

U.S. Department of Transportation

Federal Highway Administration
California Division

Finding of No Significant Impact

for

Digital 299 Broadband Project
Shasta, Trinity, and Humboldt Counties, California

This Finding of No Significant Impact is submitted pursuant to:

42 U.S.C. 4332 (2)(c) and 49 U.S.C. 303

The Federal Highway Administration, California Division (FHWA) has determined that this project will have no significant impact on the human or natural environment. Principal areas of public controversy have been addressed, and there are no major unresolved issues outstanding. This finding is based on the attached *Digital 299 Broadband Project Environmental Assessment / Initial Study Mitigated Negative Declaration* (EA/ISMND), which FHWA hereby adopts in accordance with the provisions of 40 CFR 1506.3(c); coordination with local, state, and federal agencies; public involvement; and applicable laws, executive orders, and regulations. The EA/ISMND, with revisions described herein, accurately and adequately discusses the need, environmental issues, and impacts of the proposed FHWA project and appropriate mitigation measures. It lists environmental commitments to be carried out by the FHWA in order to minimize unavoidable impacts. The EA/ISMND provides sufficient evidence and analysis for determining that an Environmental Impact Statement (EIS) is not required. FHWA takes full responsibility for the accuracy, scope, and content of the following EA/ISMND.

Vincent P. Mammano, Division Administrator (HDA-CA)
Federal Highway Administration

February 6, 2023
Date

Introduction

This Finding of No Significant Impact (FONSI) concerns the Digital 299 Broadband Project, a proposal by Vero Fiber Networks, LLC (Vero) to install approximately 300 miles of new conduit and fiber optic cable to provide internet service to unserved or underserved communities in northern California, including the installation of approximately 500 feet of conduit and cable within federal highway right-of-way (ROW) managed by the Federal Highway Administration (FHWA) beneath U.S. Interstate 5 (I-5) between Barney Street and South Barney Road in Anderson, California.

The Proposed Project (Project) route would generally follow the California State Route 299 (SR 299) corridor through Trinity, Shasta, and Humboldt counties. Conduit would be installed within existing ROWs in pre-disturbed road shoulders within a 25-foot-wide temporary construction corridor. Across the project overall, conduit would be attached to bridges or bored via horizontal directional drilling (HDD) under water crossings, and disturbance to intermittent or ephemeral waterways would only occur if they were not holding water at the time of construction; however, no waterway crossings are present within the FHWA-managed ROW. Additional “last-mile” connections to communities along the route would be attached to utility poles during a second phase of the Project.

In addition to the FHWA, the Project crosses lands and waters managed by the Bureau of Land Management (BLM), National Park Service (NPS) Whiskeytown National Recreation Area (WHIS), U.S. Forest Service (USFS) Shasta-Trinity National Forest (STNF) and Six Rivers National Forest (SRNF), U.S. Army Corps of Engineers (USACE), U.S. Bureau of Reclamation (USBR), California Public Utilities Commission (CPUC), California Department of Transportation (Caltrans), California Department of Fish and Wildlife (CDFW), California State Lands Commission, California Coastal Commission, and State Water Resources Control Board. The CPUC is the lead state agency for California Environmental Quality Act (CEQA) compliance, but no federal lead agency was identified for National Environmental Policy Act (NEPA) compliance.

In the absence of a lead federal agency, these federal and state agencies have collaborated to leverage the joint *Digital 299 Broadband Project Environmental Assessment / Initial Study Mitigated Negative Declaration* (EA/ISMND) and various technical studies to support their separate decisions and permits. The EA/ISMND analyzed the impacts of a no action alternative and one action alternative. The EA/ISMND was made available to the general public and agencies for review and comment.

Purpose and Need

The purpose of the Project is to help achieve the broadband coverage goals established by California State Legislature in Assembly Bill (AB) 1665, which set a statewide objective of 98 percent broadband coverage to meet public safety, healthcare, education, and economic development goals. The project is needed due to the concentration of communities in Shasta, Trinity, and Humboldt counties that are disproportionately underserved by broadband access compared to the rest of the state. Expanding broadband access in these communities may help close the “digital divide” in the region (i.e., the disparity in broadband access wherein lower income, non-white, older, and rural individuals are disproportionately underserved) by improving access to education, healthcare, financial services, and employment.

Right-of-Way

The Project crosses approximately 500 feet of federal highway ROW managed by the FHWA beneath I-5 between Barney Street and South Barney Road in Anderson, California. The FHWA will issue a ROW Use Agreement to accommodate temporary construction activities as well as longer-term operations and maintenance. This decision and the impacts associated with it are included in the EA/ISMND.

Selected Alternative

The EA/ISMND considered a range of four alternatives, including the Proposed Action and the No Action Alternative. The Alternative Technologies Alternative was dismissed from detailed consideration due to increased environmental effects and the determination that it would not be as effective as the Proposed Action in providing needed services. The Alternative Segments Alternative was included in the EA/ISMND in case environmental analysis or engineering finds the proposed route infeasible. The inclusion of this alternative would expedite future analysis and permitting should an alternative segment be chosen later in the Project. Implementation of the No Action Alternative would not meet the need to close the digital divide in the region by extending internet and mobile data coverage to underserved rural communities. Thus, the Proposed Action has been selected as the Preferred Alternative for this action.

Changes Since the Release of the EA/ISMND

Changes and revisions made since the draft EA/ISMND was circulated for public review in January 2022 are documented in Appendix A: Errata – Changes Since Public Review Draft EA/ISMND.

Consultation and Coordination

Public scoping was completed for the Project in July and August 2019, and the draft EA/ISMND was subsequently circulated for public review in January 2022. All comments received were considered and have been incorporated into the EA/ISMND. Below is a summary of public involvement activities.

The public scoping period for the Project began on July 10, 2019 and concluded on August 12, 2019. A newsletter containing Project information, public meeting times and locations, and instructions for submitting formal comments was produced for the initial public scoping period in 2019 and was updated prior to the public review of the EA/ISMND in January 2022. Material circulated in the 2019 scoping period included the newsletter, overview map, and comment form. Agencies and private landowners within 50 feet of the alignment were mailed a scoping package. Seventy-three letters were mailed to agency contacts and 2,912 mailings were sent to private landowners. Project information was also posted on the CPUC website, newsletters were posted at local post offices, and announcements with a brief Project summary and public meeting information were placed in local newspapers. Four public scoping meetings were held in late June 2019 in Redding, Lewiston, Weaverville, and Eureka, California. In total, 53 members of the public attended the four meetings. Representatives from Transcon Environmental; the Proponent; and at least one agency attended each meeting. A Scoping Summary Report, including agencies and people consulted, is found in Appendix N of the EA/ISMND.

The draft EA/ISMND was posted for public review on January 3, 2022. Members of the public and agency contacts were notified via a project update postcard and an updated newsletter, both mailed in December 2021. Electronic copies of the EA/ISMND, along with updated information about the Project, were made available on the BLM, STNF, and CPUC websites. Physical copies of the EA/ISMND were made available at the four locations where public scoping meetings had been held in Redding, Lewiston, Weaverville, and Eureka, California. An announcement of the EA/ISMND review period was placed in the Redding Record Searchlight. Public comments received on the draft EA/ISMND, and agency responses to those comments, are found in Appendix O of the EA/ISMND.

A total of 80 comments were received from the public, agencies, and Tribes in the initial public scoping period, and a total of 60 comments were received from the public and agencies on the draft EA/ISMND. Tribal consultation is ongoing. All written and oral comments received—whether from agencies, Tribes, or the public—were collected and considered in the environmental analysis.

Additional Agency Coordination

Each federal agency consulted separately with the California State Historic Preservation Office (SHPO) regarding effects to historic properties on its own jurisdiction. On December 17, 2021, the SHPO concurred with the USBR's determination of No Effect to historic properties located on its lands. The SHPO subsequently concurred with five other federal agencies' determinations of No Adverse Effect to historic properties within their jurisdiction on October 5, 2022 (SRNF); October 13, 2022 (BLM and STNF); October 14, 2022 (USACE); and October 18, 2022 (NPS). Additionally, the Caltrans Cultural Studies Office (CSO) approved a set of Caltrans-specific cultural resource documentation—including a Historical Resources Compliance Report (HRCR), Archaeological Survey Report (ASR), Finding of Effect (FOE), and Post-Review Discovery Plan (PRDP)—to satisfy California Public Resource Code (CPRC) Section 5024 for resources within Caltrans fee-owned ROW. The SHPO and CSO concurrence letters are included in Appendix C of the Final EA/ISMND.

Informal consultation with U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Services (NMFS) was completed for the Project, resulting in concurrence letters from both agencies—on January 31, 2022 and February 16, 2022, respectively—and an overall determination of “may affect, but is not likely to adversely affect” (NLAA) listed species. Although the Project overall would cross special-status species habitat, none of this habitat is located within the FHWA ROW, and the implementation of design features and resource protection measures would ensure potential impacts remain at levels less than significant. The USFWS and NMFS concurrence letters are included in Appendix B of the Final EA/ISMND.

Resource Protection Measures

The environmental commitments that will be implemented to avoid and minimize the impacts of the project are included in Appendix G of the EA/ISMND.

Appendices

Appendix A: Errata – Changes Since Public Review Draft EA/ISMND

DIGITAL 299 BROADBAND PROJECT

Environmental Assessment / Initial Study Mitigated Negative Declaration
Humboldt, Shasta, and Trinity Counties, California

Proposed by:

Vero Fiber Networks, Inc.

For submittal to:

Federal agencies with a National Environmental Policy Act-supported decision:

Bureau of Land Management

Bureau of Reclamation

Federal Highway Administration

National Park Service

U.S. Army Corps of Engineers

U.S. Forest Service

State agencies with a California Environmental Quality Act-supported decision:

California Department of Fish and Wildlife

California Department of Transportation

California Public Utilities Commission

California State Lands Commission

Prepared by:

Transcon Environmental, Inc.



Planners &
Scientists

~~January~~ October 2022

EXECUTIVE SUMMARY

Overview

This is the Environmental Assessment (EA) and Initial Study Mitigated Negative Declaration (IS) prepared for the Digital 299 Fiber Optic Broadband Project (Digital 299, Proposed Action, or Project) proposed by Vero Fiber Networks (Vero, the Proponent). Vero took over the Project from Inyo Networks, the former proponent, after the Project was paused for most of 2020. Digital 299 includes the installation of approximately 300 miles of new conduit and fiber optic cables to provide internet to unserved or underserved communities in northern California. The Project route generally follows the State Route 299 corridor through Trinity, Shasta, and Humboldt counties.

Conduit would be installed along adjacent roads within pre-disturbed road shoulders. At water crossings, conduit would be attached to bridges or bored under the waterway. Disturbance to waterways would only occur if waterways were not holding water at the time of construction. Some last-mile connections would be attached to utility poles during a second phase of the Project (see Section 2.1). The Project also includes the construction of up to five small regeneration buildings (in-line amplifier [ILA] buildings) placed along the route. While the specific locations of the ILA buildings are unknown at the time of this EA, Vero would supplement this analysis and permitting as necessary prior to construction of the regeneration buildings, which are all expected to be sited on private land. ILA buildings would not be placed in areas with sensitive biological or cultural resources, and Vero would strive to construct the buildings in pre-disturbed locations.

The Proposed Action crosses lands and waters managed by the Bureau of Land Management, National Park Service, U.S. Forest Service, U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, California Public Utilities Commission, California Department of Transportation, California Department of Fish and Wildlife, State Lands Commission, State Water Resources Control Board, and Hoopa Reservation. In accordance with 40 Code of Federal Regulations §1502.25, §1506.2, §1506.3, and §1506.4 requiring agencies to streamline, coordinate, and prepare joint environmental documents, agencies collaborated during project planning to streamline National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements, leveraging this joint NEPA/CEQA document and associated technical studies to demonstrate compliance and support their separate decisions and permits for the Project. The Biological Evaluation and Cultural Resources Inventory Report prepared for the Proposed Action are intended to support Project-wide interagency consultation. The CEQA portion of this EA/IS can be found in **Appendix A**.

Purpose and Design of the Document

The purpose of this EA/IS is to analyze potential environmental effects from the Project, as well as measures to avoid or minimize effects, and provide regulatory agencies with information needed to issue their decisions on the Project.

This EA/IS has also been prepared to satisfy the updated NEPA regulations published July 16, 2020 (85 FR 43304) (CEQ 2020) requiring NEPA documents not to exceed the agency-directed page length (i.e., 75 pages for an EA, excluding appendices) as well as the Council on Environmental Quality's new guidance (~~85 FR 1684~~) to ~~consolidate~~ include discussion of direct, indirect, and cumulative types of effects (85 FR 23453) (CEQ 2022).

Public and Agency Involvement

The following federal and state agencies contributed to the development of this EA/IS: Bureau of Land Management Redding Field Office, U.S. Forest Service Shasta-Trinity and Six Rivers national forests, National Park Service Whiskeytown National Recreation Area, U.S. Army Corps of Engineers, U.S. Bureau of

Reclamation, Federal Highway Administration, California Public Utilities Commission, California Department of Transportation districts 1 and 2, California Department of Fish and Wildlife, California State Lands Commission, and California State Water Resources Control Board.

Public and agency scoping occurred for Digital 299 in summer 2019, including four public meetings and mailings. Comments were collected for a period of over 30 days and were considered and incorporated in this EA/IS. Project update notices were mailed to the public in ~~July-December 2021~~, and the draft EA/IS was circulated for public review in January 2022. Comments received on this EA/IS ~~would be~~ have been incorporated into the agencies' final NEPA/CEQA document.

Impact Summary

This EA found the following resources are present and may be affected by the Project: air quality, biological resources, cultural and tribal resources, geology/soils, hydrology/water quality, land use, noise, recreation, and socioeconomics and environmental justice. Additional resources were considered but dismissed from further evaluation (see **Table 3**).

The Project is designed to be low impact; the route follows existing roadways, limiting disturbance in undisturbed areas, and the Proponent would use a horizontal directional drill to bore under all waterways that have water present. This EA/IS finds that the Project would have overall minor impacts, and, where adverse impacts may occur, they are avoided or minimized with the implementation of standard resource protection measures.

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Appendix D	Detailed Project Location Maps <i>[included as separate file]</i>
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Appendix G	Resource Protection Measures <i>[included as separate file]</i>
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Appendix I	Biological Evaluation <i>[included as separate file]</i>
Appendix J	Restoration Plan <i>[draft included as separate file]</i>
Appendix K	Cultural Resources Identified within the APE-DE <i>[included as separate file]</i>
Appendix L	Paleontological Report and Monitoring Plan <i>[included as separate file]</i>
Appendix M	Construction Noise Levels <i>[included as separate file]</i>
Appendix N	Scoping Summary Report <i>[included as separate file]</i>
Appendix O	Draft EA Public Comments and Responses <i>[included as separate file]</i>
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GLOSSARY OF ACRONYMS

AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ACID	Anderson-Cottonwood Irrigation District
AL	Aerial locations
AMM	Avoidance and minimization measure
APE	Area of potential effect
AQCR	Air quality control region
BE	Biological Evaluation
BLM	Bureau of Land Management
BMP	Best management practice
CAA	Clean Air Act
CAI	Community Anchor Institution
California Register	California Register of Historic Resources
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CDPR	California Department of Parks and Recreation
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide
CO ₂	Carbon dioxide
CPCN	Certificate of Public Convenience and Necessity
CPRC	California Public Resources Code
CPUC	California Public Utilities Commission
CRPM	Cultural resource protection measures
CSLC	California State Lands Commission
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibel
DBH	Diameter at breast height
DE	Direct effect
Digital 299	Digital 299 Fiber Optic Broadband Project
DOI	U.S. Department of the Interior
DPS	Distinct Population Segment
D1	District 1 (Caltrans)
D2	District 2 (Caltrans)
EA	Environmental Assessment
EOP	Edge of pavement
EPA	Environmental Protection Agency
ESHA	Environmentally Sensitive Habitat Area
ESU	Evolutionarily Significant Unit
<u>FHWA</u>	<u>Federal Highway Administration</u>
FONSI	Finding of No Significant Impact

GHG	Greenhouse gas
GLO	General Land Office
GPR	Ground-penetrating radar
HDD	Horizontal directional drilling
HUC	Hydrologic Unit Code
IDP	Inadvertent Discovery Protocol
IE	Indirect effect
ILA	In-line amplifier
IS	Initial Study
ISP	Internet service provider
L _{dn}	Day-night average
L _{eq}	A-weighted sound level
LiDAR	Light Detection and Ranging
NAAQS	National Ambient Air Quality Standard
NAHC	Native American Heritage Commission
NCAB	North Coast Air Basin
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO _x	Nitrous oxide
NPS	National Park Service
NRHP	National Register of Historic Places
NSO	Northern spotted owl
MAMU	Marbled murrelet
ORV	Outstandingly remarkable value
O ₃	Ozone
Pb	Lead
PFYC	Potential Fossil Yield Classification System
PJD	Preliminary Jurisdictional Delineation Report
PL	Public Law
PMDP	Paleontological Monitoring and Discovery Plan
PM _{2.5}	Particulate matter less than 2.5 microns in diameter
PM ₁₀	Particulate matter less than 10 microns in diameter
ppb	Parts per billion
ppm	Parts per million
Project	Digital 299 Fiber Optic Broadband Project
Proponent	Vero Fiber Networks
Proposed Action	Digital 299 Fiber Optic Broadband Project
QA/QC	Quality assurance/quality control
ROW	Right-of-way
RWQCB	Regional Water Quality Control Board
SCAQMD	Shasta County Air Quality Management District
SDNHM	San Diego Natural History Museum
SHBC	State Historic Building Code
SHMA	Seismic Hazards Mapping Act
SHPO	State Historic Preservation Officer

SO ₂	Sulfur dioxide
SR	State Route
SRNF	Six Rivers National Forest
STNF	Shasta-Trinity National Forest
SVAB	Sacramento Valley Air Basin
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Properties
THPO	Tribal Historic Preservation Officer
Transcon	Transcon Environmental, Inc.
µg/m ³	Micrograms per meter cubed
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USC	U.S. Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
Vero	Vero Fiber Networks
WNRA	Whiskeytown National Recreation Area
WOTUS	Waters of the United States
WPT	Western pond turtle

CHAPTER 1 INTRODUCTION

The Digital 299 Fiber Optic Broadband Project (Digital 299, Proposed Action, or Project) is a proposed regional telecommunications network supporting portions of Humboldt, Trinity, and Shasta counties between Cottonwood and Eureka, California, a region known for no or poor broadband infrastructure. Vero Fiber Networks (Vero, the Proponent) proposes to build a network generally following California State Route (SR) 299, with portions crossing federally managed public land, state-owned or controlled property, privately owned property, and tribal lands. The Proposed Action would help close the digital divide in the region by extending internet and mobile data coverage to underserved rural communities.

Digital 299 would include installation of underground fiber optic cables along existing roadways as well as aerial spurs to connect nearby communities (referred to as the “backbone” or “middle-mile”) during its first phase of construction. The second phase of construction would include direct connections to public buildings such as schools and hospitals (referred to as “Community Anchor Institutions” [CAIs]) and connections to customers in the Lewiston area (referred to as “last-mile”). The Digital 299 scope does not include cellular towers. However, the middle-mile infrastructure installed via Digital 299 would provide the basis for the establishment of a robust, complete broadband network in the area. A future project would likely analyze the SR 299 corridor and select suitable cellular coverage zones, which could include tower sites and related infrastructure (e.g., access roads and power lines). The towers could then be connected to the Digital 299 broadband network. The Project would also give local exchange carriers opportunities to connect to the backbone and deliver high-speed broadband internet across their existing networks throughout communities.

1.1 Regulatory Setting

Digital 299 is long and linear, requiring land use and natural resources permits from many federal, state, and local agencies. The Proposed Action’s technical studies, including this Environmental Assessment (EA)/Initial Study Mitigated Negative Declaration (IS), are meant to support agencies’ discretionary decisions (see **Table 1**) and address compliance and impacts under the following acts:

- Bald and Golden Eagle Protection Act (50 Code of Federal Regulations [CFR] 22)
- California Coastal Act (14 California Code of Regulations [CCR] 13000 et seq, California Public Resources Code [CPRC] 30000 et seq)
- California Endangered Species Act (14 CCR 783 et seq)
- California Environmental Quality Act (CEQA) (14 CCR 15000 et seq, CPRC 21000 et seq)
- California Fish and Game Code (Section 1600 et seq)
- Clean Air Act (CAA) (40 CFR 50 et seq)
- Clean Water Act (CWA) (40 CFR 100 et seq)
- Federal Endangered Species Act¹ (50 CFR 17)
- Federal Land Policy and Management Act (FLPMA) Sec. 501 [43 U.S.C. 1761]
- Magnuson-Stevens Fishery Conservation and Management Act (50 CFR 600)
- Migratory Bird Treaty Act (50 CFR 21)

¹ U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) response letters will be included as **Appendix B**.

- National Historic Preservation Act (NHPA)² (36 CFR 80)
- National Environmental Policy Act (NEPA) (40 CFR 1500–1508)
- Rivers and Harbors Act (33 CFR 209 et seq)
- Wild and Scenic Rivers Act (WSRA) (36 CFR 297)

As a joint NEPA/CEQA document, this EA/IS blends NEPA and CEQA terminology and requirements. Digital 299 will be referred to throughout as the Project and Proposed Action, and NEPA significance thresholds leverage CEQA checklist questions. The EA portion of the document is meant to satisfy federal requirements, while the IS portion (**Appendix A**) is meant to supplement the EA to satisfy state requirements. Inter-agency consultations are described in Chapter 4.

