
APPENDIX N

Cumulative Effects

TABLE N-1

Past, Present, or Reasonably Foreseeable Actions that May Cumulatively Affect Resources a/

Project	County	Description	Area Within Geographic Scope (acres, unless otherwise noted)	Status	Approximate Location Relative to Nearest Project Facilities	Resources Potentially Affected
Coos Bay-Frontal Pacific Ocean Watershed						
COE — Permits and Mitigation (Coos Fourth-Field Watershed)	Various	Wetland impacts Wetland mitigation Stream impacts Stream restoration or enhancement	7.4 44.0 5.1 miles 0.6 mile	2009-2019	Not Provided	Water Resources and Wetlands, Wildlife and Aquatic Resources
Non-jurisdictional facility - LNG carriers	Coos	About 110 to 120 LNG carriers per year calling on the proposed LNG terminal. Neither the exact destinations for the LNG cargo nor the specific routes across the Pacific Ocean to customers that would be taken by LNG carriers are known, outside of the waterway within 12 miles of the Oregon Coast.	Not Applicable	2019 construction start date	Adjacent to LNG terminal	Water Resources and Wetlands (e.g., ballast water thermal discharge), Wildlife and Aquatic, Soil (shoreline erosion, sedimentation), Visual and Recreation, Socioeconomics, Air Quality and Noise (limited to operation), Transportation
Non-jurisdictional facility – Utilities	Coos	Various communication and utility connections, abandonments, and relocations, to support construction and operation of the LNG terminal, Southwest Oregon Regional Safety Center, and Fire Department.	Unknown	Concurrent with Project construction	Adjacent to LNG terminal and meter station	Water Resources and Wetlands, Wildlife and Aquatic, Soil (sedimentation), Vegetation, Land Use, Air Quality and Noise (construction)
Jordan Cove – Maintenance Dredging	Coos	Maintenance dredging of approximately 115,000 cy every 3 years for the first 9 to 12 years, and 115,000 to 160,000 cy every 5 years thereafter. Disposal of dredge material at upland APCO site.	75	Every three to five years	Adjacent to LNG terminal and at APCO site	Water Resources and Wetlands, Wildlife and Aquatic, Soil (sedimentation), Visual Resources and Recreation
Port of Coos Bay — Coos Bay Railroad Bridge Rehabilitation	Coos	Structural steel repair and replacement, application of a protective coating, and other work as needed.	1	2005-2019	Pipeline crosses bridge near MP 0.4	Water Resources and Wetlands, Wildlife and Aquatic Resources, Transportation
Port of Coos Bay – Maintenance Dredging	Coos	Limited maintenance dredging in and around the Charleston Marina and private deep draft terminals to remove high spots within the marina and shipyard to keep the appropriate water depth throughout the area. Includes dredging and disposal activities at several public and private locations in Coos Bay.	44.7	Ongoing	Charleston Marina is about 0.7 mile southwest of dredging area	Water Resources and Wetlands, Wildlife and Aquatic, Soil (sedimentation), and Visual Resources and Recreation
Port of Coos Bay – Coos Bay Rail Line Tunnel Rehabilitation	Coos	Rehabilitation of 9 tunnels between Coos Bay and Eugene, including drainage system improvements, track work inside the tunnels, structural repairs and improvements, and clearance improvements.	9	2019	Unknown	Water Resources and Wetlands, Transportation
COE — Coos Bay Jetties Rehabilitation Project	Coos	Design and repair work to extend the functional life of the north and south jetties and maintaining deep-draft navigation through the Coos Bay navigation channel entrance.	120	2015 to 2025	1.3 mile west of dredging area	Water Resources and Wetlands, Wildlife and Aquatic, Soil (sedimentation), Transportation, Socioeconomics, Visual Resources and Recreation
Confederated Tribes of Coos - Lower Umpqua & Siuslaw Indians (CTCLUSI) — Coos Head Area Master Plan, Hollering Place	Coos	Tribal housing; Conference and Retreat Center; Interpretive Museum; trails; roads; and utilities.	150	Unknown	0.5 mile south of dredging area and about 2 miles southwest of LNG terminal	Water Resources, Wildlife and Aquatic, Soil (sedimentation), Vegetation, Land Use, and Visual Resources and Recreation
City of North Bend – Department of Human Services Building Relocation	Coos	Relocate existing building from 2025 Sheridan to a property off of Airport Lane.	<1	Complete	0.9 mile southwest from APCO Site 2	Land Use, Soils, Vegetation, Wildlife and Aquatic Resources, Visual and Recreation
Port of Coos Bay – Coos Bay, Oregon Section 408/204(f) Channel Modification <u>b/</u>	Coos	Expand the existing Coos Bay Federal Navigation Channel from -37-foot depth and 300-foot width to -45-foot depth and 450-foot width from the channel entrance to river mile 8.2. Creation of a vessel-turning basin extending from river mile 7.3 to river mile 7.8. Ocean disposal or beneficial use of about 15.5 million cubic yards of dredged material. Installation of a protective rock apron at North Jetty.	148 8.2 miles of channel bottom	2021 to 2024	From the entrance to the Navigation Channel to river mile 8.2	Water Resources and Wetlands, Wildlife and Aquatic, Soil (sedimentation and shoreline erosion), Visual and Recreation, Transportation, Air Quality and Noise (construction)
COE — Coos Bay Federal Navigation Channel Maintenance Dredging	Coos	Annual dredging in four areas: (1) Entrance Channel (500,000 to 1 million cy from river mile [RM] -1 to 1); (2) Navigation Channel (150,000 to 300,000 cy from RM 1 to 12); (3) Navigation Channel (1 million cy every 5-7 years from RM 12 to 15); and (4) Charleston Access Channel (50,000 cy from the Charleston Channel). Dredged material placed within in-water material placement locations, including both ocean and in-bay sites.	100	Ongoing, annually between April and November	Abutting the Jordan Cove LNG Project footprint for dredging areas	Water Resources and Wetlands, Wildlife and Aquatic, Soil (sedimentation), Visual Resources and Recreation, Transportation, Air Quality and Noise (construction)
Coos County Airport District — Southwest Oregon Regional Airport Expansion and guidance system and navigation upgrades	Coos	Extension of Runway 4-22 by an additional 400 feet. May include <0.5 acre of fill within Coos Bay estuary. Install new runway guidance system and navigational aids and guidance signs, rehabilitate existing runway lighting.	1	2014-2021	0.1 mile northeast of eel grass mitigation site, 0.7 mile southeast of LNG terminal	Water Resources and Wetlands, Wildlife and Aquatic Resources, Soil (shoreline erosion, sedimentation), Air Quality and Noise (construction)
ODOT — McCullough Bridge Painting	Coos	Remove rust, replace rivets, repair damaged steel, and paint the steel truss. Lane closures may occur occasionally but only at night (7 p.m. to 7 a.m.) from Sunday night to Friday mornings. Over-height loads may require flagged escort across bridge and cause associated impacts on other traffic, during active painting.	< 1	2019 – October 2021	About 2.5 miles east from LNG terminal site; 0.3 mile east of APCO site.	Transportation, Air Quality and Noise (construction)
Tioga Sports Park	Coos	Public shooting range	2	2018	About 15 miles west of MP 25	Water Resources and Wetlands
Coos Bay Village commercial development	Coos	Mixed-use commercial development consisting of 82,000 square feet of commercial space, and removal of dock components from the waterway.	7.4	Unknown	Unknown	Water Resources and Wetlands, Wildlife and Aquatic, Noise (construction), Transportation, Socioeconomics
Forest Service — Oregon Dunes Restoration Project	Coos	Oregon Dunes National Recreation Area/Baker Beach. Promote development of sustainable vegetation; treat invasive species; restore hydrologic function; maintain and improve listed and at-risk species; and restore recreational opportunities.	Impact area pending completion of analysis	Under analysis	Adjacent (Horsfall Day Use Area) and north	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources, Recreation

