage improvements and removing non-functioning cross drains and sediment traps at selected locations would benefit aquatic habitat/connectivity by restoring drainage and reducing sediment transport.   | 15  | sites | \$15,000        |
| KF         | Spencer Cr.   | Road Drainage       | Road Sediment Reduction  | Keno Access Road Repair and Culvert Replacement             | Spencer Cr. is a Tier One, Key Watershed. Although BMP's and other project measures would be implemented, the PCGP would have road- like watershed impacts if constructed, including mobilization of sediment and possible alteration of hydrologic regimes. The existing stream crossing (culvert) is undersized in both length and diameter, therefore it ability to meet ACS objectives is minimized. The culvert underlying the existing road bed periodically causes erosion of the road prism and adjacent upland and riparian areas. Replacement of the culvert will allow stabilization of the road shoulder and reduce sediment input to Miner's creek and it's contribution of sediment to Spencer creek. If this work is not completed, the condition will eventually lead to increased sedimentation. Replacement of this drainage structure will decrease road-related erosion, increase the hydrologic capacity of the crossing and enhance aquatic connectivity for fish and other aquatic organisms. | 1   | site  | \$225,000       |
| MD         | Big Butte Cr. | Habitat Improvement | Terrestrial Habitat Imp. | Big Butte Cr. Fritillaria Habitat                           | The PCGP may impact habitat of Fritillaria gentneri. Outplanting to suitable habitat locations is recommended in the recovery plan.  | 600 | acres | \$80,000        |
| MD         | Big Butte Cr. | Road Surfacing      | Road Sediment Reduction  | Big Butte Cr. Road stormproofing                            | Sediment was identified by the Upper Rogue Watershed Council as a factor that limited aquatic habitat in Big Butte Creek. The effects of the PCGP are similar to a road, including possible impacts to flow and sediment regimes. Improvement of existing roads restores hydrologic connectivity and reduces sediment by managing drainage and restoring surfacing where needed.   | 6.4 | miles | \$254,005       |



| Admin Unit | Water-shed       | ProjType             | MitGroup                | Project Name   | Project Rationale  | Qty | Unit  | Estimated Cost* |
|------------|------------------|----------------------|-------------------------|--|--|-----|-------|-----------------|
| MD         | Little Butte Cr. | Fish Passage         | Fish Passage            | Little Butte Creek Fish Screen                       | Irrigation diversions have negatively impacted fisheries in Little Butte Cr. by causing entrapment. There is a private irrigation ditch with an unscreened diversion and associated push up dam on BLM land in the lower 1.5 miles of Lost Creek. The unscreened ditch is currently accessible to juvenile and adult fish, creating a stranding hazard with limited return access to the main channel. The push up dam is constructed at the beginning of the irrigation season and removed at the end of the season. This stream is considered coho critical habitat and building a push up dam in the creek each season disturbs gravels, generates sediment and creates an unnecessary disturbance during steelhead spawning season. Creating a permanent diversion structure, possibly in the form of a boulder weir, would divert water without yearly maintenance and would provide for both upstream and downstream fish passage. | 1   | site  | \$162,113       |
| MD         | Little Butte Cr. | LWD instream         | Aquatic Habitat         | Little Butte Cr. LWD                                 | Little Butte Cr. is a Tier One, Key Watershed. Lost Cr. provides habitat for Coho Salmon. Lack of large wood and recruitment of LWD into streams is a consistent factor limiting aquatic habitat quality in all watersheds crossed by the Pacific Connector pipeline. Implementation of the PCGP project would result in the removal of large woody debris from the Riparian Reserves associated with intermittent and perennial streams. The removal of vegetation within and adjacent to the channel will preclude future recruitment of large woody debris into the channel and associated Riparian Reserves. Placing large woody debris at key locations within the channel and associated Riparian Reserves would offset both the short-term and long-term impacts from loss of LWD recruitment to Riparian Reserves and associated aquatic and riparian habitat and contributes to the accomplishment of ACS objectives.           | 8.6 | miles | \$626,108       |
| MD         | Little Butte Cr. | Road Decommissioning | Road Sediment Reduction | Little Butte Cr. Road Decommissioning Butte Falls RA | Little Butte Cr. is a Tier One, Key Watershed. Sediment has been identified by the LBC Watershed Council as a limiting factor for aquatic habitat in Little Butte Creek. There are approximately 6 miles of the PCGP corridor and 7 stream crossings on BLM lands in LBC. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Road decommissioning reduces habitat fragmentation, reduces road-related sediment and improves hydrologic connectivity by reducing road density.  | 2.4 | miles | \$69,501        |