1.2 Purpose and Need for the Action

This purpose and need statement is meant to address the Project Proponent’s goals and agencies’ statutory authority to respond to the Proponent’s request.

There is nationwide public and private interest and investment in the expansion of broadband networks and capabilities. In the passage of Assembly Bill (AB) 1665³, the California legislature set forth a statewide goal of achieving 98-percent broadband coverage to meet public safety, healthcare, education, and economic development goals. Vero is a certified telecommunications provider growing their network in northern California; the purpose of their action is to help achieve the state’s coverage goals, partnering with the California Public Utilities Commission (CPUC) to do so. Both parties would work together to ensure the network reaches certain under-served communities and public institutions such as libraries, hospitals, and schools.

Coordinating agencies have a need to respond to Vero’s requests for permits and authorizations for the Project. Those agencies, including their permitting or approval mechanism and specific action they are considering, are listed in **Table 1**.

TABLE 1. FEDERAL AND STATE PERMITS, APPROVALS, AND CONSULTATIONS

Regulatory Agency	Permit, Approval, or Consultation	Agency Action
<i>Federal</i>		
U.S. Department of the Interior (DOI), Bureau of Land Management (BLM)	Grant of Right-of-Way (ROW)	Consider issuing an FLPMA ROW grant for the Project to be built and maintained across lands under BLM jurisdiction

² State Historic Preservation Officer (SHPO) response letters ~~will be~~ are included as **Appendix C**.

³ State of California Internet for All Act (AB 1665). October 15, 2017. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB1665.

Regulatory Agency	Permit, Approval, or Consultation	Agency Action
DOI, National Park Service (NPS), Pacific West Region	WSRA Section 7 determination	Consider issuing a WSRA Section 7 determination for one horizontal directional drilling (HDD) crossing of the Trinity River located on private land.
DOI, NPS, Whiskeytown National Recreation Area (WNRA)	Grant of ROW and Special Use Permit	Consider issuing a Grant of ROW for the Project to be built and maintained across lands under WNRA jurisdiction
DOI, Bureau of Reclamation (USBR)	Land Use Authorization	Consider issuing a Land Use Authorization for the installation, operation, and maintenance of an underground fiber optic line along Reclamation ROW
U.S. Department of Agriculture, Forest Service (USFS), Shasta-Trinity National Forest (STNF)	Special Use Permit	Consider issuing a Special Use Permit for the Project to be built and maintained across lands under STNF jurisdiction
USFS, Six Rivers National Forest (SRNF)	Special Use Permit	Consider issuing a Special Use Permit for the Project to be built and maintained across lands under SRNF jurisdiction
USFS, Pacific Southwest Region	WSRA Section 7 determination	Consider issuing a WSRA Section 7 determination for one HDD crossing of the Trinity River located on STNF land
U.S. Department of Defense, Army Corps of Engineers (USACE)	CWA Section 404 and Rivers and Harbors Act Section 10 Permit	Considering issuing a Section 404 Permit for temporary discharge of fill material and Section 10 Permit for structures in Waters of the U.S. as a result of Project construction
<u>Federal Highway Administration (FHWA)</u>	<u>FHWA/Caltrans ROW Use Agreement, 23 CFR Part 710, Subpart D</u>	<u>Consider issuing a ROW Use Agreement via Caltrans for areas where the Project crosses FHWA ROW</u>
Bureau of Indian Affairs	Easement	Considering issuing an easement for allotment areas the Project may cross
DOI, USFWS	Federal Endangered Species Act, Section 7 Consultation	Consult with agencies on effects determination for federally listed species
National Oceanic and Atmospheric Administration, NMFS	Federal Endangered Species Act, Section 7 Consultation	Consult with agencies on effects determination for federally listed marine species and Essential Fish Habitat
Advisory Council on Historic Preservation (ACHP)	Invitation to participate or comment	Provide guidance to agencies on Section 106 consultation approach.
<i>State</i>		
CPUC (lead CEQA agency)	CEQA Declaration and Revised Certificate of	As lead CEQA agency, issue a declaration on mitigated or significance

Regulatory Agency	Permit, Approval, or Consultation	Agency Action
	Public Convenience and Necessity (CPCN)	findings; consider issuing a revised CPCN to Vero to allow the construction, operation, and maintenance of the Project
California Department of Transportation (Caltrans), District 1 (D1) and District 2 (D2)	<u>Encroachment Permit and FHWA/Caltrans ROW Use Agreement, 23 CFR Part 710, Subpart D</u>	Consider issuing an encroachment permit/ <u>ROW Use Agreement</u> for areas where the Project would be constructed within Caltrans and FHWA ROWs
California Department of Fish and Wildlife (CDFW)	Master Streambed and Alteration Agreement (1602 Permit)	Consider issuing a Master Streambed Alteration Agreement, to allow the Project to be constructed across or beneath Waters of the State
California State Lands Commission (CSLC)	Lease (waters of the State)	Consider issuing a Lease to allow the Project to be constructed across or beneath waters under the jurisdiction of CSLC
California State Water Resources Control Board	CWA Section 401 Permit and Porter-Cologne Act Waste Discharge Requirements	Consider issuing a Section 401 Permit and Waste Discharge Requirements for discharges to Waters of the State as a result of Project construction
California Coastal Commission	Coastal Development Permit	Consider issuing a Coastal Development Permit for portions of the Project that intersect Coastal Zones
California SHPO	NHPA, Section 106 consultation	Respond to agencies' cultural resources findings/determinations
California Native American Tribes	AB 52 and NHPA	Consult with agencies on the Project and potential impacts to tribal resources

CHAPTER 2 PROPOSED ACTION AND ALTERNATIVES

Agencies will consider their individual proposed actions on the Project (see **Table 1**). This chapter is focused on the Proponent's Proposed Action and describes how and where they would construct proposed facilities.

2.1 Broadband Infrastructure Description

Internet connectivity is provided via middle-mile facilities (i.e., primary infrastructure delivering backhaul broadband through the region) and last-mile facilities (i.e., connections to homes, businesses, etc.). Last-mile facilities can be either wireline or wireless technology, but middle-mile networks are typically fiber optic cables. Digital 299 comprises middle-mile fiber optic facilities with the ability to connect to various CAIs and local exchange carriers along the route, which constitutes independent utility. Future broadband networks in the area could entail cellular towers and additional last-mile connections. The broader network could connect to the Digital 299 fiber optic cable, but these future actions are not currently planned and are not part of Digital 299. Data gathered during this Project regarding no and poor mobile data coverage would be used and shared to inform the process of building the broader network in the area to help close the digital divide.

2.2 Project Description

The Proposed Action is to install approximately 300 miles of fiber optic cable, mostly buried along existing roads. New road construction is not proposed. Construction of the Proposed Action would be in two phases. The first phase would include construction of the middle-mile fiber optic facilities and vaults, which would be entirely buried. During the second phase of the Project, Vero would partner with last-mile providers to build out last-mile connections attached to existing utility poles. This EA/IS analyzes impacts from both phases of the Project. Wireless facilities (e.g., cellular towers or equipment) are not proposed as part of the Proposed Action.

The Proposed Action also includes the construction of up to five prefabricated buildings to support signal regeneration, distribution, and interconnection (also referred to as "in-line amplifier" or "ILA" buildings). These buildings would be installed during the first phase of the Project and are all expected to be sited on private land.

2.2.1 Project Location and Areas of Disturbance

The Proposed Action Area extends through three counties in northern California: Humboldt, Trinity, and Shasta. The route has been chosen to include about five alternative segments in case field conditions prove constructability of the primary route difficult. This environmental analysis includes the primary route and alternative segments; however, because only one or the other (the primary or the alternative segment) would be built, impacts and disturbances described herein are slightly greater than what would be constructed. The primary route and alternative segments are described below, following the route from west to east.

The primary route begins along the coast, with terminus points in Samoa and Eureka. The alignment follows two routes north around Humboldt Bay, including a crossing of Samoa Bridge from the Peninsula to Eureka, with the two routes connecting in Arcata. From Arcata, the primary route heads north to its junction with SR 299. From here, it follows two routes: one north for 16 miles through McKinleyville and Clam Beach to a terminus point in Trinidad, and the other continuing eastward as the primary route following SR 299 to Blue Lake where it departs from SR 299 through residential Blue Lake, then for 16 miles following Maple Creek Road, Bald Mountain Road, and Snow Camp Road, connecting back to SR 299 at the intersection of Old Highway 200. The primary route follows SR 299 for 5 miles to Saber Tooth Road, with an alternative segment continuing on SR 299 and the primary route following the Saber Tooth Road and County Route 7K1000 for 6 miles, at which point it reconnects

and continues along SR 299 for about 50 miles through Willow Creek, Salyer, Burnt Ranch, Big Bar, and Junction City. At Willow Creek, an aerial spur breaks off from the primary route north to serve Hoopa.

Between Salyer and Junction City, three alternative segments are proposed in case the primary route along SR 299 is not able to be constructed. One alternative segment departs SR 299 just west of Salyer, following Trinity County Roads 447 and 435 (Hennessey Road) southeast for 15 miles. Another alternative segment departs the primary route from Burnt Ranch and follows Route 16, Forest Route 5N09, 5N25, and Eagle Rock Road for 20 miles, including a 5-mile spur up to Eagle Rock Peak. This alternative reconnects with the primary route along SR 299 in Big Bar. The third alternative in this area departs the primary route west of Helena, breaking into alternate paths around Junction City—the primary route heading south along Wintu Pass Road, Forest Route 33N41, Red Hill Road, and Dutch Creek Road, and the alternative segment running north from Valdor Road, an unnamed Forest Road, PowerHouse Road, and Canyon Creek Road; both alternatives reconvene at SR 299 in Junction City.

From Junction City, the primary route follows SR 299 to Slattery Pond with an alternative segment continuing on SR 299 and the primary route following La Grange Road and Castle Road for 2 miles back to SR 299 to Weaverville. In Weaverville, the primary route breaks from SR 299 to follow Trinity Lake Boulevard, Lance Gulch Road, and Route 3 for 4 miles. An aerial route continues following Route 3 south to Douglas City, while the primary route continues east along Browns Mountain Road for 10 miles into Lewiston. Within Lewiston, it follows Lewiston Road, Trinity Dam Boulevard, and other residential roads. It continues east for 17 miles following Deadwood Road, French Gulch Road, and Trinity Mountain Road before the route connects back to SR 299 south of French Gulch.

Connected again with SR 299 south of French Gulch, the primary route continues for 14 miles through Whiskeytown and Shasta, breaking south in Redding to follow Buenaventura Boulevard, Placer Street, and other residential roads. It follows Route 273/South Market Street south for 9 miles to Anderson, where it follows Barney Road and Locust Street, with an alternative segment following South Barney Road and Industry Road, and the primary route following Locust Road to Trefoil Lane, terminating on Trefoil Lane northeast of Cottonwood.

A Project overview map is included as **Figures 1 through 3**. Additional detailed location maps are in **Appendix D**.

2.2.1.1 Areas of Disturbance

For purposes of this document, the term “Action Area” includes the footprint or area of direct disturbance the Project facilities will require as well as lands needed to construct the facilities. Vero is requesting permits for a 10-foot ROW for the permanent occupation of conduit and vaults; construction of the facilities would temporarily disturb up to a 25-foot-wide corridor. The study area for the technical studies and EA/IS is generally 50 feet wide unless otherwise noted.

See **Table 2** for acreages of temporary disturbances (construction corridor and staging areas) and permanent disturbance (vaults and ILA buildings) for the Proposed Action. Acreages include both the primary alignment and alternative segments. Actual impacts would be lesser than what is shown, as Vero will not build both the primary alignment and alternatives.

TABLE 2. ACREAGES OF PERMANENT AND TEMPORARY DISTURBANCES

Jurisdiction	Mileage	Temporary Disturbance		Total Temp. (acres)	Permanent Disturbance		Total Perm. (sq. feet)
		Conduit Placement (acres) ^a	Laydown Areas (acres) ^b		Approx. Vaults (sq. feet) ^c	ILA Buildings (sq. feet) ^d	
BLM	22.6	67.5	0.8	68.3	720	0	720
STNF	62.2	187.7	1.4	189.1	1,984	0	1,984
SRNF	14.6	44.3	0.3	44.6	464	0	464
WNRA	10.1	30.5	0	30.5	320	0	320
USBR	2.6	5.6	0.4	6.0	80	0	80
USACE	0.23	0.62	0.003	0.623	0	0	0
Tribal	3.5	10.1	1.0	11.1	112	0	112
State (other) ^e	1.9	5.6	0	5.6	64	0	64
Caltrans ^f	<u>72.2</u>	<u>218.4</u>	<u>5.7</u>	<u>224.1</u>	<u>2,384</u>	<u>0</u>	<u>2,384</u>
Private	<u>142.0</u> 14.2	<u>385.5</u> 603.9	<u>35.4</u> 1.1	<u>644.7</u>	<u>6,835</u> 4,544	15,000	<u>21,835</u> 19,544

^a Equals crossing mileage x 25-foot-wide corridor

^b Combined acreage of possible staging and laydown locations per jurisdiction (see **Appendix D**)

^c Combined acreage of surface disturbance (48-inch by 48-inch vault lids each) for approximately one vault per 0.5 mile

^d Combined acreage of ILA building footprints of 50 feet by 50 feet each

^e Combined acreage of CSLC, California Department of Parks and Recreation (CDPR), and CDFW lands;

^f Includes Caltrans fee-owned ROW and FHWA ROW managed by Caltrans. In total, the Project also follows about 130 miles of Caltrans-managed ROW, much of which overlaps the jurisdiction of federal and state land management agencies.