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Project	County	Description	Area Within Geographic Scope (acres, unless otherwise noted)	Status	Approximate Location Relative to Nearest Project Facilities	Resources Potentially Affected
BLM — Catching Creek Conversion Timber Sale	Coos	Commercial thinning and alder conversion within Late-Successional Reserve (LSR) and Riparian Reserve (RR) new road construction, road improvement, road renovation, and road decommissioning	50 1 mile	2017	3.0 miles west of MP 23	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Soils, Visual and Recreation, Transportation
BLM — Other Commercial Thinning Timber Sales	Coos	Commercial Thinning and Density Management Thinning	19	Complete	Unknown	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Visual Resources and Recreation, Soils
Total for Coos Bay-Frontal Pacific Ocean Watershed			709 acres			
South Fork Coos River						
BLM — Tioga Creek Instream Restoration Phase 1	Coos	Place approximately 143 logs into Tioga Creek to improve fish habitat.	1.5	2018	Unknown	Water Resources and Wetlands, Wildlife and Aquatic Resources
BLM — Helipond and Pump Chance Maintenance EA	Coos	Maintenance and improvement activities at 9 helipond and pump chance sites on the Coos Bay District.	9 (approx.)	Ongoing	Unknown	Vegetation
Total for South Fork Coos River Watershed			11 acres			
Coquille River Watershed (Fourth Field)						
COE Permits and Mitigation	Coos	Wetland impacts Wetland Mitigation Stream impacts Stream restoration or enhancement	1.8 6.8 23.2 miles <1 mile	2009-2019	Unknown	Water Resources and Wetlands, Wildlife and Aquatic Resources
Total COE Projects for Coquille River Watershed (fourth field)			8.6 acres			
Coquille River Watershed						
BLM — Calloway Creek Timber Sale	Coos	Stand density management in RR Hardwood conversion and in RR Temporary road construction Road improvement Road renovation	405 2.2 miles 1.1 mile 1.7 mile	2018	Unknown	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation, Transportation
BLM — Whistle Stop Conversion Timber Sale	Coos	Commercial thinning and alder conversion within General Forest Management Area (GFMA) and RR New road construction Road renovation Road decommissioning	130 0.4 mile 2.4 miles 0.2 mile	Ongoing	2.1 miles west of MP 22.7	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation, Transportation
BLM — Wilson Creek 4 Timber Sale	Coos	Stand density management and hardwood conversion Temporary road construction Road renovation	195 1.0 mile 4.9 miles	Completed	1.7 mile west of MP 23.2	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Soils, Visual and Recreation, Transportation
BLM — West Cunningham Timber Sale	Coos	Commercial thinning and alder conversion within LSR and RR. New road construction Road improvements Road renovation	275 1.0 mile 1.8 mile 1.2 mile	Ongoing	2.8 miles west of MP 24.4	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation, Transportation
BLM — Other CT Timber Sales	Coos	Commercial thinning, and density management thinning	22	Completed	Unknown	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Visual and Recreation, Soils
Total for Coquille River Watershed			1,029 acres			
North Fork Coquille River Watershed						
BLM — Manual Maintenance	Coos	Brush and hardwood control of young stands (<11 years old)	36	Unknown	Unknown	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Visual and Recreation, Soils
BLM — Whiskey Train Timber Sale	Coos	Commercial thinning and density management thinning New road construction Road decommissioning	181 0.4 mile 1.5 mile	Completed	Pipeline crosses timber sale area near MP 20.0	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Soils, Visual and Recreation, Transportation, Air Quality and Noise (construction)
BLM — Steele 23 CT Timber Sale	Coos	Commercial thinning and density management thinning Road construction Road decommissioning	257 1.1 mile 0.7 mile	Completed	Pipeline crosses timber sale area near MP 22.0	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Soils, Visual and Recreation, Transportation, Air Quality and Noise (construction)
BLM — Cloud 19 CT Timber Sale	Coos	Commercial thinning within the GRMA and density management thinning RR. New road construction Road decommissioning	166 0.7 mile 0.6 mile	Completed	Pipeline crosses timber sale area near MP 24.0	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Soils, Visual and Recreation, Transportation, Air Quality and Noise (construction)