| Admin Unit | Water-shed       | ProjType                              | MitGroup                 | Project Name  | Project Rationale  | Qty  | Unit  | Estimated Cost* |
|------------|------------------|---------------------------------------|--------------------------|---|--|------|-------|-----------------|
| MD         | Little Butte Cr. | Road Drainage and Surface Enhancement | Road Sediment Reduction  | Little Butte Cr. Road Improvement                             | Little Butte Creek is a Tier 1 Key Watershed. Sediment has been identified by the LBC Watershed Council as a limiting factor for aquatic habitat in Little Butte Creek. The PCGP has approximately 6 miles of corridor and 7 stream crossings on BLM lands in the LBC 5th field watershed. The effects of the PCGP are similar to a road, including possible impacts to flow and sediment regimes. Improvement of existing roads restores hydrologic connectivity and reduces sediment by managing drainage and restoring surfacing where needed.  | 3.5  | miles | \$288,667       |
| MD         | Little Butte Cr. | Road Surfacing                        | Road Sediment Reduction  | Little Butte Cr. Road Resurfacing (Butte Falls Resource Area) | Little Butte Cr. is a Tier One, Key Watershed. The PCGP has approximately 6 miles of corridor and 7 stream crossings on BLM lands in the LBC 5th field watershed. The effects of the PCGP are similar to a road, including the potential for sediment mobilization and transport. Road improvement efforts (resurfacing) help restore hydrologic and reduce road-related sediment that could be delivered to stream channels.  | 9.35 | miles | \$568,503       |
| MD         | Little Butte Cr. | Road Surfacing                        | Road Sediment Reduction  | Little Butte Cr. Road Resurface (Ashland Resource Area)       | Little Butte Cr. is a Tier One, Key Watershed. The PCGP has approximately 6 miles of corridor and 7 stream crossings on BLM lands in the LBC 5th field watershed. The effects of the PCGP are similar to a road, including the potential for sediment mobilization and transport. Road improvement efforts (resurfacing) help restore hydrologic and reduce road-related sediment that could be delivered to stream channels.  | 9    | miles | \$568,503       |
| MD         | Shady Cove RR    | Fuels Reduction                       | Stand Density Fuel Break | Shady Cove Fuel Hazard Reduction                              | High intensity fire has been identified as the single factor most impacting late successional and old growth forest habitats on federal lands in the area of the NWFP. Construction of the pipeline and associated activities removes both mature and developing stands and will increase fire suppression complexity, however the corridor also provides a fuel break. Fuels reduction adjacent to the corridor will increase the effectiveness of the corridor as a fuel break. Fuels reduction will lower the risk of loss of developing and existing mature stands and other valuable habitats to high-intensity fire. This segment is part of the Milo to Shady Cove fuel break and ties in with similar projects on the Umpqua NF. | 866  | acres | \$1,115,452     |
| MD         | Shady Cove RR    | Fuels Reduction                       | Stand Density Fuel Break | Shady Cove Fuel Hazard Maintenance                            | This provides a mechanism for maintenance of fuel breaks over time for the life of the project.  | 866  | acres | \$377,775       |

| Admin Unit | Water-shed    | ProjType                              | MitGroup                 | Project Name                       | Project Rationale  | Qty | Unit  | Estimated Cost* |
|------------|---------------|---------------------------------------|--------------------------|------------------------------------|--|-----|-------|-----------------|
| MD         | Shady Cove RR | LWD instream                          | Aquatic Habitat          | Shady Cove LWD                     | Lack of large wood and recruitment of LWD into streams is a consistent factor limiting aquatic habitat quality in all watersheds crossed by the Pacific Connector pipeline. Implementation of the PCGP project would result in the removal of large woody debris from the Riparian Reserves associated with intermittent and perennial streams. The removal of vegetation within and adjacent to the channel will preclude future recruitment of large woody debris into the channel and associated Riparian Reserves. Placing large woody debris at key locations within the channel and associated Riparian Reserves would offset both the short-term and long-term impacts from loss of LWD recruitment to Riparian Reserves and associated aquatic and riparian habitat and contributes to the accomplishment of ACS objectives. | 2.5 | miles | \$170,218       |
| MD         | Shady Cove RR | Road Drainage and Surface Enhancement | Road Sediment Reduction  | Shady Cove Road Improvement        | Sediment has been identified by the Upper Rogue Watershed Council as a limiting factor for aquatic habitat in Upper Rogue. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Improvement of existing roads restores hydrologic connectivity and reduces sediment by managing drainage and restoring surfacing where needed.   | 1.3 | mile  | \$20,000        |