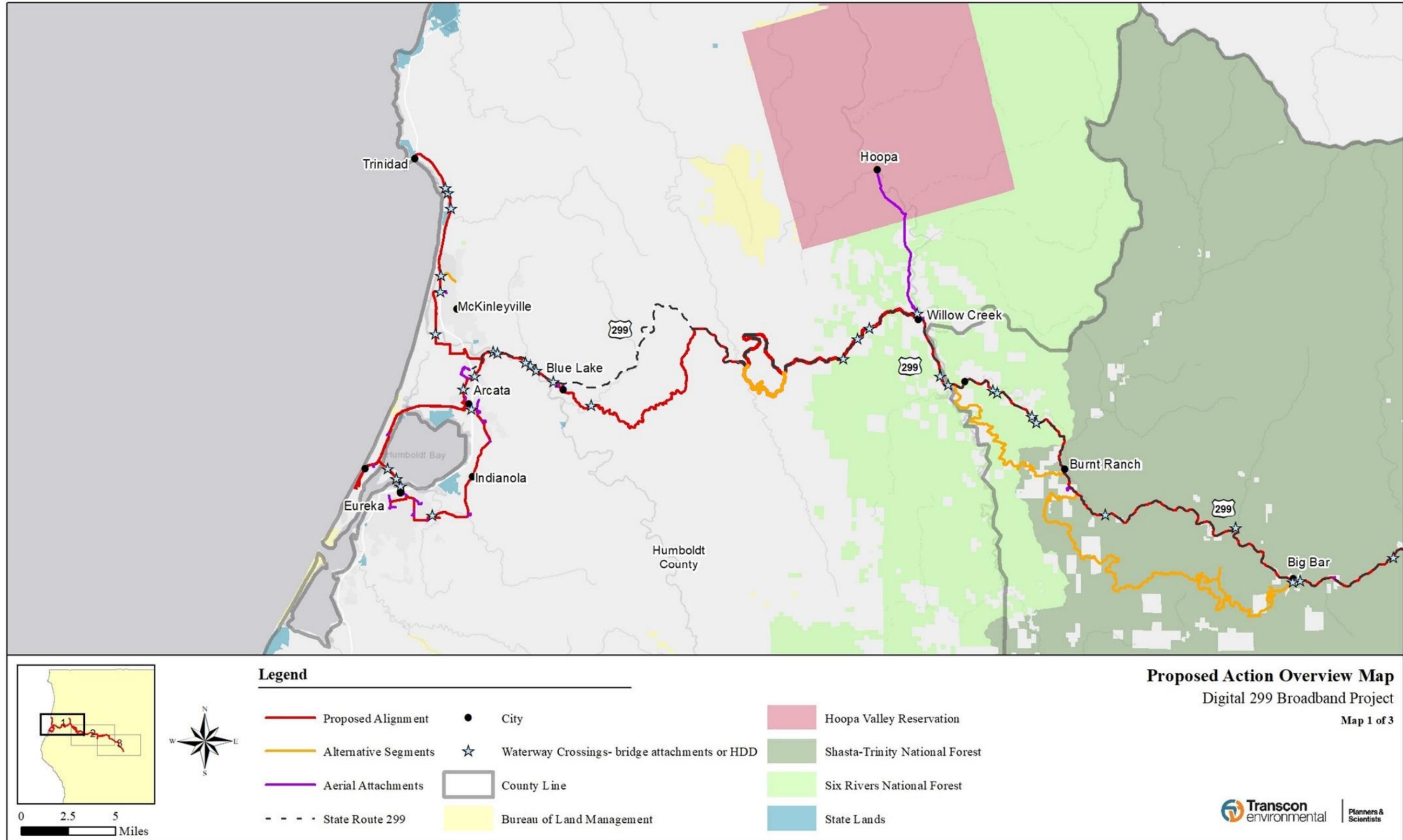


Figure 1. Proposed Action Overview Map—Panel 1

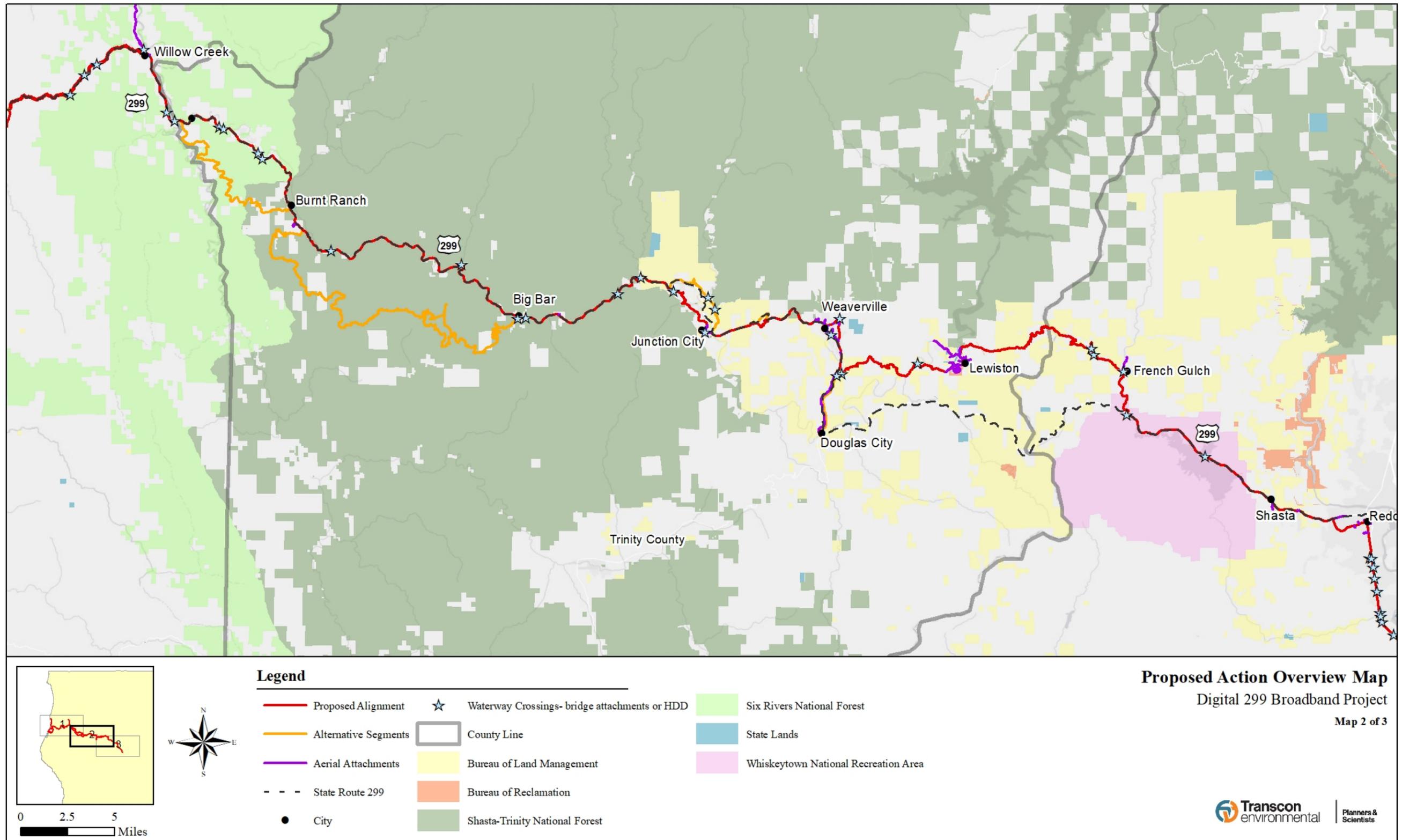


Figure 2. Proposed Action Overview Map—Panel 2

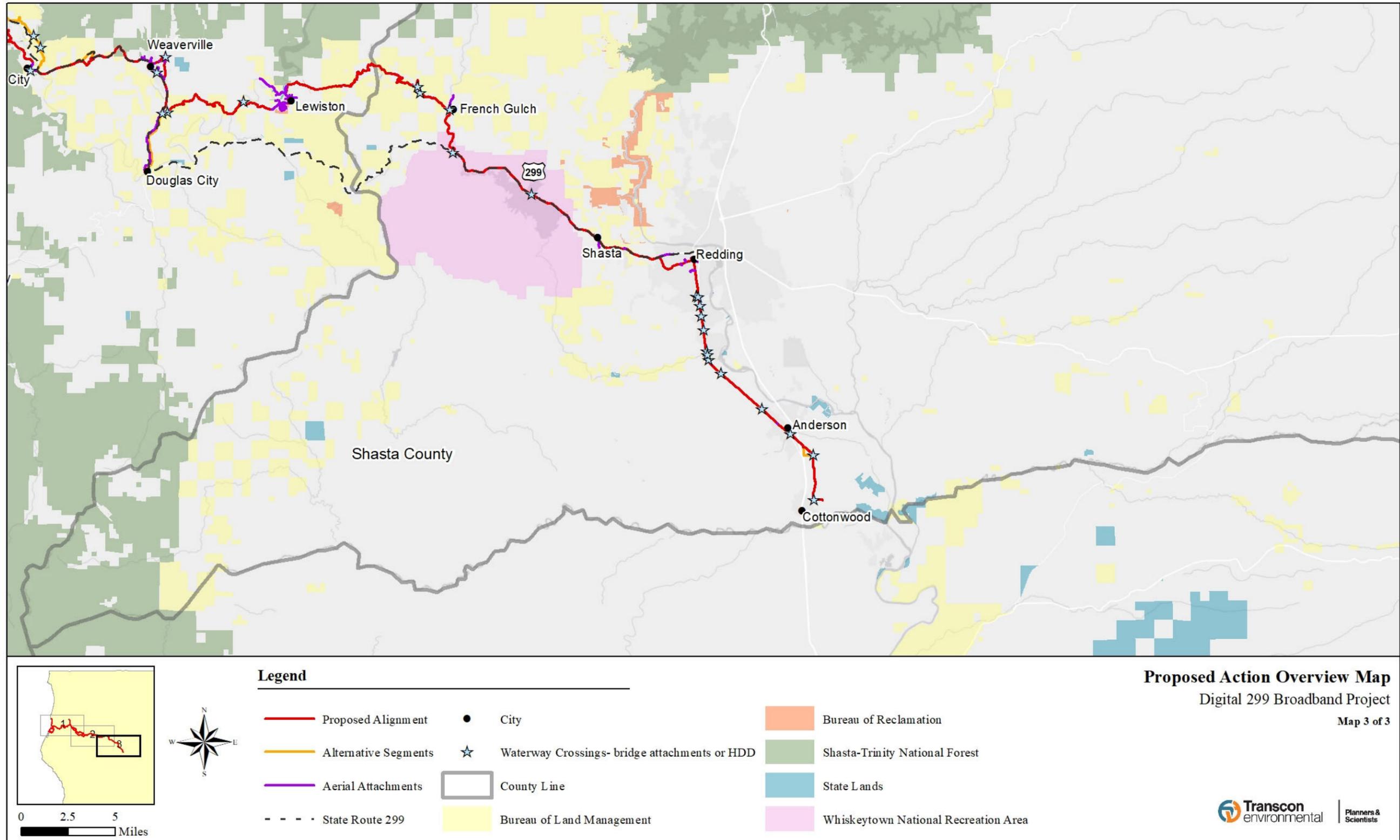


Figure 3. Proposed Action Overview Map—Panel 3

2.2.2 Project Facilities and Construction

The Digital 299 middle-mile portion, or backbone, consists of four underground conduits housing the fiber optic cable. Barrel vaults are installed underground adjacent to the line to splice the cable and provide access to the conduit. Aerial attachments would extend from the backbone, attaching to existing utility poles to connect communities. Up to five prefabricated ILA buildings would be placed to facilitate signal regeneration. These facilities and associated construction methods are described in further detail below.

2.2.2.1 *Buried Conduit and Vaults*

Four 1.25-inch-wide conduits would house the fiber optic cable. At least one conduit would be left empty for maintenance and/or future capacity. The conduit would be placed along the road shoulder or under the roadway if shoulders are narrow. Three proposed construction methods are described below to account for variations in geology, terrain, and environmental sensitivities: HDD; plowing; and trenching with either a trencher, backhoe, or rock saw.

There is one portion of the Project around Humboldt Bay near Arcata and Eureka where fiber optic cables would be installed in existing conduit installed as part of the Samoa-Arcata-Eureka project (analyzed under Cumulative Impacts, see Section 3.11.2.2). For those approximately 16 miles of the alignment around the bay, conduit would be accessed, and new fiber optic cables installed, via existing manholes. While ground disturbance would not occur in this area, it is included in analyses to ensure all future work employs best management practices (BMPs) and avoidance and minimization measures (AMMs). The rest of the Project (~300 miles) would entail new conduit being installed using construction methods described below.

Horizontal Directional Drilling

Most of the Project (approximately 90 percent) would be constructed using the HDD method. HDD is a steerable, trenchless method of installing underground conduits along a bore path using a surface drilling rig (**Figure 4**). The “bore” is the drilled hole; the “conduit” is a pipe installed within the bore to contain the fiber optic cable. HDD causes minimal impacts; ground disturbance occurs only at each entry/exit point, referred to as “bore pits.” Bore pits would be sized to a maximum area of 10 feet by 10 feet and a maximum depth of 4.5 feet, although most bore pits would be no larger than 3 feet by 6 feet. Bore pits would be sited outside sensitive areas and within the 25-foot-wide temporary construction corridor.

An HDD bore normally installs conduit in 500- to 800-foot ranges; in some cases, over 2,500-foot ranges can be obtained depending on the substrate. The bore diameter to house the conduit would be 4 inches, and the conduit would be buried between 36 and 42 inches deep, with a maximum depth of ~~10~~20 feet achievable when necessary.

The HDD process involves drilling a hole with guidance equipment and continuous drill bit position monitoring. Once drilling is complete, the conduit is pulled through the bore hole. HDD uses a mixture of water and bentonite slurry (naturally occurring clay) that is pumped down the drill stem to lubricate the drill head and drill pipe, maintain the bore hole opening, and remove bore cuttings. Used slurry would be captured and recycled or properly disposed of; unused slurry would be contained within covered barrels at all times when not in use and would not be discharged from the area during wet weather.

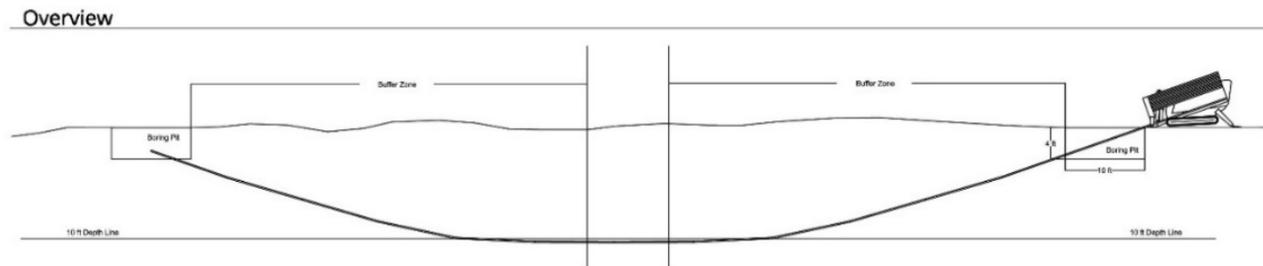


Figure 4. HDD construction method diagram

HDD Under Waterways

The Proponent has designed the Project to limit impacts to waterways by using the HDD construction method under every waterway that is holding water during the time of construction and attaching conduit to bridges when possible. Major waterways that would be bored under are listed below; the HDD depth under the following waterways would be 15 to 20 feet below the bed of the waterway:

- McDaniel Slough
- Lindsay Creek
- Windy Creek
- East Fork Willow Creek
- Big French Creek
- Unnamed
- Trinity River
- East Weaver Creek
- French Gulch
- Canyon Hollow Creek
- Oregon Gulch
- Anderson Cottonwood Canal
- Olney Creek
- Spring Gulch
- Anderson Creek
- North Fork Mad River

Frac-outs may occur when the pressure of the clay/water mixture is greater than the pressure of the surrounding ground/rock, or when a pathway or crack opens in the ground that allows the mixture to seep out of the bore hole. Frac-out risk depends on a variety of factors, including ground conditions (e.g., soil type, erosion) and Project design features (e.g., bore size and depth). Frac-outs are most likely to occur within 200 feet of the entry and exit pits, and in areas where ground has already been disturbed (Skonberg et al. 2008). This risk can be minimized or avoided by using proper tools and drilling practices, including monitoring drilling and pullback rates, monitoring returns into the entrance pit, and identifying any underground obstacles prior to construction (Tabesh et al. 2019).

Vero will employ a Contingency Frac-Out Plan (**Appendix E**), which describes preventative and response measures related to frac-outs. The Contingency Frac-Out Plan includes overarching BMPs as well as site-specific plans and designs for the above major waterways. Geotechnical studies performed immediately prior to construction will test the soil on either side of major HDD crossings and will inform the slurry mix, further minimizing frac-out risk. General BMPs include but are not limited to keeping a vacuum and spill kit on-site, installing temporary sediment barriers, and storing spoils away from riparian boundaries when boring under waterways. As described in the Plan, the HDD operation would also be continually monitored for pressure changes or visual observations of seepage. Monitoring devices allow the crews to track the exact location of the drill bit, including depth, and detects pressure changes which may indicate a frac-out risk or occurrence. The Contingency Frac-Out Plan would incorporate agency input prior to the issuance of permits. If a frac-out occurs, Vero would respond according to their Plan and will alert and coordinate with appropriate agencies (e.g., CDFW, NMFS).

Plowing and Trenching

In areas where HDD is not feasible (terrain, environmentally sensitive areas), the plow or trench construction method would be used. A plow machine has a 2- to 3-inch-wide stationary or vibrating blade that cuts a 4- to 6-inch-wide slit in the soil for the conduit to be inserted below ground. As the ground is cut, the conduit is installed at the desired depth by feeding it down a chute located on the back of the blade (**Figure 5**). As the tractor passes the insertion point, the ground is packed behind it, restoring it to its original condition. This allows soil compaction to simultaneously take place as the conduit is being installed in one single action. After the conduits are installed, the furrow is compacted back in place by the back end of the plow or a compaction vehicle. Where trenching occurs along the alignment, the trench size would be a maximum of 3 feet wide and 5 feet deep. Equipment for this operation is tracked vehicles 10 to 12 feet long.

Areas of fracture rock or areas that are otherwise unsuitable for plowing or HDD would be constructed using trenching machines, excavators, backhoes, or rock saws. Using this method, the trenches would be opened, and material would be stacked to the side within the 25-foot-wide construction corridor. Conduit would then be placed, and stacked material would be returned to the trench and compacted. Temporary soil disturbance from trenching is anticipated to be approximately 6 feet wide. The typical bucket size on a backhoe used for trenching would be 18 inches up to a maximum of 24 inches.

Rock sawing is used to dig trenches in rock or extremely compacted soil conditions. The trenching component of the rock saw consists of a large rotating cutting wheel with blades or teeth that cut up/crush the ground as it rotates, breaking rocks or compacted soil within a narrow trench. Rock saws are placed along the trench line with the blade lowered to the desired depth, then the vehicle cuts along the trench line. Spoils from the trench are fine 0.25-inch to 0.5-inch gravel which is deposited adjacent to the trench for backfill. In shallow trenches, spoils are removed, and a slurry backfill is used. The slurry protects the conduit and cable from inadvertent dig ups or damage.

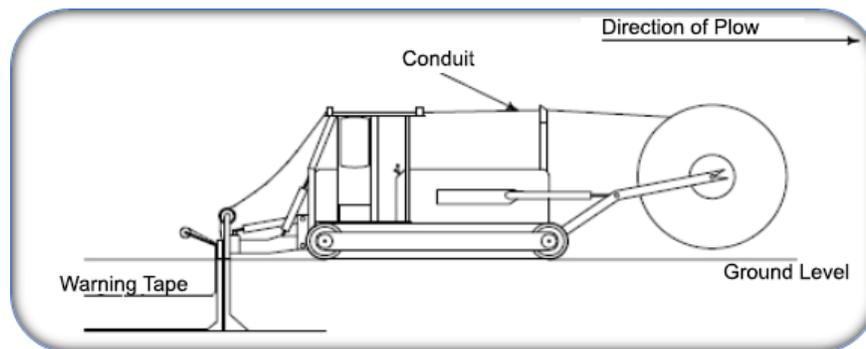


Figure 5. Tractor plow mechanics

Barrel/Access Vaults

Underground vaults are necessary along the alignment to splice cables and provide access to the buried conduit. Vaults are excavated and placed at the same time as conduit installation; they would be sized 4 feet by 4 feet by 4 feet deep and spaced approximately every 2,500 feet. Specific vault locations are unknown but would be placed along the centerline of the conduit within the proposed temporary disturbance area (i.e., 25-foot-wide corridor). Vaults are covered with metal access lids flush with the ground.

Fiber Optic Cable Placement

Once the conduit and vaults are installed, the conduit is tested and the fiber optic cable is placed. Fiber optic cable is placed using two primary methods: 1) pulling cable using Kevlar tape or 2) pneumatically using compressed air, colloquially known as “blowing” or “jetting.”

For both methods, a reel of fiber optic cable is transported via flatbed truck to access vaults along the route. For the cable pulling method, Kevlar tape is attached to the cable and fed into the conduit. Once the cable reaches the vault, the tape is retrieved and spliced to the next section of fiber. To use compressed air, a truck- or trailer-based compressor and a 3-foot by 2-foot “blowing machine” channels the cable and compressed air along a tube and into the conduit. The cable flows through the conduit with the compressed air, is retrieved at the next vault location, and is spliced to the next section of cable.

2.2.2.2 Aboveground Conduit

Bridge Attachments

For perennial and intermittent waterways that have bridges, conduit would be attached to the existing bridge, or the fiber optic cable would be installed in existing conduit already attached to the bridge, if available. **Appendix Q** lists bridge crossings along the alignment, the associated road, and the county. Most of these bridges are owned by Caltrans; the Proponent would coordinate engineering and construction planning with bridge owners.

All bridge attachments would be certified by a professional civil engineer registered in the State of California and approved in advance by the bridge owner’s agency. Conduit would be affixed on the side or underside of the bridge to meet the visual needs of the particular structure and location. Bolts, clips, or anchors would be used to secure the conduit to the bridge in such a way that it would not impact the structural integrity of the bridge. Typically, a standard drill is used to install hardware on bridges. Conduit would be housed in a single steel pipe with a maximum diameter of 6 inches and installed by crews using a “reach around” boom that operates on a trailer that sits on the roadway with an extension that reaches out from the railing of the bridge and extends below the bridge surface to the work platform. When placing conduit along the underside of the bridge, placement of the steel pipe would be adjacent to the structural system (beams and girders), such that the elevation of the bottom of the bridge is not lowered.

At either end of bridge crossings, an area up to 10 feet wide by 10 feet long (maximum size of a bore pit) would be disturbed to bring the buried conduit above ground to attach to bridges. This area would generally be in line with the bridge alignment and up to 50 feet from where the bridge and conduit attachments begin. These areas would be sited outside sensitive areas, as conditioned in the 404/401 permits issued for the Project and shown in the Preliminary Jurisdictional Delineation Report (PJD) (**Appendix F**).

Pole Attachments

Fiber optic cable would be attached to existing utility poles during the second phase of the Project. Pole attachments would be used only for last-mile connections to serve communities and CAIs. Digital 299 would also support the provision of last-mile services in the community of Lewiston, which would be delivered via aerial utility poles within Lewiston. This Proposed Action includes building out the fiber optic cable to strategic pole locations for future connections to homes and businesses within Lewiston; specific connections in Lewiston would be determined between Vero and interested parties.

Aerial attachments would be installed on existing poles using existing access. New poles or access roads are not proposed as part of this Proposed Action. If roads do not exist or are inaccessible, crews would access poles on

foot. It is possible that existing poles would have to be replaced if existing poles are overburdened. Locations of such replacements are not known at this time; load calculations are made by pole owners after final permissions are given to attach to poles. Pole replacements are typically authorized under the utility owner's ROW, but Vero would work with the utility to replace those poles.

Existing poles would either be accessed using bucket trucks or by crew members climbing the poles to manually attach the cable. Cable would be pulled through rollers from the uphill end of the route. Once the cable is pulled through the rollers, the linemen would return to the poles, detach the rollers, and permanently affix the cable to the pole.

2.2.2.3 ILA Buildings

The Project includes installation of up to five prefabricated ILA buildings to regenerate transmission signals and serve as points of interconnection to other service providers. These buildings are the only aboveground component of the Project, other than bridge and occasional aerial attachments. Typical ILA buildings measure 10 to 24 feet wide and 24 to 40 feet long. The buildings would be enclosed by fencing and secured by locked gates. Fencing would be installed with a minimum distance of 10 feet from the ILA buildings. The fenced-in area would vary based on the property size and shape but would typically range between 200 and 400 linear feet. These buildings would not be occupied but could accommodate one to two persons to work on equipment. Typically, visits to check on equipment and maintain the property would occur quarterly.

The prefabricated buildings would have finished concrete walls, composite or metal roofs, and metal doors; they would not have windows. They would be manufactured off-site and placed on-site with equipment. The buildings would be secured to concrete slabs, which may require grading to create a level surface prior to installation. However, Vero intends to install ILA buildings in pre-disturbed commercially zoned areas or other areas where similar infrastructure or facilities are already placed in order to avoid sensitive areas. ILA buildings would not require vegetation removal and would be situated to minimize impacts to visual landscapes.

The buildings would require electricity, which would be provided primarily by existing commercial power. Each building's commercial power system would be backed up by battery and a 75- to 200-kilowatt diesel, propane, or natural gas-powered generator. The generator would be used if a power outage occurs long enough that the backup battery power is expended. Generators and fuel tanks would be situated well away from vegetation or other wildfire safety risks and would be checked and maintained during quarterly ILA inspections. The buildings may also be supported by solar power. All buildings would have an air conditioning system, similar to large, window-mounted units. An external porch light would be installed at the door to illuminate egress including the steps or stoop. This light would be under 100 watts and would be operated by an internal timed switch. Depending on need and location, flood lights or yard lights may also be installed within the compound.

The proposed ILA building locations would be in the communities of Willow Creek, Junction City, and Shasta. However, adjustments to the fiber optic backbone may necessitate moving the placement of ILA buildings to private land in one or more of the following communities: Salyer, Burnt Ranch, Big Bar, Weaverville, Lewiston, French Gulch, Shasta, Redding, Anderson, and/or Cottonwood. Specific locations have not been determined for any of the ILA buildings. Measures listed in **Appendix G** provide parameters for siting of ILA buildings to avoid sensitive areas. Additional analysis (in the form of Digital 299 report amendments) or permitting may be necessary based on final ILA location sites.

2.2.2.4 Construction Operations

Equipment needed to construct the Proposed Action could include a Caterpillar D8, backhoe, 10-wheeler truck, semi-trailer truck, three-quarter-ton pickup truck, excavator, HDD rig, vacuum, trencher, dozer/plow, loader, cable reel trailer, air blower device, air compressor, mechanical pusher/puller, bucket truck, and water truck. All equipment would stay within the 25-foot construction area or staging areas. Multiple crews would be working concurrently along the route, all in a generally linear fashion. Construction pace would be between 500 feet and 2 miles per day, depending on construction method and terrain. Access and egress to and from construction sites would occur along existing roadways.

Although crews would arrive by pickup truck and staging could occur on the roadway, only 2 to 3 pieces of equipment would be operating at once and needing to maneuver within the ROW: an excavator to excavate the bore pit (present before and after boring), a drilling rig to install the conduit (present during boring only), and a vacuum to remove excess mud (present during boring only). The largest possible bore pit would be 10 feet by 10 feet, and with most bore pits at 3 feet by 6 feet, there would be sufficient space for equipment.

Staging and laydown areas would be used to store vehicles, equipment, and materials during construction. Temporary parking of vehicles overnight would occur within these areas or as permitted along remote unpaved back roads. Areas potentially used for staging or laydown have been pre-determined, included in this environmental analysis, and are depicted on maps in **Appendix D**. More staging/laydown areas are identified than would likely be needed.

Vero would implement sediment control BMPs around every bore pit, as described in the Stormwater Pollution Prevention Plan (SWPPP). Sediment control practices may include filtration devices and barriers (such as fiber rolls, silt fence, straw bale barriers, and gravel inlet filters) and/or settling and separation devices (such as a “Mud Puppy”). Effective filtration devices, barriers, and settling devices would be selected, installed, and maintained properly.