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Project	County	Description	Area Within Geographic Scope (acres, unless otherwise noted)	Status	Approximate Location Relative to Nearest Project Facilities	Resources Potentially Affected
BLM — Hungry Mountain Timber Sale	Coos	Sand density management hardwood conversion Temporary road construction Road renovation	81 0.5 mile 1.9 mile	2021	Unknown	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Soils, Visual and Recreation, Transportation
BLM — Woodward 11 Timber Sale	Coos	Commercial thinning and alder conversion within the LSR and RR New road construction Road improvement Road renovation	170 0.4 mile 0.9 mile 3.0 miles	Ongoing	0.2 mile north of MP 24.0	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation, Transportation, Air Quality and Noise (construction)
BLM - Rock Prairie Timber Sale	Coos	Hardwood conversion	53	Dropped	Unknown	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Soils, Visual and Recreation, Transportation
BLM — Hidden Gem Timber Sale	Coos	Commercial thinning, hardwood conversion, and right-of-way clearing New road construction Road renovation Road decommissioning	114 1.8 mile 5.0 miles 2.7 miles	Ongoing	1.5 mile west of MP 26.8	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation, Transportation
BLM — Zumwalt Commercial thinning	Coos	Commercial thinning, hardwood conversion with thinning, and right-of-way clearing in the Matrix and RR New road construction Road renovations Road decommissioning	218 1.2 miles 3.8 miles 1.2 miles	Completed	3.3 miles southwest of MP 28.1	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation, Transportation
BLM — Johns Creek Commercial thinning	Coos	Commercial thinning and right-of-way clearing in the Matrix and RR New road construction Road renovations Road decommissioning	147 0.5 mile 6.0 miles 1.4 miles	Ongoing	6.3 miles southwest of MP 33.8	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation, Transportation
BLM — Llewellyn Commercial thinning	Coos	Stand density management in RR and hardwood conversion RR 1.0 mile of new road construction 3.1 miles of renovation	152 1.0 mile 3.1 miles	Ongoing	Unknown	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation, Transportation
BLM — Other commercial thinning and sales	Coos	Stand density management New road construction Road renovation	110 0.6 mile 4.6 miles	Planning within 5 years	Unknown	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Soils, Visual and Recreation, Transportation
BLM — Helipond and Pump Chance Maintenance EA	Coos	Maintenance and improvement activities at 6 helipond and pump chance sites on the Coos Bay District.	6 (approx.)	Ongoing	Unknown	Vegetation
ODFW — Winter Lake Access Road Project	Coos	Construction of an access road for the purpose of public recreation.	1	Unknown	Unknown	Visual and Recreation, Transportation
BLM — Steel Cherry Timber Sale	Coos	Stand density management Hardwood conversion	159 28	Completed	2 miles northeast of MP 29.7	Vegetation, Wildlife and Aquatic Resources
BLM — Yankee Panky Timber Sale	Coos	Stand density management Hardwood conversion Temporary road construction, improvement, and renovation	260 64 22	Ongoing	1.5 mile southwest of MP 29.4	Vegetation, Wildlife and Aquatic Resources
BLM — ERFO Road repairs	Coos	Repair 2014 storm damage on 2 sites	2	Completed	Unknown	Water Resources and Wetlands, Wildlife and Aquatic Resources, Transportation, Visual Resources and Recreation, Soils
BLM — Weed Treatment	Coos	Herbicide treatment of roadside noxious weeds on BLM and private lands.	112	Unknown	Unknown	Vegetation
BLM — Weekly Commercial Thinning	Coos	Stand density management New road construction and road renovation	86 12	Ongoing (sold 2014)	4.4 miles southwest of MP 30.8	Vegetation, Wildlife and Aquatic Resources
BLM — Steel Creek Instream Restoration and Riparian Invasive Species removal/planting	Coos	Remove invasive plant species and plant native conifers and hardwoods in the riparian area Place logs in creek to improve fish habitat	0.5 2.5 miles	Completed	Unknown	Wildlife and Aquatic Resources
BLM — Helipond and Pump Chance Maintenance EA	Coos	Maintenance and improvement activities at 10 helipond and pump chance sites on the Coos Bay District.	10 (approx.)	Began in 2018	Unknown	Vegetation
BLM — Scattered Skeeter Density Management Thinning	Coos	Thin mid-seral forest in LSR and RR Temporary new road construction Road improvement and renovation Road decommissioning	568 3 63 28	Completed	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — Broken Wagon Density Management Thinning	Coos	Thin mid-seral forest in LSR and RR Temporary new road construction Road improvements and road renovation Road decommissioning	178 3 18 8	Completed	Unknown	Vegetation, Wildlife and Aquatic Resources