| MD         | Shady Cove RR | Road Surfacing                        | Road Sediment Reduction  | Shady Cove Road Resurface          | Sediment has been identified by the Upper Rogue Watershed Council as a limiting factor for aquatic habitat in the Upper Rogue. The effects of the PCGP are similar to a road, including the potential for sediment mobilization and transport. Road improvement efforts (resurfacing) help restore hydrologic and reduce road-related sediment that could be delivered to stream channels.   | 1.5 | miles | \$72,500        |
| MD         | Trail Cr.     | Fuels Reduction                       | Stand Density Fuel Break | Trail Creek Fuel Hazard Reduction  | High intensity fire has been identified as the single factor most impacting late successional and old growth forest habitats on federal lands in the area of the NWFP. Construction of the pipeline and associated activities removes both mature and developing stands and will increase fire suppression complexity, however the corridor also provides a fuel break. Fuels reduction adjacent to the corridor will increase the effectiveness of the corridor as a fuel break. Fuels reduction will lower the risk of loss of developing and existing mature stands and other valuable habitats to high-intensity fire. This segment is part of the Milo to Shady Cove fuel break and ties in with similar projects on the Umpqua NF.   | 687 | acres | \$890,852       |
| MD         | Trail Cr.     | Fuels Reduction                       | Stand Density Fuel Break | Trail Cr. Fuels Hazard Maintenance | This provides a mechanism for maintenance of fuel breaks over time for the life of the project.  | 687 | acres | \$299,690       |

| Admin Unit | Water-shed  | ProjType                                    | MitGroup                | Project Name  | Project Rationale  | Qty  | Unit  | Estimated Cost* |
|------------|-------------|---|-------------------------|---|--|------|-------|-----------------|
| MD         | Trail Cr.   | LWD instream                                | Aquatic Habitat         | Trail Creek LWD                                     | Lack of large wood and recruitment of LWD into streams is a consistent factor limiting aquatic habitat quality in all watersheds crossed by the Pacific Connector pipeline. Implementation of the PCGP project would result in the removal of large woody debris from the Riparian Reserves associated with intermittent and perennial streams. The removal of vegetation within and adjacent to the channel will preclude future recruitment of large woody debris into the channel and associated Riparian Reserves. Placing large woody debris at key locations within the channel and associated Riparian Reserves would offset both the short-term and long-term impacts from loss of LWD recruitment to Riparian Reserves and associated aquatic and riparian habitat and contributes to the accomplishment of ACS objectives. | 2.6  | miles | \$144,840       |
| MD         | Trail Cr.   | Road Decommissioning                        | Road Sediment Reduction | Trail Creek Road Decommissioning                    | Sediment has been identified by the Upper Rogue Watershed Council as a limiting factor for aquatic habitat in Trail Creek. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Road decommissioning reduces habitat fragmentation, reduces road-related sediment and improves hydrologic connectivity and by reducing road density.   | 2.7  | miles | \$79,134        |
| MD         | Trail Cr.   | Road Stormproofing                          | Road Sediment Reduction | Trail Creek Road Stormproofing                      | Sediment has been identified by the Upper Rogue Watershed Council as a limiting factor for aquatic habitat in Trail Creek. The effects of the PCGP are similar to a road, including possible impacts to flow and sediment regimes. Stormproofing improvement of existing roads restores hydrologic connectivity and reduces sediment by managing drainage and restoring surfacing where needed.  | 4.3  | miles | \$107,750       |
| MD         | Trail Cr.   | Road Surfacing                              | Road Sediment Reduction | Trail Creek Road Resurfacing                        | Sediment has been identified by the Upper Rogue Watershed Council as a limiting factor for aquatic habitat in Trail Creek. The effects of the PCGP are similar to a road, including the potential for sediment mobilization and transport. Road improvement efforts (resurfacing) help restore hydrologic and reduce road-related sediment that could be delivered to stream channels.   | 16.3 | miles | \$844,450       |
| RD         | MF Coquille | Road Surfacing and Cross Drain Replacements | Road Sediment Reduction | Dice, Boulder, and Twelvemile Creek Road Systems    | These road improvements are a potential replacement for Loveseat Creek fish passage project. No suitable fish passage projects for substitution are available. Road improvements include a combination of surfacing, ditch cleaning, installation of additional cross drains, and replacement of failing cross drains.   | 8    | miles | \$24,000        |