Construction Schedule

The Proposed Action is divided into two phases: the middle-mile or backbone route (Phase 1) and the last-mile connections (Phase 2). The total duration of construction for Phase 1 of the Proposed Action is estimated at up to 24-36 months, beginning in the ~~second~~ fourth quarter of 2022. Construction crews would generally work 8 to 10 hours a day, 5 days a week during daylight hours. Saturday work may be required in some areas as needed; approval from the proper agencies would be obtained prior to construction on weekends. No work is anticipated to occur on major holidays or during Native American ceremonies. Digital 299 would avoid lane closures during times of inclement weather, including but not limited to rain, snow, and ice.

Phase 2 of the Project (last-mile connections) would begin construction once middle-mile fiber optic cable is installed and as soon as last-mile providers and Vero finalize interconnection points and locations of service drops. Phase 2 construction is expected to begin in 2024. Most or all last-mile connections are expected to be attached to existing utility poles requiring no ground disturbance.

Traffic Control

This Proposed Action would follow federal, state, and local guidelines for temporary traffic control in construction zones. Guidelines include signage, cones, barricades, flagging, and pilot cars (i.e., escort vehicles to guide traffic through the construction zone). Traffic control plans would be submitted for encroachment approval from state and local agencies based on the specific conditions of the roadways and construction sites involved.

Active flagging and the use of pilot cars would likely be used along SR 299 and on city streets, while a combination of signage and flagging would be used in more remote areas. Advanced notification of traffic control measures would be given to the community under certain conditions; these measures would be determined at the local level and would be specific to each community. The Proponent would develop Traffic Control Plans prior to the start of construction and as required by city and county agencies.

Subsurface Warning Tape and Cable Locating Technology

A continuous ribbon of warning tape would be placed along and above the new conduit during construction. The warning tape would be imprinted with a warning message to excavators that fiber optic cable is buried below. The subsurface tape may be magnetic, which would allow engineers to locate the fiber optic cable conduit.

Fiber Optic Cable Marker Posts

Aboveground warning marker posts would be placed along the entire cable route at intervals of approximately 700 feet. The posts would be contained within the ROW directly above or offset of the conduit. These 4-foot-tall metal, poly-vinyl, or fiberglass posts are installed to provide visible evidence of the presence of buried cable, identify the owner of the cable, and provide a telephone number for emergency notifications. The location of the marker post may be adjusted to accommodate sensitive environments (e.g., sensitive vegetation communities) or physical limitations (e.g., rocks). Land management agencies would be consulted as to their preference regarding color, placement, or other features of marker posts.

2.2.2.5 Operation and Maintenance

Operation and maintenance needs for fiber optic networks are generally minimal but are required when a risk is identified or damage to the cable is discovered. The fiber optic line would be electronically monitored continuously for such risk or damage. Surveyors may also drive along the existing roads to inspect the line after a weather or seismic event; existing roads would be utilized for operation and maintenance activities. If the conduit requires access, the barrel vaults installed as part of the Proposed Action would be utilized to inspect or repair the line. Ground-disturbing activities associated with ongoing operation and maintenance procedures are typically minor and would only occur as a result of erosion control repair in the event of storm damage, landslides, or other emergencies. If operations and maintenance activities require ground disturbance (e.g., conduit repair), consultation and/or permit amendments will be needed with relevant agencies. The scope of this analysis assumes maintenance activities would be confined to the existing roadway and the 10-foot fiber optic ROW.

2.3 Alternatives

The following types of alternatives were considered as part of this Project and are described in the sections below:

- *Alternative Technologies*: This section describes various materials and installation methods the Proponent considered for the Digital 299 network. These technologies were considered but dismissed as infeasible alternatives
- *Alternative Segments*: This section describes alternative segments included in the analysis, relative to the Digital 299 primary alignment
- *No-Action Alternative*: This section considers outcomes of the Proposed Action not being built, and functions as a baseline for analysis of the Project

2.3.1 Alternative Technologies

There are four types of technologies upon which broadband can be delivered: 1) landline, 2) fixed wireless, 3) cellular (wireless), and 4) satellite. The Proposed Action is landline technology, so only alternatives 2, 3, and 4 are discussed in this section. These alternatives are dismissed from further consideration for the reasons described below:

- *Fixed Wireless*: The region is presently served on a limited geographic basis by fixed wireless technologies. Fixed wireless broadband utilizes either licensed or unlicensed radio spectrum to deliver digital signals up to 5 miles in distance, although this range is variable due to terrain and foliage. Generally, fixed wireless provides last-mile services at relatively low speeds with less reliability than landline solutions. Given speed limitations, fixed wireless is not used by the industry for major internet routes, and many of the carriers are replacing microwave backhaul systems whenever landline (fiber) solutions are available
- *Cellular (wireless)*: Cellular technology has improved to meet the need of most mobile applications in urban and suburban areas; however, along the proposed SR 299 corridor, it is unlikely that the industry would deploy the high-capacity 5G systems planned for select urban areas. Further, because there is a general requirement for fiber optic backhaul to support high-capacity cellular, the region would not have a cellular solution without Digital 299 (installation of middle-mile facilities). Cellular is not a middle-mile technology, and there are substantial service gaps between Whiskeytown and Weaverville, Junction City, Willow Creek, and large segments of SR 299 between Willow Creek and Blue Lake; therefore, cellular is not a feasible broadband solution for the region
- *Satellite*: Satellite-based broadband is a wireless broadband inadequate for regional economic development and commercial applications. It delivers slow broadband download speeds, and its low latency imposes restrictions on applications. Satellite-based broadband would not provide solutions for government, education, and medical applications. It is inadequate for economic development, does not meet the state's policy for broadband coverage, and is not recognized by any state or federal agency in their definition of "broadband coverage"

Other alternative materials and construction methods are listed for landline technology (i.e., the Proposed Action method):

- *Copper Cable*: Fiber optic cable was chosen over the copper cable alternative for two reasons. First, the physical characteristics of copper cable do not support high-capacity broadband transmission. As a result, many of the proposed current and future applications would not work on copper cable, and its use is no longer considered a common industry practice. Second, copper cable requires more invasive construction methods, since copper cables are larger, heavier, and require more extensive manholes and conduits
- *Aerial Construction*: The only alternative to the proposed underground network would be to install a pole line along the SR 299 corridor and affix the cable. This alternative was not chosen for the following reasons: 1) there is no continuous existing pole line along the SR 299 corridor; 2) power lines are remote from most of the communities to be served; 3) aerial facilities are vulnerable to wildfire damage, which undermines its utility as a dependable public safety network; and 4) aerial communication facilities are exposed to vandalism and terrorist attacks

2.3.2 Alternative Segments

The Project Proponent identified about five alternative segments along the Proposed Action alignment (see **Figures 1 to 3**) that are included in the scope and analysis of this EA. These alternative segments are included in

case environmental analysis or engineering deems the proposed route infeasible. Their inclusion is also meant to expedite future analysis and permitting should an alternative segment be chosen later in the Project.

The alternatives are not being presented for the NEPA decisions, and agencies are not meant to decide whether the primary route or alternative segments are built. Rather, using this EA as a basis, agencies would decide whether to approve the Proposed Action (i.e., primary route) or choose the No-Action Alternative, described below.

2.3.3 No-Action Alternative

NEPA and CEQA require analysis of the No-Action Alternative to provide a baseline for comparison to the Proposed Action; it also demonstrates the impacts of not satisfying the Proponent's purpose of the proposal. At the discretion of agencies, the No-Action Alternative could be selected, meaning that environmental conditions and internet availability would remain as is. The No-Action Alternative is analyzed in Chapter 3 for each resource considered.

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Scope of the Analysis

This chapter describes the current conditions of resources that may be affected by the Proposed Action as well as an analysis of potential impacts and how they will be managed, avoided, and minimized. **Table 3** describes all resources considered, including where a detailed analysis can be found for those carried forward for evaluation and rationale for why resources were dropped from further evaluation.

Impacts and risks to all resources listed in **Table 3** will be minimized and managed through the implementation of the applicant-proposed measures (BMPs and AMMs) in **Appendix G**. For the purposes of this EA/IS, the terms “effects” and “impacts” are used synonymously.

Throughout this chapter, the following terminology is used to describe the duration and severity of potential impacts:

- *Negligible Effect*: A localized degradation to a resource condition, use, or value that is not measurable or perceptible, and which is mostly likely not significant under NEPA
- *Minor Effect*: A measurable or perceptible and localized degradation of a resource’s condition, use, or value that is of little consequence, and which is most likely not significant under NEPA
- *Moderate Effect*: A localized degradation of a resource condition, use, or value that is measurable and has consequences, and which is possibly significant under NEPA but would be reduced to a non-significant level by applicant-proposed measures
- *High Effect*: A measurable degradation of a resource condition, use, or value that is large and/or widespread and could have permanent consequences for the resource, which may be considered significant under the NEPA
- *Short-term or Temporary Effect*: An effect that would result in the change of a resource condition, use, or value lasting less than one year, and which is most likely not significant under NEPA
- *Long-term or Permanent Effect*: An effect that would result in the change of a resource condition, use, or value lasting more than one year and probably much longer, which may be considered significant under the NEPA
- *Direct Effect*: An effect that is caused by the action and occurs at the same time and place as the action
- *Indirect Effect*: An effect that is caused by the action but occurs later in time or at a different location and is reasonably foreseeable
- *Beneficial Effect*: A change that would improve the resource condition, use, or value compared to its current condition, use, or value

TABLE 3. RESOURCES CONSIDERED IN THE EA/IS

Resource	Present and Affected	Present, Not Affected	Not Present	Rationale	Impact Findings
Aesthetics/ Visual Resources	-	✓	-	Aesthetics and visual resources are present in the Action Area but are not affected. Most of the Proposed Action infrastructure would be buried underground, causing no long-term change to the visual character of the surrounding landscape, which is primarily already developed areas and transportation corridors. The only aboveground portions of the Proposed Action are the cable attachments to existing utility poles and the six prefabricated ILA buildings. New utility poles are not proposed, and the addition of cable along an existing pole line would not impact the visual landscape. While the specific locations of the ILA buildings are not known, they would be sited on private property consistent with local building codes and standards. Resource protection measures listed in Appendix G provide parameters for where the ILA buildings shall not be located in order to avoid impacts to environmental resources, including visual resources and aesthetics.	Impacts that may otherwise occur or may occur at a greater scale are avoided or minimized with implementation of standard resource protection measures.
Agriculture and Forestry Resources	-	✓	-	Agriculture and forestry resources are present in the Action Area but are not affected. The General Plans for Humboldt, Trinity, and Shasta counties all have Land Use Element policies that protect prime agricultural lands and/or high-quality timberlands within their respective jurisdictions. While the Proposed Action alignment intersects forest land and timberlands in each county, it is restricted to pre-existing roads and would not impact agricultural and forestry resources availability or use.	No impact
Air Quality	✓	-	-	Air quality in the Action Area may be impacted during construction and is further analyzed in Section 3.2.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Greenhouse Gas (GHG) Emissions	-	✓	-	GHG emissions from the Proposed Action would not cause appreciable impacts. The estimated 10,300 metric tons of carbon dioxide (CO ₂) equivalent that would be generated from the construction phase (see Appendix H for Air Pollutant Emissions Calculation Sheets) is much less than the 25,000 metric tons annual minimum threshold of consideration for non-mobile sources (40 CFR 98). Only 2 to 3 pieces of equipment would be operating at once at each work site. The GHGs generated by the occasional running of the generators at the ILA buildings would be negligible; ILA generators would only be used on an emergency basis if a power outage occurs long enough that the backup battery power is expended. Because the Proposed Action includes predominantly mobile sources of emissions during its construction phase, it would not be subject to GHG reporting. Effects from GHG emissions would be further minimized by implementing air quality measures outlined in Appendix G .	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Climate Change	-	✓	-	Climate change would not be impacted or exacerbated as a result of the Proposed Action. As described above, emissions from construction would not meet the minimum threshold of consideration for non-mobile sources, and there are no reporting requirements for climate change. Since the contribution of GHGs would be negligible, there would be no impact to climate change overall. Air Pollutant Emission Calculation Sheets for the construction portion of the Proposed Action can be found in Appendix H .	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures
Biological Resources	✓	-	-	Biological resources in the Action Area may be impacted during construction and are further analyzed in Section 3.3.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Cultural and Tribal Resources	✓	-	-	Cultural resources in the Action Area may be impacted during construction and are further analyzed in Section 3.4.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures and site-specific measures outlined in

Resource	Present and Affected	Present, Not Affected	Not Present	Rationale	Impact Findings
					the Cultural Resources Inventory Report (Loftus et al. 2021).
Energy	-	-	✓	Energy generation, usage, or transmission would not be impacted by the Proposed Action. As described in Section 2.2.2.3, ILA buildings would be powered primarily by existing commercial power and may be supported by solar power. As described in Section 2.2.2.5, operations and maintenance needs would be minimal except in cases of damage or unusual risk. The Proposed Action would not result in wasteful, inefficient, or unnecessary consumption of energy for construction or operation and would not conflict with or obstruct any renewable energy or energy efficiency plan.	No impact
Geology/Soils	✓	-	-	Geology and soils in the Action Area may be impacted during construction and are further analyzed in Section 3.5.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Growth-inducing Impacts	-	-	✓	Growth-inducing impacts would not occur as part of the Proposed Action. The Proposed Action responds to known lack of broadband services affecting current residents and would not directly cause growth in the region.	No impact
Hazards and Hazardous Materials	-	✓	-	Hazards and hazardous materials would not be impacted or exacerbated as a result of the Proposed Action. The Proposed Action does not intersect any known contamination sites. There are two superfund sites within 5 miles: the Copper Bluff Mine in Hoopa, 4 miles north of the Action Area; and the Iron Mountain Mine, 3 miles away from the Action Area, near Redding. During construction, gasoline, diesel fuels, and hydraulic fluid used in construction equipment would be present in the Action Area and will be managed via Spill Prevention Plans and other BMPs listed in Appendix G . Fuels would also be maintained on-site at ILA buildings during the operation phase.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Hydrology/Water Quality	✓	-	-	Hydrology and water quality in the Action Area may be impacted during construction and are further analyzed in Section 3.6.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Land Use/Planning	✓	-	-	Land use and planning in the Action Area may be impacted and are further analyzed in Section 3.7.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Mineral Resources	-	✓	-	Mineral resources are present in the Action Area but would not be impacted by the Proposed Action. The Proposed Action does not intersect any active claimed mines, though there are five rock or gravel mines within 0.125 mile of the Proposed Action Area (CDC 2019a). Because the Proposed Action is confined to existing roadways, no impacts to mining or mineral resources are expected. The Proposed Action does cross one unclaimed, privately owned quarry, Eagle Rock Gravel Pit, and Vero would acquire appropriate land rights and coordinate with the quarry owner during construction in order to avoid mining activities.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Noise	✓	-	-	Noise during construction may cause impacts and is further analyzed in Section 3.8. Noise from long-term operation of the Project is not anticipated to result in substantial noise impacts to any receptors, as discussed in Section 3.8.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Paleontological Resources	✓	-	-	Paleontological resources are present in the Action Area and are further analyzed under Geology and Soils (Section 3.5).	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.

Resource	Present and Affected	Present, Not Affected	Not Present	Rationale	Impact Findings
Population/Housing	-	✓	-	Population and housing in the area would not be impacted by the Proposed Action, which involves installation of a fiber optic cable. The Proposed Action responds to planned growth allowable under city and county plans and seeks to address broadband availability in the region to current residents, as dictated in the CPUC Grant.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Public Health and Safety	-	✓	-	Public health and safety risks would be avoided by implementing BMPs listed in Appendix G . Risks to public health and safety include exposure to hazardous materials, impeding emergency access during construction, and the potential for wildfires during construction of the Proposed Action. Hazardous materials are described in the Hazards and Hazardous Material row above. Traffic Control Plans and other BMPs listed in Appendix G would be implemented to manage traffic flow, including giving emergency vehicles immediate passage around construction sites. The Proposed Action poses a risk to wildfire only during construction from potential equipment sparks; fire prevention measures that will be followed during construction are outlined in Appendix G . Naturally occurring asbestos may be encountered during Project construction and is discussed in the air quality analysis (Section 3.2).	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Public Services	-	✓	-	Public services would be benefited by the Proposed Action, since they provide a new broadband utility service and would improve delivery of emergency services for police, fire, and emergency medical response by increasing access to internet services.	Beneficial effect
Recreation	✓	-	-	Recreation in the Action Area may be impacted during construction and is further analyzed in Section 3.9. <u>No permanent impacts to recreational areas are anticipated. Any potential recreation impacts are expected to be temporary, e.g., temporarily increased traffic, lane or trail closures, or slowed access to recreational facilities during construction.</u>	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Socioeconomics and Environmental Justice	✓	-	-	Socioeconomic and environmental justice in the Action Area may be impacted and are further analyzed in Section 3.10.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Transportation/Traffic	-	✓	-	Traffic and transportation impacts would be avoided or minimized by implementing agency-approved Traffic Control Plans developed for the Proposed Action. During construction, there may be brief periods of one-way controlled traffic, particularly on unpaved or single-lane roads in rural areas. The construction contractor would be required to follow all requirements and regulations from approved permits and Traffic Control Plans and provide standard signage, flaggers, and pilot cars, where indicated, on state and county roadways. In all cases, emergency vehicles would be given priority to cross the construction area. The USFS has designated SR 299 from Redding to Arcata as the “Trinity Scenic Byway” under the National Forest Scenic Byways Program due to the wide variety of plant and animal life that exists in the various climate zones along the highway (USFS 2021). The Project is not expected to have substantial impacts to traffic flow, and impacts to plant and animal life along the alignment will be minimized or avoided. This Project will not alter the features of the Trinity Scenic Byway.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Utilities/Service Systems	-	✓	-	Utilities and service systems in the Action Area would not be impacted by the Proposed Action, which are compatible with existing land uses. Prior to construction, underground service alert notifications would be made, and all underground utilities would be located and marked prior to the commencement of construction.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.
Wild and Scenic Rivers	-	✓	-	The Proposed Action crosses the Trinity River, which in part is a designated Wild and Scenic River. Use or value of the Trinity River would not be affected by the Proposed Action. The Proposed Action is not expected to impact a river’s scenic, recreational, or fish and wildlife resources or harm the river’s free-flowing condition or water quality. The USFS and NPS, as the appropriate river-managing agencies, will issue a WSRA Section 7 determination for the two applicable crossings of the Trinity River (Appendix P). Wild and scenic rivers are further discussed in Section 3.6.	Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.

Resource	Present and Affected	Present, Not Affected	Not Present	Rationale	Impact Findings
Wildfire	-	✓	-	<p>Construction-related wildfire risks would be reduced by implementing construction BMPs and applicable agency wildfire restrictions described in the Digital 299 Fire Prevention Plan, including that crews observe all fire alert warnings while working in areas prone to wildfires, keep all fire equipment (e.g., extinguishers, shovels, etc.) accessible at all times, and follow all other BMPs (e.g., having water trucks present to wet work areas during dry conditions) to respond to wildfires that could be caused by ignitions from sparks on vehicles and/or equipment. Workers would be trained on basic firefighting, and the availability of tools and training would allow construction crews to help control or extinguish fires they may come upon.</p> <p>Back-up generators at ILA buildings could pose a wildfire risk. ILA buildings will be sited and constructed consistent with local building codes and standards, including vegetation breaks to allow for potential sparks. After a power outage, Vero will inspect the site for safety risks and to evaluate the state of equipment.</p> <p>Once in place, the Project would increase communication capabilities allowing the public to have a more thorough and immediate awareness of active wildfires and facilitate related evacuation orders.</p>	<p>Impacts may occur and are avoided or minimized with implementation of standard resource protection measures.</p>

3.2 Air Quality

Air quality is generally managed at the basin and county level in the state of California, so the affected environment for air quality includes the two air basins the Proposed Action spans: the North Coast Air Basin (NCAB) and the Sacramento Valley Air Basin (SVAB). Air quality is assessed based on impacts to nearby sensitive receptors, such as hospitals, medical facilities, schools, and day care facilities. Vehicle emissions were modeled (**Appendix H**) to support the following analysis of potential air quality impacts.

3.2.1 Regulatory Setting

In accordance with federal CAA requirements, the air quality in a region or area is measured by the concentration of criteria pollutants in the atmosphere. Air quality depends on both the types and quantities of atmospheric pollutants and pollutant sources in an area as well as surface topography, the size of the topological air basin, and the prevailing meteorological conditions.

The Environmental Protection Agency (EPA) developed standards under the CAA for a number of pollutants known to affect both the environment and human health. These numerical, concentration-based standards are the National Ambient Air Quality Standard (NAAQS). The NAAQS sets thresholds for the maximum allowable concentrations for six primary pollutants: particulate matter less than 10 microns in diameter (PM₁₀) and less than 2.5 microns in diameter (PM_{2.5}), sulfur oxides, ozone (O₃), carbon monoxide (CO), nitrogen oxides (NO_x), and lead (Pb).

The CAA also gives states authority to establish their own air quality standards. California has developed its own California Ambient Air Quality Standards that are more rigorous than the NAAQS. The EPA has delegated its authority for enforcing air quality compliance to the California Air Resources Board. California has standards for additional pollutants beyond the six primary pollutants regulated by the NAAQS. **Table 4** presents the federal and state ambient air quality standards.