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Project	County	Description	Area Within Geographic Scope (acres, unless otherwise noted)	Status	Approximate Location Relative to Nearest Project Facilities	Resources Potentially Affected
Methane Energy Corp (MEC), Coos County Methane Project	Coos	Install 30 to 60 well pads housing up to 300 production wells, and associated pipeline connections.	150 to 300	Feasibility evaluation ongoing	Unknown	Water Resources and Wetlands
BLM — Crosby Timber Sale	Coos	Stand density management Hardwood conversion Temporary road construction and renovation	226 25 8	Completed	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — East Cherry Timber Sale	Coos	Hardwood conversion	64	Completed	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — Wagon Road Pilot Timber Sale	Coos	Regeneration harvest, stand density management, and hardwood conversion in RR Temporary road construction, improvement, and renovation	110 13	Completed	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — Steel Trap Density Management Thinning	Coos	Stand density management Road renovation	24 2	Completed	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — Weed Treatment	Coos	Herbicide treatment of roadside noxious weeds on BLM and private lands	171	Unknown	Unknown	Vegetation
BLM — Brownstone Commercial thinning	Coos	Stand density management New road construction and renovation	231 26	Completed	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — My Frona Commercial thinning	Coos	Stand density management New road construction and road renovation	150 14	Completed	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — Steel Cherry Commercial Thinning	Coos	Stand density management Hardwood conversion New road construction and road renovation	97 26 15	Completed	Unknown	Vegetation, Wildlife and Aquatic Resources
Total for North Fork Coquille River Watershed			4,802 acres			
Middle Fork Coquille Watershed						
BLM —Weaver Tie Timber Sale	Coos/ Douglas	Stand density management Hardwood conversion Temporary road construction and renovation	27 43 1	Completed	0.4 mile north of MP 37.9	Vegetation, Wildlife and Aquatic Resources
BLM – Manual Maintenance	Coos/ Douglas	Brush and hardwood control within stands <11 years old	65	Unknown	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM – Weed Treatment	Coos/ Douglas	Herbicide treatment of roadside noxious weeds on BLM and private lands	171	Unknown	Unknown	Vegetation
BLM – Helipond and Pump Chance Maintenance EA	Coos/ Douglas	Maintenance and improvement activities at 9 helipond and pump chance sites on the Coos Bay District.	9 (approx.)	Ongoing	Timber	Timber
BLM – Camas Valley Timber Sales	Coos/ Douglas	Thinning, and associated road construction Regeneration harvest, and associated road construction	308 473	Ongoing	Unknown	Vegetation, Wildlife and Aquatic Resources
Total for Middle Fork Coquille Watershed			1,097 acres			
South Umpqua Watershed (Fourth Field)						
COE Permits and Mitigation	Douglas	Wetland impacts Wetland mitigation Stream impacts, and stream restoration or enhancement	10.6 20.6 58.2 miles	2009-2019	Unknown	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources
Total COE Projects for South Umpqua Watershed (Fourth Field)			31.2 acres			
Olalla Creek-Lookingglass Watershed						
BLM — Suicide Bar and other Commercial Thinning	Douglas	Thinning; temporary road construction; road renovation, road improvement and maintenance.	188	Completed 2015	1 mile north of MP 52.0	Vegetation, Wildlife and Aquatic Resources
Total for Olalla Creek-Lookingglass Watershed			188			
Clark Branch-South Umpqua River Watershed						
BLM — Shively-Clark Timber Sale EA	Douglas	Thinning, and associated road construction Regeneration harvest, and associated road construction	330 111	Proposed for 2019	Unknown	Vegetation, Wildlife and Aquatic Resources
Total for Clark Branch-South Umpqua River Watershed			441			
Myrtle Creek Watershed						
BLM — Myrtle Creek REA Timber Sales	Douglas	Thinning, and associated road construction Regeneration harvest, and associated road construction	773 304	Ongoing, since 2016	Unknown	Vegetation, Wildlife and Aquatic Resources
Two Industrial Buildings	Douglas	Two new industrial buildings at 1421 North Myrtle Road	<1	2017-2018	2.3 miles south of MP 74.4	Vegetation, Land Use, Socioeconomics, Transportation, and Soils
Total for Myrtle Creek Watershed			1,077			
Days Creek-South Umpqua River Watershed						
BLM — Upper Cow Late Successional Reserve Project	Douglas	Commercial thinning	125	Ongoing	Unknown	Vegetation
BLM — Days Creek EA Timber Sales	Douglas	Thinning, and associated road construction Regeneration Harvest, and associated road construction	1,437 485	Ongoing since 2017	Unknown	Vegetation, Wildlife and Aquatic Resources