| RD         | MF Coquille | Fish Passage                                | Fish Passage            | Boulder Creek and Battle Creek culvert replacements | Replacing fish passage barriers and failing culverts with appropriately designed fish passage culverts would help offset both the short-term and long-term impacts from PCGP actions in nearby watersheds. Replacing these two culverts would open or maintain fish passage to roughly 1.7 miles of habitat.   | 2    | miles | \$172,134       |

| Admin Unit | Watershed   | ProjType                              | MitGroup                | Project Name   | Project Rationale   | Qty | Unit    | Estimated Cost* |
|------------|-------------|---------------------------------------|-------------------------|--|---|-----|---------|-----------------|
| RD         | MF Coquille | LWD instream                          | Aquatic Habitat         | Middle Fork Coquille LWD Placement                   | Lack of large wood and recruitment of LWD into streams is a consistent factor limiting aquatic habitat quality in all watersheds crossed by the Pacific Connector pipeline. There are approximately 7.3 miles of corridor and 9 stream crossings in the MF Coquille. Implementation of the PCGP project would result in the removal of large woody debris from the Riparian Reserves associated with intermittent and perennial streams. The removal of vegetation within and adjacent to the channel will preclude future recruitment of large woody debris into the channel and associated Riparian Reserves. Placing large woody debris at key locations within the channel and associated Riparian Reserves would offset both the short-term and long-term impacts from loss of LWD recruitment to Riparian Reserves and associated aquatic and riparian habitat. | 0.6 | miles   | \$64,845        |
| RD         | MF Coquille | Road Drainage and Surface Enhancement | Road Sediment Reduction | Camas Mountain Road Drainage and Surface Enhancement | Road-related sediment and stream network extension from ditchlines have negatively impacted the MF Coquille. There are approximately 7.3 miles of corridor and 9 stream crossings in the MF Coquille. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Roads do not meet current BMPs and are a source of chronic sediment delivery to fish bearing streams. The 9.1 and 9.2 roads currently shows signs of water rutting and stream network extension. Stormproofing and blocking the road will reduce the potential for sediment-laden water to be carried off the road surface and into the ditch where it could be transmitted to the stream network.   | 3.5 | miles   | \$337,194       |
| RD         | MS Umpqua   | Road Drainage                         | Road Sediment Reduction | East Fork Willis Creek Tributary Culvert Replacement | Sediment is one of the primary water quality problems in the MS Umpqua. Watershed analyses clearly indicate that the sediment turbidity habitat indicator is at risk or more likely not functioning properly. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Culvert is plugged, old, undersized, shot-gunned, and eroding road fill. Culvert has poor alignment with the stream at the outlet. Replacing the culvert with a properly sized one will reduce the risk of road fill failure.  | 1   | project | \$56,592        |
| RD         | MS Umpqua   | Fish Passage                          | Fish Passage            | McNabb Creek Box Culvert (fish passage) replacement  | Access to about 1.4 miles of McNabb Creek is completely blocked by a perched box culvert. This project would restore access to habitat in McNabb Creek for ESA listed coho salmon. This is a potential replacement of the Rice Creek culvert replacement project which has since been completed   | 1   | site    | \$250,000       |

| Admin Unit | Water-shed           | ProjType                              | MitGroup                                    | Project Name                                      | Project Rationale   | Qty | Unit    | Estimated Cost* |
|------------|----------------------|---------------------------------------|---|---|---|-----|---------|-----------------|
| RD         | MS Umpqua            | Road Drainage                         | Road Sediment Reduction                     | Judd Creek Culvert Removal                        | Sediment is one of the primary water quality problems in the MS Umpqua. Watershed analyses clearly indicate that the sediment turbidity habitat indicator is at risk or more likely not functioning properly. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes.<br>This culvert is undersized and has a large amount of road fill associated with it. Pulling the culvert and fill material and stormproofing the road would prevent a plugged culvert. A plugged culvert could cause the road fill to fail which could deliver sediment downstream to fish bearing reaches. The road is blocked by a landslide just beyond so access would not be lost. Access to the stream crossing is gradually being lost due to soil slumping and vegetation growth. | 1   | project | \$68,382        |