Air quality standards are used to determine if a given air quality control region (AQCR) or basin is in “attainment” or “nonattainment.” If the criteria pollutant concentrations are below the ambient air quality standards, the basin is classified as being in attainment. If pollutant concentrations are above ambient air quality standards, the basin is considered to be in nonattainment for these pollutants. Air basins or AQCRs may also be classified as either “maintenance” or “unclassified.” “Maintenance” indicates that the basin was previously in nonattainment, but pollutant concentrations have been reduced and the basin is now in attainment. “Unclassified” indicates that there isn’t enough information to assign an appropriate classification.

The General Conformity Rule ensures that federal agency actions do not hinder state air quality implementation plans. Under the rule, federal agencies must work with state, tribal, and local governments in nonattainment or maintenance areas to ensure that their actions conform to the applicable air quality implementation plan. General conformity does not apply for actions taken in attainment areas or where the emissions associated with the action are below specified *de minimis* levels. CAA conformity is ensured when a federal action does not result in a new violation of the NAAQS, result in an increase to current violations of the NAAQS, or delay the attainment timeline or any progress milestones toward achieving compliance.

3.2.2 Analysis Area

The Action Area lies completely within Humboldt, Trinity, and Shasta counties, which span two air basins: the NCAB and the SVAB. The North Coast Unified Air Quality Management District has regulatory authority over the Project area within the NCAB. The Shasta County Air Quality Management District (SCAQMD) has

regulatory authority over Shasta County. The NCAB is designated as in nonattainment for the state 24-hour and annual average PM₁₀ standards and is listed as in attainment or unclassified for all other criteria pollutants (CARB 2019). The SVAB is listed as in nonattainment for multiple pollutants; however, the SCAQMD is only in nonattainment for O₃ and is in attainment or unclassified for all other criteria pollutants (CARB 2019). Other counties within the SVAB contribute to its nonattainment status for other pollutants.

3.2.3 Impact Thresholds

The Proposed Action could have adverse impacts to air quality if it does any of the following:

- Conflicts with or obstructs an applicable air quality plan;
- Results in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Action region is in nonattainment under an applicable federal or state ambient air quality standard;
- Exposes sensitive receptors to substantial pollutant concentrations; or
- Creates other emissions such as odors adversely affecting a substantial number of people.

3.2.4 Impact Findings

3.2.4.1 *Proposed Action and Alternative Segments*

The Proposed Action includes both construction and operational phases.

Construction Emissions

The construction of the fiber optic line and associated facilities would require the use of heavy equipment and other vehicles for up to ~~24~~³⁶ months. Generally speaking, no more than two to three pieces of equipment would be operating at once at each work site. The air pollutant emissions were calculated using the emissions factors for the various heavy equipment proposed to be used and the number of days and hours per day of construction (see Chapter 2). Possible construction methods were also factored into the calculations. Emission calculations are provided in **Appendix H**. Estimated emissions resulting from construction of the Proposed Action are shown in **Table 4**.

TABLE 4. ESTIMATED CONSTRUCTION EMISSIONS BY POLLUTANT (METRIC TONS)

CO	NO _x	O ₃ (as VOC ^a)	PM _{2.5}	PM ₁₀	SO ₂	CO ₂
48.2	137	12.0	10.3	10.6	20.0	14,500

^a Volatile organic compound

The Proposed Action would contribute O₃ and O₃ precursors to the atmosphere. Shasta County is currently considered to be in nonattainment for 1-hour and 8-hour O₃ standards; however, the regularity of instances where O₃ levels exceed the air quality standards is infrequent, and the severity of exceedance is fairly low. In 2015, 2016, and 2017 there were a total of 11 days, 14 days, and 0 days, respectively, where the 8-hour standard was exceeded at the Shasta Lake Boulevard monitoring station. The Shasta County Health Department monitoring station recorded five exceedance days in 2016 and zero the other two years. At the Anderson monitoring station, the 8-hour O₃ standard was exceeded for two days in 2015 and 2016; the standard was never exceeded during 2017. At all locations during these three years, there were zero days where the 1-hour standard was exceeded (SVAQEEP 2018). Since 2007, all locations show a decreasing trend in the number of days that the 8-hour standard is exceeded (SVAQEEP 2018).

The Proposed Action would emit PM₁₀ to the atmosphere due to construction vehicle emissions. The NCAB, which includes Humboldt County, is currently in nonattainment for PM₁₀; however, the number of days of nonattainment are relatively few compared to previous years due to the fact that the pulp mills along the coast are no longer in operation (NCUAQMD 1995). PM₁₀ concentrations are also higher in urban and suburban areas during the winter months, as exceedance of the PM₁₀ standard is primarily attributed to the use of woodstoves (NCUAQMD 1995). The NCUAQMD has not exceeded the standard for the past five years, and, given the very small amount of PM₁₀ emissions anticipated by the Proposed Action, the PM₁₀ that would be emitted by the Proposed Action is not a cumulatively considerable net increase that would move the air basin toward nonattainment.

As Proposed Action construction would occur over a period of up to two years and be dispersed along a linear route that spans multiple counties and air basins and is primarily located in rural areas where air quality is generally better, it is unlikely that emissions generated by the Proposed Action would directly or indirectly result in additional exceedance days for either the O₃ standard in Shasta County or the PM₁₀ standard within Humboldt County. The linear nature of the Project, small crew size, small number of vehicles, or other heavy machinery being operated at any given time, and length of construction timeline would result in distributed effects rather than a concentrated increase.

Pollutant Dispersal

It is difficult to determine how quickly air pollutants would be dispersed, as this is a function of many factors, including wind speed, wind direction, temperature, topography, and atmospheric stability, among others. In unstable conditions, ground-level pollution is readily dispersed, while stable conditions typically result in pollution remaining near ground level.

Using a simplistic “box” model where pollutants only disperse within an area 100 meters to either side of the Project corridor and no more than 25 meters above ground surface, average O₃ emissions within this zone would be 0.009 ppm or less, assuming the crews cover an average of 300 meters per day. This is representative of what might be encountered in close proximity to the Action Area. Over time, concentrations would dissipate even further, to a negligible net effect on ambient conditions. Given the transient nature of Project construction through predominantly rural areas where other construction-related and industrial sources are limited, air quality impacts to sensitive receptors are anticipated to be negligible to none.

The Proposed Action would result in temporary, localized increases in pollutant concentrations as construction progresses, but effects would be spread out over distance and time and do not represent a cumulatively considerable net increase for either of the two pollutants for which the air basins are in nonattainment.

Dust Control, Naturally Occurring Asbestos, and Presence of Lead

The Proposed Action has potential to generate dust during the construction phase, which would be an additional source of PM₁₀ emissions. Generally, dust would settle within 300 feet of its source (EPA 2009), and the Proposed Action alignment is largely not sited within populated areas where dust would be a nuisance; however, in urban or suburban areas, dust control measures provided as BMPs in **Appendix G** would be applied to reduce dust generation by requiring construction crews to limit vehicle speed, moistening excavation sites prior to ground disturbance, and working during times of calm or low winds as much as possible.

Small pockets of soils that contain naturally occurring asbestos are present along the Project alignment in Humboldt and Trinity counties. This is due to the presence of ultramafic rock in the underlying geology (CARB 2021). These areas occur west of Willow Creek before Berry Summit and also briefly along Hennessey Road.

About 4 miles of the overall Project alignment would pass through soils underlain by ultramafic rock, which would result in up to 0.5 acre of the 25-foot-wide construction corridor having the potential for naturally occurring asbestos. In these areas, BMP PH-4 and other measures would be applied to limit vehicle speed, moisten excavation sites prior to ground disturbance, stabilize or wet stockpiled soils, install wind barriers, and/or work during times of calm or low winds as much as possible (**Appendix G**).

Soils along older roadways can contain elevated concentrations of lead due to the historic use of leaded gasoline. The California EPA, Department of Toxic Substances Control, and Caltrans have entered into an agreement for soil management for aerially deposited lead-contaminated soils. Based on Exhibit C of the agreement, there are no projects identified within Caltrans D1 or D2 that may need to be managed for hazardous lead concentrations (Caltrans 2016). Based on the lack of projects under the aerially deposited lead agreement and the minimally invasive methods (i.e., HDD, plowing, trenching, rock sawing, bridge and pole attachment) that would be used for conduit installation, it is assumed that aerially deposited lead due to dust generation would not be a hazard.

Operational Phase

After construction, the operation and maintenance of the Proposed Action would include occasional running of the generators at the ILA buildings, emissions from which would be negligible relative to air quality.

Overall, the Proposed Action's potential impacts to air quality do not meet the adverse impact thresholds listed above. Based on the above analysis, the Proposed Action would have direct, short-term, minor impacts to air quality that do not meet the above-listed adverse impact thresholds and would be further minimized by implementing measures in **Appendix G**. Air quality measures require the Proponent to minimize dust, minimize vehicle idling time to 5 minutes or less, and maintain construction equipment in working condition. Specific dust control measures include watering exposed surfaces twice daily unless already wet; covering or maintaining at least 2 feet of free-board space on haul trucks transporting soil, sand, or other loose material off-site; and limiting vehicle speeds on unpaved roads to 15 miles per hour.

3.2.4.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not be built, and the environmental setting would remain as is. There would be no effects to air quality.

3.3 Biological Resources

This section summarizes the current setting of biological and aquatic resources in the Action Area as well as potential impacts to those resources from the Proposed Action. Detailed information about biological and aquatic resources can be found in the Biological Evaluation (BE) (**Appendix I**).

3.3.1 Regulatory Setting

Special-status species include those species protected by federal and state endangered species statutes and regulations as well as those considered as agency sensitive, rare, species of special concern, and candidate or proposed for listing by state and federal agencies. Federal and state laws incorporated into the impact assessment are listed in Chapter 1 (e.g., Bald and Golden Eagle Protection Act, California Endangered Species Act, etc.).

3.3.2 Analysis Area and Methodology

Species lists for special-status wildlife, plants, and fungi were based on established species ranges and occurrence data within 1.5 miles of the Proposed Action footprint. A 1.5-mile search radius was chosen to identify potential special-status species because it encompasses a sufficient distance to accommodate local habitat diversity and

account for species most likely to migrate into the Action Area. These data were collected to understand and characterize potentially affected biological resources. Occurrence data was evaluated for accuracy and to assess the potential for species occurrence within the survey area based on habitat suitability and quality. Species that did not meet the criteria for retention in further analyses were excluded from further review.

Reconnaissance-level field surveys were conducted within 25 feet of the edge of roadways along the proposed alignment on multiple occasions between April 2019 through May 2021. The purpose of the surveys was to characterize potential habitat for special-status species; map and confirm the presence of aquatic resources in reference to the USACE Wetland Delineation Manual and related resources, as documented in the PJD (**Appendix F**); and identify any special-status wildlife, plants, and fungi that may occur within the Action Area. Incidental sightings of plant and wildlife species were also documented, although protocol-level surveys were not conducted for any special-status wildlife species. Surveys for special-status plants were conducted in portions of the construction corridor where direct impacts to plants might be possible. Two rounds of surveys were conducted in order to capture the varying blooming periods of specific special-status plants, including a spring season (mid-April to mid-May 2019) and early summer (mid-June 2019) survey. The early summer survey was restricted to only a few specific special-status plants and only occurred in those portions of the Action Area with suitable habitat. Surveys were floristic in nature—every plant taxon that occurs in the construction corridor was identified to the taxonomic level necessary to determine rarity and listing status. All segments of the construction corridor were surveyed for special-status plants with the exception of segments along SR 299 between Salyer and Burnt Ranch, which were surveyed from a vehicle due to safety concerns. Only one special-status species, white-flowered rein orchid (*Piperia candida*), was positively identified during surveys. Potentially occurring species, survey methodology, and survey results are described in greater detail in **Appendix I**.

3.3.2.1 Vegetation/Habitat Communities, Sensitive Natural Communities, and Environmentally Sensitive Habitat Areas

The Action Area is composed of the following vegetation/habitat communities: conifer forests, woodland habitats, hardwood forests, shrubland/chaparral habitats, herbaceous habitats, grasslands, and developed/non-vegetated areas. Pacific Douglas-fir communities are the dominant habitat type found along much of the central portion of the Action Area at elevations below 5,000 feet.

Five CDFW-defined sensitive natural communities were identified within the Action Area: beach pine, redwood–Douglas-fir, willow thickets, ceanothus chaparral, and pickleweed-cordgrass communities. Sensitive natural communities are those communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects (CDFW 2018).

The California Coastal Act requires consideration of Environmentally Sensitive Habitat Areas (ESHAs) within the Coastal Zone. These include “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities” (CPRC 30107.5). Potential ESHA identified within the Action Area include the aforementioned willow thickets and pickleweed-cordgrass communities as well as emergent wetlands.

Vegetation/habitat community types found within the Proposed Action Area are further described in **Appendix I**.

3.3.2.2 Aquatic and Wetland Habitats

The Action Area intersects/crosses several aquatic areas/waterbodies and wetlands:

- *Streams*: ~~129-121~~ perennial (including major rivers), ~~237-210~~ intermittent, and ~~201-192~~ ephemeral streams
- *Wetland Habitats*: Primarily willow thickets (averaging approximately 0.10 acre) and freshwater emergent wetlands (averaging approximately 0.05 acre) along the coast and around Humboldt Bay (**Appendix F**)
- *Sloughs and Tidal Channels*: Mad River Slough, Freshwater Slough, and three unnamed sloughs
- *Major Waterbodies*: Whiskeytown Lake and Humboldt Bay
- *Major Rivers*: Mad River, North Fork Mad River, Trinity River, South Fork Trinity River, North Fork Trinity River, and Little River. These rivers intersect the survey area at 12 separate locations

3.3.2.3 *Special-Status Plants and Fungi*

A total of 93 special-status plants and fungi were evaluated to determine if the Proposed Action would result in disturbance or loss to these species. After review and analysis, ~~41-40~~ plant and fungi species (**Appendix R**) were retained for further analysis in the BE (**Appendix I**), and 53 species were evaluated but excluded from further review. Rationale for excluding species from further analysis includes the lack of suitable habitat or vegetative community, elevation limitations, local extirpation, and extensive distance from known occurrences in well-surveyed/managed areas.

3.3.2.4 *Special-Status Wildlife and Fishes*

A total of ~~97-94~~ special-status wildlife species were evaluated to determine if the Proposed Action would result in disturbance, injury, or mortality. After review and analysis, ~~61-57~~ wildlife species (**Appendix R**) were retained for further analysis in the BE (**Appendix I**), and 37 species were excluded from further review. Rationale for excluding certain wildlife is the same as the rationale for excluding plants and fungi discussed above. General wildlife, specifically migratory birds, were also evaluated as part of this review.

A total of 24 special-status fish species were evaluated to determine if the Proposed Action would result in disturbance, injury, or mortality. After review and analysis, 19 fish species (**Appendix R**) were retained for further analysis in the BE (**Appendix I**), and 5 were excluded from further review. Rationale for excluding certain fishes is the same as the rationale for excluding certain other special-status species, as discussed above.

3.3.3 Impact Thresholds

The Proposed Action could have adverse impacts to biological resources if it:

- Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations or by the CDFW or USFWS
- Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFW or USFWS
- Has a substantial adverse effect on state or federally protected wetlands (including but not limited to marsh, vernal pool, or coastal) through direct removal, filling, hydrological interruption, or other means
- Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impedes the use of native wildlife nursery sites
- Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflicts with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or state habitat conservation plan

It should be noted that any determinations of effect to species beyond “no effect” (e.g., “may affect but is not likely to adversely affect”) require consultation with USFWS and NMFS under Section 7 of the ESA (**Appendix B**).

3.3.4 Impact Findings

3.3.4.1 *Proposed Action and Alternative Segments*

Most of the Proposed Action Area follows existing roads within the shoulder or road prism in previously disturbed areas. In areas where the fiber optic cable is sited aerially, existing poles in previously established and cleared ROWs would be utilized; therefore, with the exception of the up to five small ILA buildings—which would be sited in compatible, likely previously disturbed areas—the Proposed Action would not introduce new aboveground structures or permanent impacts to existing habitat (vault lids would be flush with the ground and within the 10-foot-wide disturbed ROW). All temporary impacts will be restored to pre-Project conditions/original contours as outlined in the Restoration Plan (**Appendix J**).

Vegetation/Habitat Communities, Sensitive Natural Communities, and ESHAs

Impacts to vegetation would differ per construction method (e.g., plowing would directly impact the width of the trench, HDD would not have ground disturbance except bore pits, etc.). For the purposes of this analysis, it is assumed up to and no more than a 25-foot-wide corridor may be temporarily impacted by Proposed Action construction activities. Permanent disturbances (i.e., vault lids and ILA buildings) would result in removal of 0.34 acre of six types of non-habitat land cover (e.g., agriculture, barren, urban, developed, etc.). Temporary ground disturbance (i.e., the 6-foot-wide trenching corridor) would affect up to 205 acres of eight different California vegetation (i.e., natural vegetation) land cover types (**Appendix I**). Impacts may also include the potential introduction and spread of noxious weeds and invasive plant species into on-site and adjacent vegetation communities. Protective controls to avoid and minimize the spread of noxious weeds are outlined with BMPs in **Appendix G**, including vehicle and equipment cleaning, limiting off-road travel, avoiding staging/parking in areas with noxious weeds, and sourcing material from weed-free sources. All temporarily disturbed areas will be restored as described in the Restoration Plan, which outlines implementation measures, monitoring, and success criteria to ensure disturbed vegetated areas and waterways are returned to pre-construction conditions (**Appendix J**).

Of the five CDFW-defined sensitive natural communities, beach pine, redwood–Douglas-fir, ceanothus chaparral, and pickleweed-cordgrass communities are not within the immediate Project alignment and would not be directly affected. Willow thickets (an S3-ranked sensitive natural community) do occur at several locations adjacent to the alignment, often immediately abutting the road in some coastal locations. AMM BIO-5 requires the Proponent to use HDD to bore under and fully avoid willow thickets. Bore pits and access vaults will not be placed in or adjacent to these sensitive communities. As a result, neither permanent nor temporary impacts are expected to willow thickets. See the BE (**Appendix I**) for more details on AMM BIO-5 and AMM BIO-9, which will minimize the potential for introduction of invasive plants.

The only ESHAs occurring within the Coastal Zone along the Proposed Action alignment are willow thickets. Neither permanent nor temporary impacts are expected to willow thickets.

Impacts to riparian habitats will largely be avoided with the implementation of AMM BIO-6, which is designed to minimize impacts to riparian vegetation. Temporary impacts to riparian vegetation (up to approximately 0.18 total acre of the entire alignment) associated with open trenching across intermittent waterways may potentially

occur; if impacts to riparian habitat does occur, agencies would be contacted and measures in the Restoration Plan will be implemented.

The ILA buildings would be sited in locations where biological resources would not be impacted. Measures listed in **Appendix G** provide parameters for the siting of ILA buildings to avoid sensitive areas such as vegetation/habitat communities, sensitive natural communities, and ESHAs.

Operation and maintenance of Project facilities would be required to monitor or repair facilities. As Project facilities would be sited along existing roads and previously disturbed areas, access for future operations and maintenance activities would occur along the same roadways. No new disturbance would be required, as the conduit and fiber optic cable can be accessed via existing vaults. No impacts to biological resources are expected during operation and maintenance of the Project.

Because the Proposed Action would not destroy a population of federally or state-protected plants or fungi and would not replace native plant communities with noxious weeds, impacts to biological resources from the Proposed Action do not meet the adverse impact thresholds listed above. Impacts to vegetation communities, sensitive communities, and ESHAs are expected to be direct, short term, and minor. Impacts will be further minimized with the implementation of AMMs and BMPs listed in **Appendix G**, which require a clearance survey for special-status plants and communities prior to construction in appropriate habitat and a re-route of the alignment to avoid direct impacts, if necessary.

Aquatic and Wetland Habitats

Of the ~~567~~523 total waterway crossings along the route, ~~429~~121 are perennial. Direct effects to perennial waterways would be avoided by either employing HDD construction methods to bore under these waterways, attaching conduit to existing bridges (if present), or trenching/plowing above culverts conveying these waterways. In order to protect waterways during HDD construction, the Proponent would implement BMPs including preparing the work site no more than 10 days prior to boring in order to reduce the time soils are exposed, storing spoils behind a sediment barrier 25 feet or more from the bank or wetland/riparian boundary, covering spoils with plastic or other stabilizing material, placing portable pumps and stationary equipment within secondary spill containment (when within 100 feet of a water resource), and maintaining a spill kit on-site at all times. Used bore slurry would be captured and either recycled for reuse or disposed of at an approved facility. Unused slurry would be contained within covered barrels at all times when not in use and would not be discharged from the area during wet weather. The Proponent would also seed and stabilize disturbed soils immediately following backfill of the bore pits and would leave temporary sediment barriers in place until restoration is deemed successful. Finally, the Proponent would implement any additional pre- and post-construction conditions identified in the CDFW Master Streambed Alteration Agreement and, where applicable, the USACE Nationwide Permit.

The Proponent will attempt to cross intermittent streams and ephemeral drainages in the same manner as perennial streams; however, when it is not feasible to employ HDD, bridge attachments, or trenching above culverts, it may be necessary to trench/plow through some intermittent waterways and/or ephemeral drainages. This would only occur if there was no water present in these features, if no precipitation was expected while work was being conducted, and with the appropriate authorizations and permits. For the purposes of this analysis, it is assumed that up to ~~438~~402 intermittent waterways and ephemeral drainages could be open trenched/plowed when dry. A field review concluded that intermittent waterways and ephemeral drainages crossed by the Proposed Action range between 1 and 10 feet wide; temporary impacts associated with open trenching across all intermittent waterways and ephemeral drainages total 0.18 acre (**Appendix I**).