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BLM — Shively-Clark EA Timber Sales	Douglas	Thinning, and associated road construction Regeneration Harvest, and associated road construction	1,000 250	Proposed for 2019	Unknown	Vegetation, Wildlife and Aquatic Resources
Total for Days Creek-South Umpqua River Watershed			3,297 acres			
Deer Creek South Umpqua River Watershed						
Grange Road Development	Douglas	New 46-lot phased subdivision; 24-lot Phase 1 is final, approval date for Phase 2 is August 2019.	10	2017-2019	0.6 mile southwest of Green District Pipe Yards	Vegetation, Socioeconomics, Transportation, Land Use, Soils
Roseburg Public Works Projects	Douglas	Various projects planned by the Public Works Department in Roseburg including transportation projects (South Stewart Parkway Project), storm drainage projects, traffic sign upgrades, and water projects.	20 (approx.)	Varies	Varies, City of Roseburg is located about 4.5 miles northeast of Green Pipe Yard	Land Use, Soils, Transportation, Socioeconomics
Total for Deer Creek South Umpqua River Watershed			30 acres			
Elk Creek Watershed						
Forest Service — Noxious Weed Treatment	Douglas	Hand pulling and cutting noxious weeds, approximately 50 acres per year.	50	Ongoing	Unknown	Vegetation, Water Resources and Wetlands, Wildlife and Aquatic Resources, Visual Resources and Recreation, Soils
Forest Service — Livestock Grazing	Douglas	Livestock grazing	9,963	Ongoing	Unknown	Vegetation, Soils
Forest Service—Tiller Aquatic Restoration Project	Douglas	Culvert replacements, instream habitat improvement, sump maintenance sites, and Drew Lake Habitat Improvement	5 (approx.)	Ongoing	Varies, nearest is about 0.3 mile northeast of MP 101.8	Water Resources and Wetlands, Visual Resources and Recreation, Wildlife and Aquatic Resources, Soils
Forest Service — Elk Creek Watershed Restoration Project	Douglas	Commercial thinning Non-commercial thinning Activity fuels treatment Shed fuel breaks Prescribed burning Temporary road construction/removal and 22 culvert replacements	3,629 551 4,305 513 3,176 18.5	2018-2023	Varies – Right-of-way adjacent to vegetation treatment area near MP 102.7	Vegetation, Wildlife and Aquatic Resources, Transportation, Visual Resources and Recreation, Soils, Air Quality and Noise (construction)
Total for Elk Creek Watershed			22,211 acres			
Upper Cow Creek Watershed						
Forest Service — Livestock Grazing	Douglas/ Jackson	Grazing	8,250	Ongoing	Unknown	Vegetation, Soils
Forest Service — Upper Cow Creek Hazardous Fuels Project	Douglas/ Jackson	Thinning of roadside fuels in the Upper Cow Creek Watershed including on both Forest Service and private land.	1,038	2017-2018	Varies, nearest is about 0.5 mile west of MP 103.0	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Visual Resources and Recreation, Soils
Forest Service —Tiller Aquatic Restoration Project	Douglas	Culvert replacements, sump maintenance, and private firewise treatments.	5 (approx.)	Expect to begin in 2019	Varies, nearest is about 0.1 mile east of MP 109.7	Water Resources and Wetlands, Visual and Recreation, Wildlife and Aquatic, Soils, Air Quality and Noise (construction)
BLM — Upper Cow Late Successional Reserve Project	Douglas	Commercial Thinning	376	Ongoing	Unknown	Vegetation
BLM — Young Stand Management	Douglas	Silviculture Activities (Mechanical Young Stand Thinning)	300-500	Estimated (2018-2028)	Unknown	Vegetation
BLM — Fuels Treatments	Douglas	Fuels Reduction Prescribed Burn/Handpile Burn	300-500	Estimated (2018-2028)	Unknown	Vegetation, Air Quality
Total for Upper Cow Creek Watershed			10,669 acres			
Upper Rogue Watershed (Fourth Field)						
COE Permits and Mitigation	Jackson	Wetland impacts Wetland Mitigation Stream impacts	0.1 4.3 18.5 miles	2009-2019	Unknown	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic Resources
Total COE Projects for Upper Rogue Watershed (Fourth Field) Watershed			4.4			
Trail Creek Watershed						
Forest Service- Livestock Grazing	Jackson	Grazing	4,230	Ongoing	Unknown	Vegetation, Soils
BLM — Proposed Trail Creek Forest Management	Jackson	Timber harvest, precommercial thinning, meadow restoration, small diameter thinning, and hazardous fuels reduction.	4,575	2015	Varies, nearest unit is about 0.8 mile north of MP 123.0	Water Resources and Wetlands, Vegetation, Wildlife and Aquatic, Visual Resources and Recreation, Soils