| RD         | Myrtle Creek         | Fish Passage                          | Fish Passage                                | Slide Creek Culvert Replacement                   | Man-made barriers to fish passage have negatively affected access to habitat in Myrtle Cr. Culvert is perched, undersized, and a fish barrier for anadromous and resident fish. Replacing a fish barrier culvert with one that will pass adult and juvenile salmonids at a range of flows will extend the availability of upstream habitat, mitigating for reductions in habitat quality on stream reaches crossed by the pipeline corridor. In addition, undersized culverts are at risk of failure due to small size and age. This could result in the culvert plugging which could cause road fill to enter into the stream network.   | 1   | project | \$142,659       |
| RD         | Myrtle Creek         | Road Stabilization                    | Road Sediment Reduction                     | South Myrtle Hill Slide Repair                    | Sediment in streams is a limiting factor in Myrtle Creek. There are approximately 3.4 miles of corridor in Myrtle Creek. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Stabilizing the failure will prevent future sediment delivery and catastrophic slope failure.   | 1   | project | \$271,170       |
| RD         | Myrtle Creek         | Road Drainage and Surface Enhancement | Road Sediment Reduction                     | Slide Creek Road Drainage and Surface Enhancement | Sediment in streams is a limiting factor in Myrtle Creek. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Roads do not meet current BMPs and are a source of chronic sediment delivery to fish bearing streams. Surfacing and drainage repair would reduce sediment delivery to fish bearing streams. Note: Location changed from Ben Branch to Slide Creek because Slide Creek is a higher priority due to changed conditions over the past several years.  | 1   | miles   | \$86,657        |
| RD         | Olalla-Looking-glass | Culvert Replacement                   | Aquatic Habitat and Road Sediment Reduction | Unnamed Tributary to Lower Olalla Creek           | Replace failing culvert at road crossing with 9-foot diameter pipe arch with stream simulation bottom. This a potential replacement for the Olalla Creek Large Wood and boulder Placement project.  | 1.0 | project | \$125,000       |

| Admin Unit | Water-shed         | ProjType            | MitGroup                 | Project Name  | Project Rationale   | Qty  | Unit    | Estimated Cost* |
|------------|--------------------|---------------------|--------------------------|---|---|------|---------|-----------------|
| RD         | Olalla-Lookinglass | Road Stabilization  | Road Sediment Reduction  | Olalla Tie Road Renovation                              | Sediment from roads is a primary concern in Olalla-Lookinglass Cr. Roads do not meet current BMPs and are a source of chronic sediment delivery to fish bearing streams. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Additionally, there are several landslides crossing the road which need to be stabilized. Stabilizing these conditions would reduce the delivery of road-related sediments to channels.   | 1    | project | \$294,750       |
| RD         | South Umpqua River | Fish Passage        | Fish Passage             | Beal Creek culvert replacement                          | Man-made barriers to fish passage have negatively affected access to habitat in the South Umpqua. Both culverts are undersized and obstruct anadromous and resident fish passage. Replacing the culverts with ones properly sized for the stream will allow for proper fish passage along with reducing the risk for culverts plugging and causing road fill failures.  | 2    | sites   | \$236,979       |
| RD         | South Umpqua River | Fuels Reduction     | Stand Density Fuel Break | Hazardous Fuel Reduction                                | High intensity fire has been identified as the single factor most impacting late successional and old growth forest habitats on federal lands in the area of the NWFP. Construction of the pipeline and associated activities removes both mature and developing stands and will increase fire suppression complexity, however the corridor also provides a fuel break. Fuels reduction adjacent to the corridor will increase the effectiveness of the corridor as a fuel break. Fuels reduction will lower the risk of loss of developing and existing mature stands and other valuable habitats to high-intensity fire. This segment is part of the Days Creek to Shady Cove fuel break and ties in with similar projects on the Umpqua NF.  | 1000 | acres   | \$1,196,685     |