Potential impacts may occur as described below by waterway type:

- *Streams*: There would be no permanent impacts to streams. Direct effects may occur via frac-out during HDD; these would be managed via the Contingency Frac-Out Plan. Direct effects would otherwise be avoided to perennial streams by attaching conduit to existing bridges, boring under the stream, or trenching above a culvert. Intermittent and ephemeral streams may be open trenched/plowed across only when dry. Measures in **Appendix G** will be implemented when work is conducted near streams, including indirect effects caused by erosion
- *Wetland Habitats*: There would be no permanent impacts to wetlands. HDD will be used to bore under and fully avoid wetlands and coastal willow thickets. Bore pits and access vaults will not be placed in or adjacent to wetlands or coastal willow thickets. Neither permanent nor temporary impacts are expected to wetlands or coastal willow thickets
 - Indirect effects to wetlands may occur. Specifically, ground-disturbing activities during construction may cause indirect effects that disrupt the vegetative structure of the wetlands and/or changes to wetland hydrologic conditions. Possible indirect effects to the vegetative structure of wetlands in the Proposed Action Area may include a temporarily reduced wetland plant diversity and the potential introduction of non-native invasive species
 - Indirect effects to hydrologic conditions in wetlands may include changes to drainage patterns/characteristics, changes to the volume of water reaching the wetland via infiltration or surface runoff, or changes to water retention times in the wetland. While these indirect effects may occur during construction, they would be temporary, as restoration to original contours/conditions will occur according to the Restoration Plan (**Appendix J**)
- *Sloughs and Tidal Channels*: Direct effects to these waterways would be avoided by attaching conduit to existing bridges
- *Major Waterbodies*: Direct effects to these waterways would be avoided by attaching conduit to existing bridges
- *Major Rivers*: Direct effects to these waterways would be avoided by attaching conduit to existing bridges or boring under the rivers. The appropriate BMPs (**Appendix G**) and the Contingency Frac-Out Plan (**Appendix E**) will be employed during construction

Indirect effects to waterways may occur from Proposed Action-related activities. Specifically, ground-disturbing activities during construction in or adjacent to waterways may cause indirect effects that include the potential introduction of hazardous materials (e.g., fuel, lubricants) from accidental spills, increased erosion, and increased sediment transport. Implementation of BMPs in **Appendix G**, which minimize the potential for stormwater runoff and accidental spill or pollutant discharge into waters or wetlands, will avoid and minimize any indirect effects to waterways.

Impacts from ILA buildings and operations and maintenance of the Proposed Action would be the same as is described for vegetation/habitat communities, sensitive natural communities, and ESHAs.

In summary, no permanent impacts to aquatic habitats will occur. Temporary impacts, also the only anticipated direct effects, may occur as a result of trenching/plowing through dry intermittent stream beds. Indirect effects may occur and are detailed above.

Because the Proposed Action would not result in the loss of any federal- or state-protected wetlands, impacts to aquatic and wetland habitats from the Proposed Action do not meet the adverse impact thresholds listed above. Impacts to aquatic and wetland habitats are expected to be direct, short term, and negligible.

Special-Status Plants and Fungi

Direct effects to special-status plants could occur from construction activities, as individual plants could be inadvertently crushed or buried by heavy machinery and vehicles or trampled by personnel. Specifically, 41 California Rare Plant Rank and/or agency-sensitive plants could be affected by construction activities (see **Appendix I** for more information on the location of these species). Soil disturbance from trenching also has the potential to remove entire plants or sever tree roots.

Direct effects to fungi could occur from trampling aboveground sporocarps (fruiting bodies) of fungal organisms during construction. Impacts are not likely to the belowground portion (hyphae) of the organism. Impacts to aboveground sporocarps would not affect the population overall. Soil disturbance from trenching would not likely impact any special-status fungal species since any soil disturbance would be limited to a small area as it relates to the entirety of the belowground portion of the fungal organism.

There is potential for indirect effects to Port Orford cedar from the non-native fungus *Phytophthora lateralis*, which has caused widespread mortality in Port Orford cedars throughout its range. Since there are known occurrences of the pathogenic fungus in the region, there is the possibility that the fungus may be transmitted to the Action Area during construction activities. Additionally, there is potential for indirect effects to oaks and other species from *Phytophthora ramorum* (sudden oak death) and *Phytophthora cinnamomi* (root rot), which could be brought into the Project area in soil particles on vehicles and equipment. The potential for a novel introduction of these pathogens into a major transportation corridor is low given the amount of traffic that normally occurs in the Action Area.

Indirect effects to special-status plants and fungi may also occur. Specifically, indirect effects include disruptions to the native seedbank, localized changes to hydrologic conditions, increased erosion and sediment transport, and the potential introduction of non-native invasive species.

Impacts from ILA buildings and operations and maintenance of the Proposed Action would be the same as is described for vegetation/habitat communities, sensitive natural communities, ESHAs, and aquatic and wetland habitats.

Impacts to special-status plants and fungi from the Proposed Action do not meet the adverse impact thresholds listed above; they are expected to be direct, short term, and negligible and will be further minimized through implementation of measures in **Appendix G**. These measures require clearance surveys for special-status plants and communities prior to construction in appropriate habitat and a re-route of the alignment to avoid direct impacts if necessary.

Special-Status Wildlife and Fishes

With the exception of the five or fewer ILA buildings, which will be sited in previously disturbed areas, the Proposed Action would not introduce new aboveground structures into existing habitat (and therefore, no collision risks will be introduced to bird and flying mammal species). Small areas of riparian vegetation (less than 0.1 acre each) may be disturbed around drainage crossings to facilitate installation of underground conduit; however, riparian habitat would not be substantially or permanently altered, and herbicides would not be applied.

The following Proposed Action-related effects may affect special-status and common wildlife species:

- Noise from construction has potential to disturb and directly affect the reproductive success of wildlife in and adjacent to the Action Area. Species most sensitive to noise disturbance are northern spotted owl (NSO), marbled murrelet (MAMU), and denning and roosting mammals, including bats
- Foot and vehicular traffic near aquatic resources during construction has the potential to directly injure or kill protected mollusk and amphibian species
- Absent controls, ground disturbance could introduce sediment to waterways, thereby degrading water quality and altering stream substrates. Such disruption could decrease the suitability of aquatic habitat, causing direct effects (habitat) and indirect effects (water quality) to amphibians, mollusks, and fish downstream of work areas
- Accidental chemical spills (e.g., lubricating fluids or fuel) near waterways could also degrade water quality for aquatic wildlife in the Action Area

These potential impacts are described below, per species or species groups that may be affected by construction activities.

Birds

Special-status birds such as MAMU and NSO receive attention and consideration for management given their regulatory status and their sensitivity to human-caused disturbance. Additionally, nesting birds are afforded protection and consideration per specific requirements in the CDFW Code of Regulations (CDFW code 3503 and 3503.5) as well as the Migratory Bird Treaty Act.

Marbled Murrelet

Potentially suitable marbled murrelet nesting habitat is present in the Action Area. However, large-scale clearing of vegetation is not anticipated; therefore, suitable MAMU nesting/roosting habitat would not be degraded, downgraded, or removed by Proposed Action activities. There is a very low potential of direct injury or mortality to MAMU; however, absent controls, work during the nesting season may disturb nearby nesting birds. Noise and vibration created by heavy equipment during construction could lead to harassment of MAMU by causing birds to flush from their roosting or nesting sites. Harassment due to noise disturbance may occur when the sound level from Proposed Action activities exceeds ambient/pre-existing sound levels by 20 to 25 decibels (dB) as experienced by the animal (USFWS 2006).

Depending upon the nature of the terrain, geology, and environmental conditions, conduits may be installed using any of the previously described methods including plowing, HDD, rock saw, and trenching. The equipment associated with each of these methods produces noise levels in excess of 70 dB (with rock sawing up to 82 dB at 50 feet, based on a 114 LwA equipment specification sound power level). This anticipated level of sound falls into the “high” (81 to 90 dB) category of noise, as defined by USFWS Harassment Guidelines (USFWS 2006). Noise disturbance of nesting MAMU may occur to a distance of 0.25 mile in areas where ambient, existing background sound levels are less than 50 dB. These conditions are likely on the more remote segments of the Proposed Action alignment, particularly those segments along or adjacent to narrow dirt roads that run through late-successional forest habitats. In proximity to busy roads such as SR 299, which has an estimated “high” (81 to 90 dB) ambient sound level, the USFWS estimated harassment distance drops to 500 feet.

In addition to the noise disturbance effects described above, MAMU individuals flying to and from nests are vulnerable to auditory and visual disturbance from construction that occurs within 2 hours of sunrise or sunset.

During the nesting season, this disturbance may preclude the ability of MAMU to feed nestlings by interfering with the departure and/or return of foraging adults as they travel to and from marine feeding areas.

Proposed Action activities would not remove any vegetation larger than 6 inches diameter at breast height (DBH), and no effects to MAMU critical habitat (located along a 0.7-mile section of SR 299) are expected. Measures in **Appendix G** require that noise-generating work will not occur within 0.25 mile of suitable MAMU nesting habitat between March 24 and September 15. If work is necessary during this period, USFWS guidance will be used by the Project biologist to prescribe work buffers within 0.25 mile of unsurveyed nesting/roosting habitat.

Impacts to MAMU are expected to be indirect, short term, and negligible and do not meet the adverse impact thresholds listed above. In consultation with USFWS, it has been determined that the Proposed Action may affect but is not likely to adversely affect MAMU in the Digital 299 Action Area.

Northern Spotted Owl

Suitable nesting/roosting, foraging, and dispersal habitat is present in the Action Area but would not be modified or degraded as a result of Proposed Action activities. There is no potential for direct injury or mortality to NSO; however, work during the nesting season may disturb nearby nesting birds. A substantial increase in noise and vibration above existing (ambient) levels created by heavy equipment during construction may lead to harassment of NSO.

Like MAMU, harassment of nesting NSO due to noise disturbance may occur to a distance of 0.25 mile in areas where ambient, existing background sound levels are less than 50 dB. NSO can also be sensitive to visual disturbance; however, the Action Area is not within the line of sight of previously documented nests. In suitable and relatively undisturbed habitat, foraging individuals may be directly affected by brief human presence which may temporarily cause an individual to avoid areas during construction that may otherwise serve as foraging habitat (USFWS 2011).

Measures in **Appendix G** require that noise-generating work will not occur within 0.25 mile of suitable NSO nesting habitat between February 1 and July 9. If work is necessary during this period, USFWS guidance will be used by the Project biologist to prescribe work buffers within 0.25 mile of unsurveyed nesting/roosting habitat. These work buffers would consider existing (ambient) pre-Project sound levels and anticipated action-generated sound levels. Measures in **Appendix G** also require that vegetation removal (trees) at discrete locations be limited to less than 6 inches DBH and an area less than 0.1 acre in size.

Impacts to NSO are expected to be indirect, short term, and negligible and do not meet the adverse impact thresholds listed above. In consultation with USFWS, it has been determined that the Proposed Action may affect but is not likely to adversely affect NSO in the Action Area. Impacts would be further minimized by the implementation of measures in **Appendix G**.

Nesting Birds

Nesting birds may occur throughout the Action Area. During nesting season (February 15 to August 31 for migratory birds or January 1 to August 31 for bald and golden eagles) in all habitat communities, elevated noise from construction could interfere with avian mating and territorial defense calls, possibly inhibiting or delaying breeding. Construction noise and activities and human presence could result in nest abandonment or neglect or disrupt foraging activity, reducing reproductive success. Construction disturbance to overwintering birds may cause individuals to temporarily change foraging locations. Impacts are expected to be short-term and temporary while construction and installation pass through a given area and are not expected to extend beyond one breeding

season or overwintering period. Long-term effects are not expected because the Proposed Action would not modify or remove suitable roosting, hibernation, or foraging habitat for birds.

To avoid and minimize adverse effects to nesting birds, measures in **Appendix G** will be implemented that require a nesting bird survey be completed within 7 days prior to any work occurring during the nesting bird season for migratory birds (February 15 to August 31). If an active nest is encountered in or adjacent to a work area, a no-equipment/no-activity buffer would be implemented around the nest, or the nest would be monitored by a biological monitor for disturbance. To avoid and minimize adverse effects to nesting bald and golden eagles, if work will occur between January 1 and August 31 within a specific segment within which they are known to nest, crews will obtain updated nesting information for bald eagles from SRNF prior to the start of work.

Long-term ecological changes (e.g., quality of habitat, extent of habitat loss) to nesting bird habitat would not occur due to the Proposed Action. Impacts to nesting birds from the Proposed Action do not meet the adverse impact thresholds listed above. Impacts to nesting birds are expected to be indirect, short term, and negligible and further minimized with the implementation of AMMs and BMPs listed in **Appendix G**.

Mammals

Work occurring during twilight hours has the potential to disrupt foraging behavior of special-status mammals that may be present in the Action Area (generally nocturnal or crepuscular species). The Proposed Action would not remove or alter important habitat elements; however, indirect impacts to individual mammals are possible due to noise during construction, as described below.

American Badger

Potentially suitable habitat for American badger is present in parts of the Action Area. Construction in areas with friable soils could directly impact occupied American badger dens located within or adjacent to the Action Area. Ground vibration from heavy equipment and machinery, particularly trenching machines or rock saws, could disturb natal dens located outside the ROW, possibly causing den collapse or prompting removal of young to another den or burrow. However, badger dens are unlikely to be sited within the construction corridor or directly adjacent to the roadways along the planned alignment, and potential impacts are expected to be limited to minor disturbance.

Impacts to the badger do not meet the adverse impact thresholds listed above and are expected to be indirect, short term, and negligible. Implementation of measures in **Appendix G** will further minimize impacts by prescribing monitoring of potential badger dens during the denning season.

Bats

Foraging habitat and potentially suitable roosting/colony sites are present in the Action Area. Since work would not occur at night, sensitive bats are unlikely to be encountered during normal work hours, though work near dusk could disturb individuals that have left day roosts to forage. The Proposed Action would not modify or remove suitable roosting, hibernation, or foraging habitat for bats. Minimal vegetation removal may occur, and no large trees or snags suitable for roosting would be removed (no trees greater than 6 inches DBH). It is expected that individual adult bats in day or night roosts would flee the area during construction and would not be injured; however, adult individuals may be adversely affected by disruptions to hibernation and may abandon maternity colonies.

Any possible impacts to bats from hanging fiber optic cables on existing bridges or poles do not meet the adverse impact thresholds listed above and are expected to be indirect, short-term, and negligible. Implementation of measures in **Appendix G** will further minimize impacts by prescribing pre-construction surveys and/or monitoring for special-status bats during maternity and hibernation seasons and, if colonies are found, coordinating with CDFW on next steps.

Pacific Fisher and Ring-Tailed Cat

Potentially suitable habitat for Pacific fisher and ring-tailed cat is present in parts of the Action Area. The Proposed Action would be located in previously disturbed, existing road ROWs or utility easements. No large trees, logs, snags, or brush piles suitable for Pacific fisher or ring-tailed cat would be removed. During natal denning seasons, noise from construction equipment and the presence of humans in the Proposed Action Area could disrupt Pacific fisher or ring-tailed cat foraging behavior or prompt change of denning sites, possibly impacting reproductive success.

Impacts to the fisher and ring-tailed cat do not meet the adverse impact thresholds listed above and are expected to be indirect, short-term, and negligible. Implementation of measures in **Appendix G**, which require pre-disturbance denning mammal surveys during the denning mammal natal season and temporarily halting of work if individuals are present, will further minimize impacts.

Sonoma Tree Vole

Potentially suitable habitat for Sonoma tree vole is present in western sections of the Action Area. Similar to the mammals described above, the Project would not modify or remove suitable nesting or foraging habitat for this arboreal species. Direct effects to individuals are not expected because work would occur during the day and Sonoma tree voles are active at night.

Impacts to this species do not meet the adverse impact thresholds listed above and are expected to be indirect, short-term, and negligible.

Reptiles

California mountain kingsnake and western pond turtle (WPT) are analyzed together because potential impacts to these species are expected to be similar. Potentially suitable habitat of these species is present in parts of the Action Area. While California mountain kingsnake is a habitat generalist and may be found along much of the Proposed Action alignment, WPT is typically found in or within 650 feet of perennial waters. Since much of the Proposed Action would be constructed along disturbed shoulders of major roads away from suitable habitat for these species, impacts are expected to be minimal; however, there is potential for impacts along the more remote segments of the alignment, particularly those segments along narrow dirt roads that are often immediately adjacent to suitable habitat for both species.

Direct mortality to individuals could occur as a result of construction activities. During construction, individuals could be crushed by heavy machinery and vehicles, trampled by personnel, or buried during soil-disturbing activities. Since work is not occurring within any perennial aquatic resources, direct impacts to WPT could only occur in upland habitats within 650 feet of perennial waters where WPT nests could be found or where nesting females may travel. California mountain kingsnake could be present in upland habitats much farther from water. WPTs can be sensitive to environmental contaminants, and effects may occur from unintentional chemical spills (e.g., fuel, lubricants, etc.) in or near aquatic habitats during construction activities (Rosenberg et al. 2009).

The Proposed Action does not include aboveground infrastructure that would modify or degrade suitable habitat for special-status reptiles. Long-term ecological changes (e.g., quality, extent) to these reptile habitats or changes in land use are not anticipated as a result of the Proposed Action. Measures in **Appendix G** include training all construction crews on how to avoid and minimize direct and indirect effects to protected species in and around the Action Area, including a provision to inform participants that no snakes or other reptiles shall be harmed or harassed. In addition, measures in **Appendix G** minimize the potential for stormwater runoff and accidental spill or pollutant discharge into waters or wetlands used by WPT.

Impacts to reptiles from the Proposed Action do not meet the adverse impact thresholds listed above. Impacts to reptiles are expected to be direct or indirect, short term, and negligible and will be further minimized with the implementation of measures in **Appendix G**.

Amphibians

Special-status amphibians (e.g., frogs, salamanders, and toads) with suitable habitat in the Action Area are grouped together because potential impacts to these species are expected to be similar. All special-status amphibians considered in this analysis require intermittent or perennial waters for early life stages and breeding. During their adult phases, they can often be found within a few feet of these waters, although adults can occasionally be found in surrounding woodland habitats. Since much of the Proposed Action would be constructed along disturbed shoulders of major roads away from suitable habitat for these species, impacts to special-status amphibians are expected to be minimal; however, there is the potential for impacts along the more remote segments of the alignment, particularly those segments along or adjacent to narrow dirt roads that run through late-successional forest habitats and intersect suitable aquatic habitats.

Potential impacts to amphibians are greatest where the Project would travel under or over intermittent and perennial streams, particularly along segments that follow dirt roads immediately adjacent to these streams. Seeps and springs that support emergent vegetation are also common along the dirt roads, often forming strips of potential amphibian habitat in roadside ditches. Trenching, HDD, and other ground-disturbing activities along these roads, including the installation of sediment and erosion control materials along stream banks, have potential to impact habitats and any amphibians that reside therein.

During construction, individuals may be crushed by heavy machinery and vehicles, trampled by personnel, or buried during soil-disturbing activities. If construction occurs during sensitive breeding seasons, noise and ground vibration from construction activities may result in physiological stress to breeding individuals, hampering their ability to find mates and reproduce (Megela et al. 2018). Soil disturbance during construction could result in sedimentation of nearby waters, lowering water quality through increased turbidity. This increase in sediment has the potential to affect special-status amphibians by reducing overall abundance of eggs and larva as well as to affect overall growth and development rates (Wood and Richardson 2009).

Indirect effects to special-status amphibians may also occur from Project-related activities involving ground disturbance and construction in areas deemed suitable habitat through the possible introduction of non-native, invasive species (e.g., other amphibians, pathogens such as chytrid fungus) that may displace or predate native amphibians. Amphibians can also be sensitive to environmental contaminants, and indirect effects may occur from unintentional chemical spills (e.g., fuel, lubricants, etc.) during construction activities (Mahaney 1994). Sedimentation from ground-disturbing activities also has the potential to cause indirect effects to amphibians by altering water chemistry (increased pH), increasing water temperatures, and lowering macroinvertebrate productivity.

Impacts to amphibians from the Proposed Action do not meet the adverse impact thresholds listed above. Impacts to amphibians are expected to be direct or indirect, short term, and negligible and will be further minimized with the implementation of measures in **Appendix G**. These measures include no work within wetted channels or wetlands; no excavations of manholes, handholes, or bore pits within riparian areas; activity restrictions within riparian reserves; and a pre-disturbance survey for special-status amphibians when work occurs within 100 feet of waterways that have water present.

Fishes

Special-status fishes with suitable habitat in the Action Area are grouped together because the life histories of and potential impacts to these species are similar. These include Chinook and coho salmon, coastal cutthroat trout, hardhead, Klamath River lamprey, longfin smelt, Pacific eulachon, Pacific lamprey, riffle sculpin, river lamprey, steelhead, tidewater goby, and western brook lamprey (see **Appendix R**). Critical habitat exists for Chinook salmon (California Coastal ESU and Central Valley Spring-run ESU), Coho salmon (Southern Oregon/Northern California ESU), green sturgeon (Southern DPS), steelhead (Central Valley DPS and Northern California DPS), Pacific eulachon (Southern DPS), and tidewater goby within the Action Area. No work is anticipated to occur below the ordinary high-water mark of any rivers, coastal lagoons, or perennial waterways; however, work has potential to decrease water quality and to change channel substrate, which can result in direct and indirect effects to both the fish and to critical habitat, as described below.