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BLM — Proposed Trail Creek Forest Management	Jackson	Restoration thinning;	336	2015	Unknown	Vegetation, Wildlife and Aquatic Resources
		Riparian thinning;	13			
		Hazardous fuels treatment;	414			
		Precommercial thinning;	263			
		8 pump chances restored, block 4 roads, replace 1 culvert;	<1			
		Road decommission;	0.5 mile			
stream restorations	0.5 mile					
BLM — Proposed Trail Creek Forest Management	Jackson	Restoration thinning,	714	2015	Unknown	Vegetation, Wildlife and Aquatic Resources
		Riparian thinning,	75			
		Hazardous fuels treatment,	1,075			
		Meadow restoration,	282			
		Small diameter thinning,	50			
		6 pump chances restored,	<1			
Roadside firewood cutting,	259					
Temporary road construction	0.8 mile					
BLM — Proposed Trail Creek Forest Management	Jackson	Restoration thinning,	20	2015	Unknown	Vegetation, Wildlife and Aquatic Resources
		Hazardous fuels treatment,	1,044			
		2 pump chances restored	<1			
BLM — Mouse Trail Timber Sale	Jackson	Stand thinning with slash disposal at multiple small areas on either side of Highway 227 north of Highway 62	477	As of 1st Q 2017 266 acres are uncut	Varies, pipeline crosses one area near MP 116.2	Water Resources & Wetlands, Vegetation, Wildlife and Aquatic, Visual and Recreation, Soils, Air Quality and Noise (construction)
BLM — Livestock Grazing	Jackson	Grazing Leases on Flat Creek and Sugarloaf Allotments	802	Ongoing	Unknown	Vegetation, Soils
Total for Trail Creek Watershed			14,629 acres			
Shady Cove-Rogue River Watershed						
BLM — Elk Camel Forest Management Project	Jackson	Selection Harvest	500	2018-2022	Unknown	Vegetation, Wildlife and Aquatic Resources
		Pre-Commercial Thinning/Underburning	11			
		Permanent and Temporary Road Construction and Reconstruction	16.4 miles			
		Riparian Non-Commercial Fuels Treatment, Riparian Commercial Thinning and Oak Woodland Restoration	241			
BLM — Livestock Grazing	Jackson	Grazing Leases on Bear Mtn, Big Butte, Bull Run, Crowfoot, Kanutchen Fields, Longbranch, Lost Creek, Meadows, Moser Mtn, Neil Tarbell, Reese Creek, Section 7, Section 9, and Vestal Butte Allotments.	12,046	Ongoing	Unknown	Vegetation, Soils
Rogue River Drive Estates Subdivision	Jackson	New 5-lot residential subdivision and private road, southwest corner of the Dry Creek Road and Rogue River Drive intersection immediately west of 3095 Rogue River Drive	3	Ongoing	5.3 miles southwest of MP 127.3	Land Use, Vegetation, Socioeconomics, Soils
Total for Shady Cove-Rogue River Watershed			12,801 acres			
Gold-Hill Rogue River Watershed						
Saddlebrook Meadows Subdivision, Phase 2	Jackson	New 5-lot residential subdivision and public road, northeast corner of 29th Street and Antelope Road	3	Ongoing	1.7 miles southeast of WC Short Pipe Yard	Land Use, Vegetation, Socioeconomics, Soils
FB Owen Inc — Valley Meadows Estates	Jackson	New 13-lot residential subdivision and road, southwest corner of Avenue G and Atlantic Avenue, White City	3	Ongoing	1.7 miles east of WC Short Pipe Yard	Land Use, Vegetation, Socioeconomics, Transportation, Soils
Total for Gold-Hill Rogue River Watershed			6 acres			
Big Butte Creek Watershed						
BLM — Big Butte Forest Management Project	Jackson	Disease Management	46	Implementation by 2020	Unknown	Vegetation, Wildlife and Aquatic Resources
		Shelterwood Retention	18			
		Structural Retention	103			
		Proportional Thin	1,191			
		Overstory Removal	7			
		Thin from Below	134			
		Variable Density Thinning	78			
		Riparian Thinning	12			
		Small Diameter Thinning	762			
		Temporary Road Construction/Reconstruction	1.2 miles			

TABLE N-1

Past, Present, or Reasonably Foreseeable Actions that May Cumulatively Affect Resources a/