| RD         | South Umpqua River | LWD instream        | Aquatic Habitat          | West Fork Canyon Creek Large Wood and Boulder Placement | The South Umpqua River is a Tier 1 Key Watershed. Lack of large wood and recruitment of LWD into streams is a consistent factor limiting aquatic habitat quality in all watersheds crossed by the Pacific Connector pipeline. There are approximately 6.23 miles of corridor and 3 stream crossings in the South Umpqua. Implementation of the PCGP project would result in the removal of large woody debris from the Riparian Reserves associated with intermittent and perennial streams. The removal of vegetation within and adjacent to the channel will preclude future recruitment of large woody debris into the channel and associated Riparian Reserves. Placing large woody debris at key locations within the channel and associated Riparian Reserves would offset both the short-term and long-term impacts from loss of LWD recruitment to Riparian Reserves and associated aquatic and riparian habitat and contributes to the accomplishment of ACS objectives. | 0.8  | miles   | \$85,831        |
| RD         | South Umpqua River | Culvert Replacement | Road Sediment Reduction  | Corn Creek  | Replace perched, deteriorated, and undersized culvert Creek (T30S R3W Section 24) with a 10-foot diameter pipe arch. This is a potential replacement for the Days Creek Large Wood and Boulder Placement project at a higher cost.  | 1    | project | \$160,000       |

| Admin Unit | Water-shed         | ProjType                              | MitGroup                | Project Name                                       | Project Rationale  | Qty | Unit    | Estimated Cost* |
|------------|--------------------|---------------------------------------|-------------------------|--|--|-----|---------|-----------------|
| RD         | South Umpqua River | Road Drainage and Surface Enhancement | Road Sediment Reduction | South Umpqua Road Drainage and Surface Enhancement | The South Umpqua River is a Tier 1 Key Watershed. There are approximately 6.23 miles of corridor and 3 stream crossings in the South Umpqua. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. Sediment is likely the most limiting factor to aquatic function in the S. Umpqua Basin. Roads do not meet current BMPs and are a source of chronic sediment delivery to fish bearing streams. Surfacing and drainage repair would reduce sediment delivery to fish bearing streams.  | 10  | miles   | \$781,677       |
| RD         | South Umpqua River | Road Storm-proofing                   | Road Sediment Reduction | 31-4-3.2 Road Storm-proofing                       | The South Umpqua River is a Tier 1 Key Watershed. Sediment is likely the most limiting factor to aquatic function in the South Umpqua Basin. The effects of the PCGP are similar to a road, including habitat fragmentation and potential impacts to flow and sediment regimes. If culverts fail, substantial sediment could be transported to Shively Creek. Removing culverts will prevent crossing failures that deposit fine road sediments in stream channels. Project should occur before road becomes too overgrown for heavy equipment access.   | 1   | project | \$8,843         |
| RD         | Myrtle Creek       | Habitat Improvement                   | Special Status Plant    | Habitat Improvement for Cox Mariposa Lily          | The PCGP will impact a large population of Cox mariposa lily. The PCGP will disturb approximately 11 acres of occupied habitat for the species and these acres are unlikely to be restored. Methods proposed to minimize impacts (bulb salvage and reseeded) are unproven. Three years of monitoring is inadequate to determine the success of reseeded. At a minimum, bulb salvage/replanting and reseeded efforts need to be monitored for 10 years post construction. To mitigate for impacts to this population, the PCGP should manage approximately 50 acres of adjacent occupied habitat for Cox mariposa lily to enhance its long-term survival. Actions include thinning trees, removing competing vegetation including noxious weeds, and seeding/planting Cox mariposa lily into unoccupied suitable habitat. | 50  | acres   | \$86,000        |
| RD         | Myrtle Creek       | Fire Suppression                      | Fire Suppression        | Bilger Creek Pump Chance                           | Construction of the pipeline and associated activities will increase fire suppression complexity. Pump chances increase capacity for agency response and help reduce potential fire losses to valuable habitats by providing readily available water sources.  | 1   | sites   | \$11,000        |



| Admin Unit | Water-shed  | ProjType         | MitGroup         | Project Name | Project Rationale  | Qty          | Unit  | Estimated Cost*      |
|------------|---|------------------|------------------|--------------|--|--------------|-------|----------------------|
| RD         | South Umpqua River, Myrtle Creek, and Middle South Umpqua River | Fire Suppression | Fire Suppression | Dry Hydrants | By installing dry hydrants, the water source is disturbed the one time but there are several advantages. Fire vehicles will not need to be really close to the water to fill, decreasing risk of contamination, and they can fill out of some water sources that would otherwise need to be modified for use. Areas that have had restoration work for fish populations could still be safely accessed for fire suppression. Over all, better water sources will improve suppression success and therefore help protect natural resources. | 6            | sites | \$19,571             |
|            |   |                  |                  |              |  | <b>Total</b> |       | <b>\$ 16,024,500</b> |