If sediment or pollutants enter the waterway at the time of construction, direct effects to fish and critical habitat may occur (USFWS and NMFS 1998). A change in sediment levels or texture can decrease suitability for anadromous fish spawning, rearing, and/or migration at, and downstream of, the work area. Depending upon the composition of the sediment and the flow and turbidity of the waterway, sediment could fall out of the water column immediately or be carried some distance and impact downstream species. Hence, sediment deposition at the time of construction can be considered both a direct and an indirect impact to fish and fish habitat. Similarly, contamination by petroleum products or other pollutants (e.g., frac-out of bentonite) could cause direct effects to any individual fish present in the waterway at the time of the work and could also cause decreases in water quality downstream of the work. Respiration and other physiological processes may be negatively affected by such actions both directly and indirectly.

The Proposed Action would not result in any permanent aboveground infrastructure in aquatic habitats. Long-term ecological changes (e.g., quality, extent) would not occur to fish habitat. Impacts to fishes from the Proposed Action do not meet the adverse impact thresholds listed above. Impacts to fishes are expected to be direct and indirect, short term, and minor. In consultation with USFWS, it has been determined that the Proposed Action may affect but is not likely to adversely affect fish species listed under the ESA within the Action Area. Impacts will be further minimized with the implementation of measures in **Appendix G**. These measures include no work within wetted channels or wetlands; no excavations of manholes, handholes, or bore pits within riparian areas; avoiding disruption of natural hydrologic flow paths; and conducting operations at water source developments in a manner to avoid, minimize, or mitigate adverse effects to aquatic species and habitat from sedimentation. The SWPPP outlines practices that will further prevent impacts to aquatic habitats.

Mollusks

Special-status mollusk species with suitable habitat in the Action Area are grouped by those species found primarily in terrestrial habitats and those found primarily in aquatic habitats. These species are grouped together as such because potential impacts to species within each group are expected to be similar. The aquatic mollusks considered in this analysis are dependent on aquatic habitats (e.g., seeps, springs, streams), while the terrestrial

mollusks are mostly dependent on abundant litter from deciduous trees (Jordan and Black 2012). Since the majority of the Project would be constructed along disturbed roadsides and other unvegetated areas where leaf litter is limited, impacts to special-status mollusks are expected to be minimal. The risk of impacts is greater along the more remote segments of the alignment, particularly along or adjacent to narrow dirt roads that run through late-successional forest habitats and intersect suitable aquatic habitat.

Given mollusks' small size and inherently limited mobility, direct mortality of individuals could occur as a result of Proposed Action-related construction activities in areas within suitable habitat. During construction, direct impacts include possible crushing of individuals by heavy machinery and vehicles, trampling by personnel, or burying during soil-disturbing activities, such as trenching through dry intermittent stream channels.

Indirect effects to special-status mollusks may occur via the possible introduction of non-native, invasive species (e.g., other mollusks, pathogens) that may displace or predate native mollusks. Both terrestrial and aquatic mollusks can also be sensitive to environmental contaminants, and indirect effects may occur from unintentional chemical spills (e.g., fuel, lubricants, etc.) during construction activities. Ground-disturbing activities in or adjacent to waterways intersecting the Proposed Action alignment may result in increased sedimentation that could indirectly affect aquatic mollusks by reducing downstream water quality.

Impacts to all mollusk species from ILA buildings and operations and maintenance of the Proposed Action would be the same as is described for vegetation/habitat communities, sensitive natural communities, ESHAs, aquatic and wetland habitats, and plants and fungi.

The Proposed Action would not result in any permanent aboveground infrastructure within suitable mollusk habitat. Measures in **Appendix G** to prevent impacts to special-status mollusks include surveys for Big Bar hesperian, blue-gray tailed dropper, and Trinity bristle snail; cleaning of vehicles, equipment, tools, boots, and clothing prior to work to limit the introduction of non-native species and pathogens; and siting all entry and exit vault locations and staging areas in areas not considered suitable for Trinity bristle snail. Work in vegetated habitats will be restricted to a limited operation period (June 16 through October 15) when Trinity bristle snail will not be present. Impacts to mollusks from the Proposed Action do not meet the adverse impact thresholds listed above and are expected to be direct and indirect, short term, and negligible.

3.3.4.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not be built, and the environmental setting would remain as is. There would be no effects to biological resources.

3.4 Cultural and Tribal Resources

This section summarizes the cultural setting and results of the literature review, tribal consultation, and cultural resources surveys; analyzes the Proposed Action's potential impacts on historic and tribal cultural resources; and identifies measures to avoid adverse impacts. Historic resources include archaeological sites (prehistoric and historic), historic buildings, structures, objects, sacred sites, and Traditional Cultural Properties (TCPs) that are important to a community's practices and beliefs and that are necessary to maintain a community's cultural identity. Tribal cultural resources are defined in California Public Resource Code 21074 as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a Tribe that are listed or determined eligible for listing in the national or state register of historical resources; are listed in a local register of historic resources; or are resources that a lead agency determines at its own discretion are tribal cultural resources. It is important to note that these resource types may be non-archaeological in nature (e.g., seasonal celebrations, plant gathering

areas, vista points). Detailed evaluations of historic and tribal resources as well as information pertaining to previously evaluated and unevaluated historic resources can be found in the Cultural Resources Inventory Report (Loftus et al. 2021); this document is not included in this EA/IS as it contains confidential information about archaeological sites. Each participating agency has led its own NHPA Section 106 consultation process, submitting to the SHPO separate findings of effect based on the same Cultural Resources Inventory Report. When Section 106 consultation concludes, Additionally, the Caltrans Cultural Studies Office (CSO) approved a set of Caltrans-specific cultural resource documentation—including a Historical Resources Compliance Report (HRCR), Archaeological Survey Report (ASR), Finding of Effect (FOE), and Post-Review Discovery Plan (PRDP)—to satisfy CPRC Section 5024 for resources within Caltrans fee-owned ROW; these reports are not included in this EA/IS due to confidential information about archaeological sites. The SHPO and CSO and Tribal Historic Preservation Officer (THPO)-response letters will be included in this EA/IS as Appendix C.

3.4.1 Analysis Area

3.4.1.1 Areas of Potential Effect

An area of potential effect (APE)—direct or indirect—represents the geographic area(s) (i.e., affected environment) in which an undertaking may have an adverse effect, or impact, to historic properties (36 CFR 800.16[d]). This includes a horizontal, or at-grade, consideration as well as a vertical consideration extending below grade (sub-surface) and above grade (visual). Historic properties are defined as those cultural resources important to our understanding of history and may represent the Prehistoric or Historic era. Related to the Proposed Action, the cultural resources APE-Direct Effect (DE) fluctuates based on three identified road types along which the fiber optic cable would be placed:

- *State Highways*: State highways are paved and estimated as 60 feet wide from edge of pavement (EOP) to EOP. In general, a 150-foot-wide, on-centerline portion of a paved state highway was identified as an adequate APE-DE, as agreed to by the participating agencies
- *Suburban/Urban Secondary or Frontage Roads*: A 100-foot-wide, on-centerline portion of paved suburban/urban secondary or frontage roads was identified as an adequate APE-DE, as agreed to by the participating agencies
- *Undeveloped Mountain Roads/Minor Roads*: These narrow roads, ranging from 10 to 15 feet wide, are often graded dirt or graveled, with some roads paved or partially paved. The Proponent plans to place the fiber optic cable within the roadbed of this type of road, with some exception for roadside placement. A 65-foot-wide, on-centerline portion of undeveloped mountain roads/minor roads was identified as an adequate APE-DE, as agreed to by the participating agencies

The APE-DE also includes the following:

- Buildings serviced by aerial attachments of the cable from existing distribution pole lines. Many of the serviced buildings are Modern era and not Historic, but some are older. In all cases, the buildings are presently serviced by utilities, some subsurface and some above ground via aerial connection
- Thoroughfare structures, such as bridges that would have conduit attached or would utilize existing available conduit for cable placement. The bridges include a mix of Modern and Historic era and are either not eligible, eligible, or unevaluated
- Locations (currently unknown) of five prefabricated ILA buildings
- Locations of 70 construction equipment staging/laydown areas

The vertical footprint of the Proposed Action is equally fluctuating and reflects the types of construction methods and equipment described in Chapter 2. In general, the subsurface vertical APE-DE is 48 inches deep for all trenching, plowing, and vault placement. The exception to this is HDD depth, which is dependent on a variety of conditions as well as the obstacle to be avoided (e.g., building, structure, object, cultural resource, waterway).

The APE-Indirect Effect (IE) accounts for the introduction of visual elements, such as the aerial distribution line attachments, bridge attachments, and the five prefabricated buildings. The aboveground vertical APE-IE is isolated, as the majority of the Proposed Action would be located underground with some aboveground attachments to existing distribution poles, some of which connect to serviced buildings. An APE-IE of 0.25 mile from locations of aerial distribution line attachments, bridge attachments, and prefabricated buildings was identified.

3.4.2 Regulatory Setting

3.4.2.1 *Federal*

A variety of federal statutes specifically address cultural resources. These statutes generally become applicable to specific projects if the project involves: 1) a federal agency license, permit, approval, or funding and/or if it 2) crosses federal lands. The Proposed Action involves both federal permits and the crossing of federal land; therefore, the following statutes apply:

- *Antiquities Act of 1906 (16 U.S. Code [USC] § 431 et seq.)*: This act grants presidential authority for the creation of national monuments as means of protecting “historic landmarks, historic and prehistoric structures, and other objects of historic and scientific interest” (34 Statute 225: Section 2) as well as implementation of criminal penalties for those who disturb, destroy, or remove objects of antiquity (34 Statute 225: Section 3) and provides for scientific study of historic resources
- *Historic Sites Act of 1935 (Public Law [PL] 74–292; 49 Stat. 666; 16 USC 461–467)*: The federal government established the NPS in 1916 and gave the Secretary of the Interior the authority to inventory, assess, and preserve historic resources
- *National Historic Preservation Act of 1966 (16 USC 470)*: This legislation created the framework within which historic resources are managed in the United States by establishing requirements to ensure responsible stewardship of prehistoric and historic resources for future generations. This includes Section 106, which requires federal agencies to consider the impact of their actions on historic properties and to provide the ACHP an opportunity to comment on projects before implementation, and Section 110, which obligates all federal agencies to establish preservation programs and designate Federal Preservation Officers to coordinate historic preservation activities
- *National Environmental Policy Act of 1969*: This act provides for the preservation of important historic, cultural, and natural aspects of our national heritage, implemented via Sections 106 and 110 of the NHPA
- *Executive Order No. 11593 (Protection and Enhancement of the Cultural Environment)*: This Executive Order required federal agencies to implement Section 110 of the NHPA and nominate eligible historic resources to the National Register of Historic Places (NRHP) by 1973; it was subsequently extended and amended in 1992
- *Federal Land Policy and Management Act of 1976 (PL 94–579, 94th Congress)*: This act requires the Secretary of the Interior to prepare and maintain an inventory of all public lands and their resources and other values (including things such as outdoor recreation and scenic values) while giving priority to areas of critical environmental concern. In addition, the federal government must make a periodic adjustment in the use of federal lands to meet changing needs and conditions

- *American Indian Religious Freedom Act of 1978*: This legislation ensures that federal policy does not violate the Constitutional First Amendment rights of the American Indian, Eskimo, Aleut, or Native Hawaiian
- *Archaeological Resources Protection Act of 1979, as amended (PL 96–95: 93 Stat 721; 16 USC 470 aa et seq.)*: This legislation, as amended, sets felony-level penalties for excavating, removing, damaging, altering, or defacing any archaeological resource more than 100 years old on public or Indian lands unless authorized by a permit. This applies to archaeological resources regardless of NRHP status
- *Native American Graves Protection and Repatriation Act (PL 101–601, 25 USC 3001 et seq., 104 Stat. 3048)*: This legislation requires federal agencies and institutions that receive federal funding to return Native American “cultural items” to lineal descendants and culturally affiliated Indian Tribes. These may include human remains, funerary objects, sacred objects, and objects of cultural patrimony
- *Executive Order 13007 (Indian Sacred Sites)*: This Executive Order provides for regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications
- *Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments)*: This Executive Order requires consultation and coordination with tribal governments potentially affected by federal policies, thereby ensuring government-to-government communication so as to “reduce the imposition of unfunded mandates upon Indian Tribes”

3.4.2.2 State

Multiple state regulations pertain to the preservation of cultural and tribal resources on private and public land as well as enhance tribal consultation with non-federally recognized Tribes:

- *California Environmental Quality Act*: This Act provides guidance for cultural resources that are afforded consideration during the planning process due to their importance. As per the Guidelines, these include “historical resources” that meet one or more of the following requirements: 1) listed in, or determined eligible for listing, in the California Register of Historical Resources (California Register); 2) listed in a local register of historical resources as defined in CPRC Section 5020.1(k); 3) identified as significant in a historical resource survey meeting the requirements of CPRC Section 5024.1(g); or 4) determined to be a historical resource by a project’s lead agency (CPRC Section 21084.1 and CEQA Guidelines Section 15064.5[a]). Potential impacts to historical and archaeological resources must be avoided or otherwise mitigated
- *Tribal Cultural Resources, Tribal Consultation Requirement (AB 52)*: This bill requires lead agencies to begin consultation with a California Native American Tribe that is traditionally and culturally affiliated with the geographic area of the Proposed Action if the Tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the Tribe requests consultation prior to determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project
- *California Health and Safety Code (Section 7050.5)*: This code directs the order of operations when an unanticipated discovery of human remains is encountered
- *California Public Resources Code (Section 5097 to 5097.99)*: This code and series of subsection codes reflect the Native American Historic Resource Protection; the Protection of Archaeological, Paleontological, and Historical Sites; and treatment of Native American Historical, Cultural, and Sacred Sites (CPRC Sections 5097 and 5097.9 to 5097.999), which specify the procedures to be followed in the event of the unexpected discovery of human remains on non-federal public lands. To further emphasize,

Section 5097.9 to 5097.999 provides that no agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property

- *California Public Resources Code (Section 5024 et seq.)*: This code establishes requirements for state agencies “to preserve and maintain, when prudent and feasible, all state-owned historical resources under its jurisdiction listed in or potentially eligible for inclusion in the NRHP or registered or eligible for registration as a state historical landmark.” Caltrans has CPRC Section 5024 requirements for this Project, which are enacted according to the *Memorandum of Understanding between the California Department of Transportation and the California SHPO regarding Compliance with CPRC Section 5024 and Governor’s Executive Order W-26-92*
- *State Historic Building Codes 18950–18961*: The State Historic Building Code (SHBC) (Sections 18950 to 18961 Division 13, Part 2.7) is complex and pertains to qualified historical building, structure, or object rehabilitation, preservation, restoration, and relocation. Protection of qualified historic buildings is provided via the purpose and intent of Sections 18951 and 18953, the definition of a qualified historic building is provided in Section 18955 (structure or object), and enforcement of the SHBC is provided pursuant to Section 18961

3.4.2.3 Local

- *Humboldt County*: Humboldt County’s General Plan, Chapter 10, Conservation and Open Space, 10.6.3, Cultural Resources Goals and Policies (Humboldt County 2017) provides policies that guide the protection and enhancement of cultural resources (CU-P1–CU-P6)
- *Shasta County*: Chapter 6 Resources. Group, Section 10 Heritage Resources (Shasta County 2004a) features a single all-encompassing objective to protect prehistoric and historic resources
- *Trinity County*: As of October 23, 2019, Trinity County has not updated its 1979 General Plan (Trinity Journal 2019). Thus, for the purposes of this EA/IS, deference to state regulations applies

3.4.3 Literature Review and Survey Approach and Results

The data collection methodology for the literature review is formally discussed in the Cultural Resources Inventory Report (Loftus et al. 2021). In brief, in order to augment identification efforts prior to conducting fieldwork, all 3,840.55 acres and the surrounding area were subjected to intense background research in order to effectively target highly sensitive areas. This included a review of historic topographic maps, General Land Office (GLO) survey maps and land patents, historic topographic maps, the mineral resources database, and Light Detection and Ranging (LiDAR), as well as historic aerial imagery. Record searches were conducted at the California Historical Resource Information Center’s Northwest Information Center in Rohnert Park, California, and the Northeast Information Center in Chico, California. In addition, background research was conducted at each agency, including the BLM Arcata and Redding field offices, STNF Big Bar and Weaverville ranger districts, SRNF Lower Trinity Ranger District, WNRA, USACE, and Caltrans D1 and D2.

3.4.3.1 Literature Review Results

Background research resulted in a total of 1,202 previous cultural resources studies and 1,349 previously recorded cultural resources within 0.25 mile of the Action Area (i.e., the APE-IE). Of these, 448 studies and 379 resources intersect the APE-DE (i.e., 65- to 150-foot-wide corridor) (see Section 3.4.1.1). The NRHP, California Historical Landmark, and California Points of Historical Interest were reviewed for Humboldt, Trinity, and Shasta counties in addition to information maintained by historical and heritage societies and cities and counties along the

alignment. A total of 48 landmarks, points of historical interest, districts, designated sites, and places were identified within or in the vicinity of the Project area. Of these, 15 were identified within the APE.

Archaeological sensitivity as part of the literature review included analysis of soil deposition of the Project area and can be summarized as primarily Late Holocene (4000 BP to AD 1850) on the western and eastern margins of Project alignment, at the western reaches of the Coast Range to the Pacific Ocean coastline, and the Sacramento Valley. The majority of the Project alignment passes through Older Pleistocene (1.9 million years ago to 25,000 BP) and older Pre-Quaternary (less than 1.9 million years ago) landforms, as demonstrated by the steep, rugged, mountainous terrain bridging the low-lying coastal area and interior Sacramento Valley. Subsurface potential for archaeological sites was considered with respect to the landform age, soil deposition, and archaeological sensitivity of setting and soils.

Additionally, understanding the prehistoric chronologies and cultural and ethnographic contexts of the Yurok, Wiyot, Hupa, Chilula, Chimariko, Wintu, Nomlaki, Whilkut, and Tsnungwe Tribes as well as the historical research of California Coast and High North Coast to the Sacramento Valley interior informed the pedestrian survey approach. There are 144 ethnographic locations that occur within the study area, and 68 of these locations intersect or are within less than 100 feet of the APE. Some of the identified ethnographic areas include trade routes and trails which are important throughout the region, as well as habitation sites and gathering locations.

Original GLO survey plat maps were reviewed for the entire alignment from west to east for further understanding of the historic evolution of the Project corridor in the mid-nineteenth century. The maps date from 1855 to 1911 and in general show more burgeoning development in the west, with isolated trails and some roads, ditches, and mining claims in the east. In addition, the BLM Land and Mineral Systems, Public All Systems Geo Report was reviewed for all Township and Ranges within the Project area. The reports generated identified mining claim recordation and status of the mines, transfer of land, and acreage of land patents. The generated reports were exhaustive, and sampling of the land patents identified nothing pertinent to the Project area or APE. Review of the LiDAR data identified former locations of possible structures outside of, but near, the APE. Areas of heavy hydraulic mining and dredging were also noted, as were mining-related ditches and tailings, all of which were also identified during the intensive pedestrian survey. Historic topography map review, beginning in the mid-1800s and extending to the mid-twentieth century, focused on Historic-era features within 150 feet on either side of the Project corridor. Maps were selected based on quality, scale, illustration, and photo-revision updates that provided for any gaps in illustrating preceding Modern-era map dates.

Prior to the field survey (windshield/reconnaissance and intensive pedestrian), historic aerial imagery was reviewed for evidence of features such as buildings, bridges, former roads and trails, and ditches within the APE. Sixty-nine features were noted in Google Earth and their locations included in the ArcCollector map (numbered Aerial Locations [Als]) used by the field survey crews. The field survey crews visited each of the identified Als to determine if the mapped Historic-era feature was present.

The Project would pass near the historic marker for a historic burial identified as the Pioneer Baby's Grave, and there are concerns that other unmarked graves could be present. Ground-penetrating radar (GPR) work was conducted at the grave site prior to maintenance work following the Carr Fire in an effort to identify additional buried remains. The GPR did identify "anomalies" which were flagged but not tested for human remains. Some of these anomalies occur within the APE but are north of the proposed bore, outside of the area of anticipated permanent ground disturbance. The roadbed and prism of SR 299 has been raised many feet at this location, minimizing the likelihood that any burials are present in the path of the proposed fiber optic line. Nevertheless, all ground-disturbing work in that area would be monitored by historic resources specialists with experience in

identifying human remains, and temporary protective fencing would be installed to barricade the anomalies during construction.

Review of the Caltrans Structure Maintenance and Investigations Inventory of Historic Significance for Local and State Bridges (Caltrans 2018a, 2018b) identified 66 historic bridges in the APE. All the bridges within the APE that are listed in the Caltrans local and state bridges inventory have been evaluated for NRHP listing with the exception of the Clear Creek Overflow in Redding (06 0090, built in 1920 and widened in 1951). The Clear Creek Overflow is assumed Eligible for listing for purposes of the Project. Two of the bridges in the APE are Eligible for the NRHP: the North Fork Mad River Bridge (04C00126, built in 1928) and the Whiskey Creek Bridge (06 0096, built in 1961).