Project	County	Description	Area Within Geographic Scope (acres, unless otherwise noted)	Status	Approximate Location Relative to Nearest Project Facilities	Resources Potentially Affected
BLM — Proposed Obenchain Forest Management Project	Jackson	Selection Harvest	181	2018-2022	Unknown	Vegetation, Wildlife and Aquatic Resources
		Commercial Thinning	43			
		Regeneration Harvest	24			
		Riparian Commercial Thinning	11			
		Pre-Commercial Thin	2			
		Permanent and Temporary Road Construction and Reconstruction	1.7 mi			
BLM — Livestock Grazing	Jackson	Grazing leases on Bear Mtn, Summit Prairie, Big Butte, Cobleigh Road 80, Crowfoot, Crowfoot Creek, and Neil Tarbell Allotments	28,348	Ongoing	Unknown	Vegetation, Soils
BLM — Friese Camp Forest Management Project	Jackson	Density Management (40-60% canopy cover retention)	1,145	2013-2017	Unknown	Vegetation, Wildlife and Aquatic Resources
		Commercial Thinning	177			
		Regeneration Harvest (SGFMA)	26			
		Select Cut (40-60% canopy cover retention)	37			
		Temporary Road Construction and Road Decommissioning	5.3 mi			
BLM — Double Bowen Forest Management Project	Jackson	Shelterwood	42	2015-2019	Unknown	Vegetation, Wildlife and aquatic Resources
		Density Management	507			
		Selection Harvest	233			
		Riparian Thinning	14			
		Small Diameter Thinning	76			
		Temporary Route Construction/Reconstruction	0.6 mi			
BLM — Elk Camel Forest Management Project	Jackson	Selection Harvest, Pre-commercial Thinning, and Underburning	72	2018-2022	Unknown	Vegetation, Wildlife and Aquatic Resources
		Temporary Road Construction and Road Reconstruction	2.0 mi			
Forest Service — Livestock Grazing	Jackson	Grazing	63,364	Ongoing	Unknown	Vegetation, Soils
Total for Big Butte Creek Watershed			96,653 acres			
Little Butte Creek Watershed						
BLM — Proposed Obenchain Forest Management Project	Jackson/ Klamath	Selection Harvest	90	2018-2022	Unknown	Vegetation, Wildlife and Aquatic Resources,
		Commercial Thinning	2			
		Regeneration Harvest	5			
		Pre-Commercial Thinning	11			
		Temp Route Construction	0.6 mi			
BLM — South Fork Little Butte Timber Sale	Jackson/ Klamath	Commercial thinning, non-commercial fuels thinning, and non-commercial fuels treatments Temporary and new permanent road construction	3,657 3.8 miles	Ongoing	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — Livestock Grazing	Jackson	Leases: Antelope Road, Big Butte, Brownsboro, Brownsboro Park, Canal, Conde Creek, Deadwood, Deer Creek Reno Lease, Devon South Grizzly, Hunger Flat, Kanutchen Fields, Lick Creek, Salt Creek, Section 9, Summit Prairie, and Yankee Creek Reservoir	46,350	Ongoing annually	Unknown	Vegetation, Soils
Forest Service — 2013 Big Elk Cinder Pit CE	Jackson/ Klamath	Excavation of cinders from an existing cinder quarry	5	Unknown	Unknown	Land Use
Forest Service — Livestock Grazing	Jackson/ Klamath	Grazing	87,620	Ongoing	Unknown	Vegetation, Soils
Total for Little Butte Creek Watershed			137,740 acres			
Spencer Creek Watershed						
Forest Service — Livestock Grazing	Klamath	Grazing	30,646	Ongoing	Unknown	Vegetation, Soils
Forest Service — Dead Indian Memorial and Clover Creek Roads Noxious Weed Treatment	Klamath	Weed treatment along 7 miles of roadway	70	Ongoing annually	Unknown	Vegetation, Water Resources and Wetlands, Wildlife and Aquatic Resources, Visual Resources and Recreation, Soils
Forest Service — Lake of the Woods VVUI Project b	Klamath	Fuels treatments for private home protection	100	2020	Unknown	Vegetation, Water Resources and Wetlands, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation
Forest Service — Roadside Firewood Collection	Klamath	Downed or dead firewood collection within 300 feet along open roads	1,000	Ongoing	Unknown	Transportation, Wildlife and Aquatic, Soils, Visual Resources and Recreation
BLM — North Landscape Timber Sales	Klamath	Vegetation treatment, timber sales, and small diameter thinning	3,000	2018-2028	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — Spencer Creek Thinning	Klamath	Small diameter thinning	300	2015-2020	Unknown	Vegetation, Water Resources and Wetlands, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation
Total for Spencer Creek Watershed			35,116 acres			

TABLE N-1

Past, Present, or Reasonably Foreseeable Actions that May Cumulatively Affect Resources ^{a/}

Project	County	Description	Area Within Geographic Scope (acres, unless otherwise noted)	Status	Approximate Location Relative to Nearest Project Facilities	Resources Potentially Affected
Upper Klamath Fourth-Field Watershed						
COE Permits and Mitigation	Klamath	Wetland impacts Wetland Mitigation Stream impacts Stream restoration or enhancement	0.4 0.3 4.2 miles <1 mile	2009-2019	Unknown	Water Resources and Wetlands, Wildlife and Aquatic Resources
Total COE Projects for Upper Klamath Fourth-Field Watershed			0.7 acres			
Lost River Fourth-Field Watershed						
COE Permits and Mitigation	Klamath	Wetland impacts Wetland mitigation Stream impacts	2.1 2.6 0.1 mile	2009-2019	Unknown	Water Resources and Wetlands, Wildlife and Aquatic Resources
Total COE Projects for Lost River Fourth-Field Watershed			4.7 acres			
John C. Boyle Reservoir-Klamath River/Lake Ewauna-Upper Klamath River/Mills Creek-Lost River Watersheds						
Oregon Department of Forestry — Bad Ham Timber Sale	Klamath	Timber sale noticed to the public in November 2016 located in portions of Sections 14 and 15, T40S, R7E and portions of Section 25, T36S, R7E	384	2018	Varies – closest portion is about 0.3 mile south of MP 188.4	Vegetation, Water Resources and Wetlands, Wildlife and Aquatic Resources, Soils, Visual Resources and Recreation
BLM — North Landscape Timber Sales	Klamath	Vegetation treatment, timber sales and small diameter thinning.	1,000	2018-2028	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — Swan Lake Hydroelectric Pumped Storage Project	Klamath	Hydro-electric pumped storage project on BLM, Reclamation, and private land 230 kV power line Swan Lake Rim to Malin on public and private land	400 110	2020	Pumped storage is 12.5 mi from K-Falls pipe yard, transmission line about 1.9 mi northeast of Klamath compressor station	Water Resources and Wetlands, Wildlife and Aquatic, Vegetation, Land Use, Visual Resources and Recreation, Soils
BLM — Bryant Mountain Vegetation Treatments	Klamath	Mixed conifer stand forest thinning, juniper thinning, and herbicide application New road construction	4,056 1.5 mile	2020	Crosses the pipeline near MP 224.6	Vegetation, Wildlife and Aquatic Resources
BLM — Bryant Mountain Juniper Treatment	Klamath	Vegetation treatment, fuels reduction	1,100	2018-2025	Unknown	Vegetation, Wildlife and Aquatic Resources
BLM — Stukel Juniper Treatment	Klamath	Vegetation treatment, fuels reduction	2,529	2020-2025	Unknown	Vegetation
PacifiCorp. Klamath Dam Removal Project	Klamath	The Klamath River Renewal Corp. plans to remove four dams on the Klamath River. The four dams and powerhouses to be removed include the John C. Boyle, the Copco No. 1 and No. 2, and the Iron Gate dams	Unknown	Begin 2021	the John C. Boyle reservoir is a proposed Project water source near MP 184.3	Water Resources and Wetlands, Visual Resources and Recreation, Wildlife and Aquatic Resources, Land Use, Soils, Air Quality and Noise (construction)
Turkey Hill Solar Project	Klamath	A 10-megawatt solar power generating facility located on the northwest corner of the intersection of Drazil Road and De Merrit Road	80	In permitting process	2.2 miles west of MP 228.8	Water Resources and Wetlands, Wildlife and Aquatic, Vegetation, Land Use, Soils
Merrill Solar Project	Klamath	An 8-megawatt solar power generating facility located on the east side of Highway 39 at the north boundary of the city of Merrill	65	In permitting process	1.3 miles northwest of Merrill Oregon RR Siding pipe yard	Water Resources and Wetlands, Wildlife and Aquatic, Vegetation, Land Use, Soils
BNSF Railway Crew Facility	Klamath	New crew facility located within the railroad right-of-way between Lavern Ave and Washburn Way in Klamath Falls	<1	Plans submitted 2016, not yet constructed	0.2 mile north of K-Falls-Amuchastegui pipe yard	Vegetation, Transportation, Soils, Socioeconomics, Air Quality and Noise (construction)
Klamath Irrigation District – Stukel Spill Project	Klamath	Installation of a large capacity operational spill structure in the west bank of G Canal	1	2018	Unknown	Water Resources and Wetlands
Non-jurisdictional facility – Utilities for Pacific Connector	Klamath and others	Utilities for the Klamath Compressor Station include electricity, water, and telecommunications. Electrical power would be required at the automated mainline valves requiring a tie-in to existing overhead lines. Electrical power would also be required at the communication tower sites not located on the pipeline right-of-way, each requiring short tie-ins from the existing power available at these sites.	Unknown	Concurrent with JCEP & PCGP Project construction	Adjacent to Klamath Compressor Station and mainline valves, and adjacent to off-right-of-way communication tower sites	Water Resources and Wetlands, Wildlife and Aquatic, Vegetation, Soils, Land Use, Air Quality and Noise (construction)
Total for John C. Boyle Reservoir-Klamath River/Lake Ewauna-Upper Klamath River/Mills Creek-Lost River Watersheds			9,725 acres			
TOTAL FOR ALL WATERSHEDS			352,231 acres			

^{a/} Details on most future activities on private lands, such as commercial harvests, are not publicly available. These activities are expected to continue at current rates.

^{b/} The Coos Bay, Oregon Section 408/204(f) Channel Modification is made up of several proposed actions to improve navigation efficiency, reduce shipping transportation costs, and facilitate the shipping industry's transition to larger, more efficient vessels. The Port is currently in the engineering and design phase and is coordinating with the COE since they play several roles in the area, including new long-term maintenance of the channel. The project will also require authorization from the COE and other agencies before conducting the dredging activities. The COE is preparing an EIS to analyze the potential impacts associated with the project.