More information on the literature review, including environmental, geological and paleo environmental, cultural, ethnographic, and historic overviews, can be found in the Cultural Resource Inventory Report (Loftus et al. 2021).

3.4.3.2 Pedestrian Survey Approach and Results

An intensive, non-collection, pedestrian survey of the Proposed Action APE-DE was undertaken between early May and late July 2019 and then in October 2019, December 2019, and June 2021. The survey approach was documented and approved by agencies via permitted Fieldwork Authorizations. Approximately 2,318.79 acres were surveyed using intensive survey; reconnaissance-type survey was employed for the remaining 1,521.76 acres along dangerous or hazardous roads. Points of interest determined from background research were attempted to be relocated in the field. Those sites previously recorded within the APE-DE were revisited, and records were updated as needed. Newly identified sites encountered during survey within the APE-DE were recorded. The aerial spurs were subject to reconnaissance surveys only since no ground disturbance is expected for aerial attachments. Four qualified archaeologists performed the fieldwork, for a total of 216 person field-days.

Summary of Survey Results

The most common newly recorded resources (23 out of 71) were bridges. There were also 13 newly identified culverts, 9 ditches, 11 mining-related resources (primarily collapsed adits), 6 road segments, 4 rock walls, 1 foundation, 1 cistern, 1 historical monument, 1 heritage tree, and 1 prehistoric heritage tree.

A total of 178 previously recorded resources were encountered during survey, and site forms were updated accordingly. These previously recorded resources include the following:

- 38 mining-related resources, primarily tailings piles
- 29 roads, railroad cuts, or trails
- 29 ditches
- 15 retaining walls
- 13 buildings or historic districts
- 10 lithic scatters or quarries
- 10 native village sites or secondary habitation locales
- 7 historic foundations
- 5 multicomponent sites
- 4 power lines or telephone lines
- 4 bridges
- 3 historic refuse scatters
- 2 structure flats
- 1 dike
- 1 shell redeposit
- 1 isolated biface
- 1 rock and concrete water fountain
- 1 lumber yard
- 1 historic grave
- 1 historic chimney
- 1 culvert
- 1 land slide

Appendix K lists these resources, and the Cultural Resources Inventory Report (Loftus et al. 2021) provides detailed information.

3.4.4 Impact Thresholds

The Proposed Action could have adverse impacts to cultural resources if it:

- Causes a substantial adverse change in a historical resource
- Causes a substantial adverse change in an archaeological resource
- Disturbs any human remains, including those interred outside of dedicated cemeteries
- Causes a substantial adverse change in a tribal cultural resource, defined in CPRC § 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:
 - Listed or eligible for listing in the California Register or in a local register of historical resources as defined in CPRC section 5020.1(k), or
 - A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of CPRC § 5024.1. In applying the criteria set forth in subdivision (c) of CPRC § 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe

3.4.5 Impact Findings

3.4.5.1 Proposed Action and Alternative Segments

Potential impacts were analyzed for each of the previously recorded and newly recorded sites within the APE-DE. Site-specific cultural resource protection measures (CRPMs) were identified to avoid impacts to each resource, as discussed in the Cultural Resources Inventory Report (Loftus et al. 2021). These CRPMs are prescribed to sites depending on site condition, construction method, and in consultation with agencies and Tribes. CRPMs use the following methods to avoid or protect cultural resources along the alignment:

- Following the edge of the road to avoid a known nearby resource
- Boring beneath a cultural resource
- Archaeological monitoring
- Tribal monitoring
- Erecting temporary fencing to protect cultural resources during construction
- Consulting with bridge owners prior to construction regarding engineering methods of cable attachment to avoid adverse effects to a historic structure
- Consulting with Tribes regarding seasonal limits on construction activities at sensitive sites
- Minimizing or avoiding use of heavy equipment and vibrating machinery in the vicinity of fragile built-environment historical resources
- Consulting with other interested parties prior to construction
- Pre-work conferences regarding resource identification and use of monitors, etc.

Implementation of these CRPMs would avoid impacts to historical and tribal cultural resources by ensuring that construction would avoid known significant resources. Archaeological and tribal monitoring at sensitive locations of the Project alignment would also ensure that, if previously unidentified resources are discovered during

construction, these would be protected by work stoppage at the location of the discovery with appropriate recommendations enforced by an archaeological and/or tribal monitor.

None of the 60 proposed staging or laydown areas are sited, nor would any of the ILA buildings be sited, within a known cultural or tribal resource. Project conditions requiring archaeological and tribal monitoring would occur in designated environmentally sensitive areas, and the construction method—HDD—would ensure avoidance of surface and near-surface cultural resources. Per the request of the Wiyot Area Tribes, any conduit on Tuluwat Island in Humboldt Bay would be installed via HDD in the raised road ROW.

Viewshed Impacts

One TCP was identified outside of the ground disturbance construction footprint of the APE. This TCP is the location of prayers and other activities during the World Renewal Ceremony and is in the viewshed of Project construction. The World Renewal Ceremony occurs on a seasonal basis with no specific date scheduled. To avoid compromising the integrity of the site and ceremonies, no construction will occur in the vicinity of the site, no equipment will be left in the viewshed of the site during these ceremonies, and Tribes will be engaged at appropriate intervals to confirm when the ceremonies will occur.

Because the fiber optic cable would be placed underground within existing road ROWs and aerial attachments would be to existing poles, there would be no alteration to the existing viewshed or introduction of new visual elements that would diminish characteristics of historical value. As a result, the integrity of cultural or tribal resources, including TCPs, is not compromised, and there would be no impacts within the APE-IE.

Unanticipated Discoveries

Impacts to unknown resources are unpredictable and would be reported and evaluated as much as is possible during the construction of the Proposed Action. A Cultural Resource Monitoring and Post-Review and Discovery Plan prepared at the request of Caltrans D2 (Loftus and Harvey, personal communication 2020) provides for implementation of a Cultural Resource Awareness Training prior to construction, outlines the CRPMs and BMPs, and provides specific guidance for actions with Inadvertent Discovery Protocols (IDPs). BMPs and IDPs were developed to minimize adverse impacts to unknown archaeological and tribal resources and shall be implemented for the duration of construction, requiring crews to halt work and contact a qualified archaeologist in the event of a discovery. Measures or treatment plans will be implemented as described in **Appendix G**.

Operations and Maintenance

If future operation and maintenance requires a repair or replacement, activities may be ground disturbing and would have the potential to cause adverse impacts to known and unknown archaeological and tribal resources. As such, the same CRPMs, BMPs, and IDPs would be implemented for on-going resource protection and preservation of archaeological and tribal resources. The IDPs provide minimization of adverse impacts to unknown archaeological and tribal resources.

Overall, with the implementation of standard avoidance measures and site-specific protection measures (Loftus et al. 2021), adverse impacts to tribal or cultural resources will be direct, short term, and negligible. Impacts do not meet the NEPA impact thresholds listed above.

3.4.5.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not be built, and the environmental and cultural setting would remain as is. There would be no effects to cultural or tribal resources.

3.5 Geology/Soils

Geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources are typically described in terms of geology, topography, soils, and geologic hazards. Topography pertains to the general shape and arrangement of a land surface, including its height and the position of its natural and man-made features. Geology pertains to the underlying bedrock materials.

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils are typically described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and potential of erosion affecting their abilities to support certain applications or uses as well as what impacts to soils might occur from proposed uses.

Geologic hazards are defined as natural geologic events that can endanger human lives and threaten property. Examples of geologic hazards include earthquakes and seismic-related ground failure, including liquefaction, landslides, rock falls, ground subsidence, and avalanches.

3.5.1 Regulatory Setting

The Seismic Hazards Mapping Act (SHMA) of 1990 “directs the Department of Conservation, California Geological Survey to identify and map areas prone to liquefaction, earthquake-induced landslides and amplified ground shaking.” The SHMA was passed after the Loma Prieta earthquake of 1989 and is intended to minimize the loss of life and property by identifying, evaluating, and mitigating seismic hazards (CDC 2019b).

3.5.2 Analysis Area

The geological analysis area is defined as the physical footprint for the construction and operation of the Proposed Action (i.e., 25-foot-wide corridor along the roadway). The analysis area stretches from the communities of Trinidad, Samoa, and Eureka in Humboldt County to the town of Cottonwood in Shasta County, California. The alignment passes through the California Coast Ranges.

The topography in the Action Area ranges from relatively flat floodplains and along rivers in the coastal section of Humboldt County to steep slopes through the mountains to relatively flat Central Valley landscape along the section between Redding and Cottonwood. Elevation ranges from 10 feet near Humboldt Bay to over 4,800 feet along USFS roads on the STNF.

3.5.2.1 *Geology*

The underlying geology of the Action Area varies from dune sand at the coast near Samoa, to alluvium along the coast near Eureka and Arcata and in river valleys, and to various formations throughout the mountains. The Action Area within the Coast Range between Blue Lake and Willow Creek is dominated by tertiary marine layers and the Franciscan formation, with interspersed Mesozoic ultrabasic and metamorphic formations between Willow Creek and Weaverville. The Action Area is dominated by Mesozoic granitic and metamorphic formations. From Weaverville through Redding, the underlying geology consists of pre-Silurian meta-sedimentary, Mississippian Marine, Oligocene nonmarine, Mesozoic granitic, and Devonian meta-volcanic rock. The Central Valley consists predominantly of Pleistocene nonmarine and alluvial deposits (Strand 1962).

3.5.2.2 *Soils*

Soil types throughout the analysis area vary greatly. There are approximately 189 different soil types identified along the alignment, including hydric and non-hydric soils. See the PJD (**Appendix F**) for more details on soils in the Action Area.

3.5.2.3 *Geological and Seismic Hazards*

The primary geologic hazard for the Proposed Action is the risk of landslide. Some of the Proposed Action is located along road alignments that are cut into steep slopes where the risk of landslide ranges from low to high. The Proposed Action alignment passes through areas of mapped landslides, ranging from active and historic (records or recent movement) to dormant (CGS 2019a). Liquefaction risk is present in areas of alluvial fill near rivers and around bays.

The Action Area includes a few mapped faults identified on the current Alquist-Priolo earthquake fault zone maps as covered under the Alquist-Priolo Earthquake Fault Zoning Act. The Proposed Action alignment crosses the Fickle Hill fault, the McKinleyville Fault, the Mad River Fault, and the Trinidad Fault (CGS 2019b). Several active (Holocene time [ruptured in about the last 11,000 years]) faults are mapped at the Proposed Action alignment near Arcata and McKinleyville. Two potentially active Quaternary faults are mapped southeast of Humboldt Bay, crossing the Proposed Action alignment (CGS 2010). Two additional faults, the Grogan Fault and Bald Mountain Fault (Quaternary and Late Quaternary), are mapped between Redwood Creek and the coast (CGS 2010). The design peak ground acceleration in the vicinity of the site, in accordance with Section 1803.5.11 of the 2016 California Building Code, is 0.186 g (CDC 2019b).

3.5.3 Impact Thresholds

The Proposed Action could have adverse impacts to geology and soils if it:

- Directly or indirectly causes potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault
 - Strong seismic ground shaking
 - Seismic-related ground failure, including liquefaction
 - Landslides
- Results in substantial soil erosion or the loss of topsoil
- Is located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project and potentially result in an on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse
- Is located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property
- Has soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater
- Directly or indirectly destroys a unique paleontological resource or site or unique geological feature

3.5.4 Impact Findings

3.5.4.1 *Proposed Action and Alternative Segments*

Geology and Soils

The Proposed Action would have no permanent or long-term impacts to geology or soils. Permanent disturbance would be associated with the vault lids, which would be within the disturbed 10-foot-wide fiber optic ROW. Construction methods are ground-disturbing and would temporarily affect soils during the construction phase. These disturbances would be minor, as the disturbed soil would be used to cover the fiber optic conduit and would

be compacted in place. Erosion BMPs, per the applicant's SWPPP, would be placed around bore pits and construction sites to limit risk of soil erosion.

Geologic and Seismic Activity

The Proposed Action would be located in areas of potential instability. Potential for landslides pose a risk due to the slope of many areas along the alignment; however, the insertion of a 1.25-inch conduit installed within the upper layers (48 inches) of soil within previously constructed roadbeds would not result in an appreciable worsening of instability. There would be no additional risk of on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse due to Proposed Action construction. The Proposed Action does not propose the construction of any structures or facilities that would expose people or structures to adverse effects due to seismic events. Although the Proposed Action is located in an area of seismic activity and mapped faults, the installation of conduit and fiber optic cables does not pose risk of loss, injury, or death.

There is some risk of frac-out during HDD activities (see Section 2.2.2.1). The main factor in determining frac-out risk is the total overburden pressure of the soil over the bore compared to the pressure of the drilling mud within the bore. Soils that contain higher concentrations of gravel or cobble deposits allow for preferential liquid flow paths; thus, they are more susceptible to frac-out (Slade 2000). Rocky, gravelly, or stony soils are also more likely to be susceptible to frac-out. Less susceptible soils are those that are more uniform and finer-grained, such as homogenous sand or clay deposits. The Project area includes a wide variety of soil types; see the PJD (**Appendix F**) for details on specific soils in the Project area. Vero will implement a Contingency Frac-out Plan (**Appendix E**) to minimize the risk of frac-out at all drilling locations across the Project, including where gravelly soil types are more susceptible to frac-out.

Operations and maintenance of the Project would not result in new disturbance or impacts to geology and soils. The underground conduit would be accessed via existing manholes and handholes. There would be no risk to geology or soils.

Potential impacts to geology and soils from the Proposed Action do not meet the adverse impact thresholds listed above. Based on the above analysis, the Proposed Action would have direct, short term, negligible impacts to geology and soils.

Paleontological Resources

This section summarizes the Paleontological Resource Technical Report and Paleontological Monitoring and Discovery Plan (PMDP) (**Appendix L**) prepared by the San Diego Natural History Museum (SDNHM) for the Project. The SDNHM identified the APE as intersecting a region of complex Coast Ranges Geomorphic Province, the Klamath Mountains Geomorphic Province, and the Great Valley Geomorphic Province. Utilizing the USFS and BLM Potential Fossil Yield Classification System (PFYC), 29 geologic units within the geomorphic provinces were identified. Six are considered High Potential (PFYC 4), consisting of Pleistocene-age marine and non-marine deposits. Four are considered Moderate Potential (PFYC 3), consisting of Pleistocene-age and non-marine terrace deposits. Ground disturbance (bore pits) would occur in PFYC 3 and 4. The SDNHM determined that earthwork along certain segments of the alignment will almost certainly disturb geologic units assigned a PFYC ranking of 3 or 4 and thus may negatively impact paleontological resources.

A PMDP was developed to minimize adverse impacts to unknown paleontological resources that required paleontological monitoring in PFYC 3 and 4, as described in **Appendix L**. Specifically, monitoring is recommended for construction in areas underlain by paleontologically sensitive geologic units (i.e., nonmarine terrace deposits, marine and nonmarine overlap deposits, and the Falor, Modesto, Riverbank, Red Bluff, Tehama,

Weaverville, Galice, and Bragdon formations) and will involve earthwork that can be feasibly monitored (e.g., trenching; excavation of access vaults, bore pits, and bridge attachments; grading for node buildings).

Impacts to paleontological resources do not meet the above-listed adverse impact threshold and are expected to be direct, short term, and negligible.

3.5.4.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not be built, and the environmental setting would remain as is. There would be no effects to geology, soils, or paleontological resources.

3.6 Hydrology/Water Quality

Hydrology, in general, is the study of the water cycle and, more specifically for this analysis, the movement of water through the landscape including both surface water and groundwater.

3.6.1 Regulatory Setting

Section 404 of the CWA gives the EPA and USACE regulatory and permitting authority regarding discharge of dredged or filled material into “navigable Waters of the United States” (WOTUS). Section 502(7) of the CWA defines navigable waters as “Waters of the United States, including territorial seas.” Section 328 of Chapter 33 in the CFR defines WOTUS as they apply to the jurisdictional limits of USACE authority under the CWA. A summary of this definition in 33 CFR 328.3 includes the following: 1) waters used for commerce; 2) interstate waters and wetlands; 3) “Other Waters of the United States” (other waters) such as intrastate lakes, rivers, streams, and wetlands; 4) impoundments of waters; 5) tributaries to the above waters; 6) territorial seas; and 7) wetlands adjacent to waters. For the purposes of determining USACE jurisdiction under the CWA, “navigable waters” as defined in the CWA are the same as “Waters of the United States” as defined in the CFR above. Of the ~~567~~523 total waterway crossings along the route, ~~129~~121 are perennial and would be crossed via HDD or bridge attachment, entailing no direct impacts to waters. HDD would also be used to cross under most of the ~~438~~402 intermittent and ephemeral waters; however, these ~~438~~402 could be also trenched or plowed when dry, which would be covered by the CDFW 1602 permit. Any potential impacts would involve temporary fill from the trenching or plowing of dry waterways.

The limits of USACE jurisdiction under Section 404, as given in 33 CFR Section 328.4, are as follows: (a) territorial seas—3 nautical miles in a seaward direction from the baseline, (b) tidal WOTUS—high-tide line or to the limit of adjacent non-tidal waters, (c) non-tidal WOTUS—ordinary high-water mark or to the limit of adjacent wetlands, and (d) wetlands—to the limit of the wetland.

The Regional Water Quality Control Board (RWQCB) regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA (33 USC Section 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into WOTUS to obtain certification from the state in which the discharge originates. As a result, fill proposed within waters and wetlands requires coordination with the appropriate RWQCB that administers Section 401 and provides certification. The RWQCB also reviews water quality and wetland issues, including avoidance and minimization of impacts. Section 401 certification is required prior to issuance of a Section 404 permit.

Executive Order 11988, Floodplain Management, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this

objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities" for federal actions.

Executive Order 11990, Protection of Wetlands, requires federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Federal agencies must avoid undertaking or providing assistance for new construction located in wetlands unless there is no practicable alternative to such construction and the Proposed Action includes all feasible measures to minimize harm to wetlands that may result from such use.

3.6.2 Analysis Area

The area of analysis for the hydrology and water quality resources includes the proposed area of disturbance and areas into which the disturbed area drains. The exact extent of any potential impacts to water resources would vary depending on factors such as water year type, rainfall, and streamflow. For the purposes of this analysis, the Action Area includes waterways crossed by the Proposed Action. Further details on the affected environment for hydrology and water quality can be found in the PJD (**Appendix F**).

3.6.2.1 *Watersheds, Groundwater, and Flood Zones*

The Action Area crosses 16 watersheds (Hydrologic Unit Code [HUC] 10) and 39 sub-watersheds (HUC 12) (USGS 2018). There are several major waterbodies and waterways in the Action Area, including Humboldt Bay, Mad River, Little River, Trinity River, and Whiskeytown Lake, as well as ~~567-523~~ perennial, intermittent, and ephemeral streams. Wetland habitats primarily include willow thickets and small freshwater emergent wetlands along the coast and around Humboldt Bay. Additionally, several seeps and springs that often emerge from roadcuts are present along portions of the alignment on some remote dirt roads. See **Appendix D** for a map of major waterbodies crossed by the Proposed Action. The entire Action Area was evaluated for the presence of potential jurisdictional waters and wetlands. The results are presented in the PJD (**Appendix F**).

The Action Area includes seven mapped groundwater sub-basins (DWR 2016): Eureka Plain, Mad River Valley—Mad River Lowland, Mad River Valley—Dows Prairie School area, Big Lagoon Area, Hoopa Valley, Redding Area—Enterprise, and Redding Area—Anderson.

Most of the Action Area is within areas considered minimal flood hazard (FEMA 2019). There are mapped 100-year flood hazard areas (i.e., areas with a 1 percent annual chance flood hazard) that cross the Action Area between Samoa and Arcata, between Eureka and Arcata, between Arcata and McKinleyville, and along the Mad River near Blue Lake. Small, scattered sections of the Proposed Action alignment along the Trinity River east of Blue Lake pass through 100-year flood zones.

3.6.2.2 *Climate Zones*

The Project area overlaps two Mediterranean subtype climate zones. The warm-summer Mediterranean climate subtype exists primarily along the immediate coast and coastal mountain ranges. Much of the yearly precipitation in warm-summer Mediterranean climates occurs during the colder winter months (USCD 2019) and averages 40 inches per year. The hot-summer Mediterranean climate subtype exists primarily in some of the inland mountain valleys and the Central Valley portion of the Project area. Known for its very hot, dry summers and cool, wet winters, precipitation primarily occurs during the winter months, averaging 35 inches annually (USCD 2019).

3.6.3 Impact Thresholds

The Proposed Action could have adverse impacts to water resources if it:

- Violates any water quality standards or waste discharge requirements or otherwise substantially degrades surface or groundwater quality
- Substantially decreases groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin
- Substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - Result in a substantial erosion or siltation on- or off-site;
 - Substantially increase the rate or amount of surface runoff in a manner resulting in flooding on- or off-site;
 - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - Impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risks include release of pollutants due to Project inundation
- Conflicts with or obstructs implementation of a water quality control plan or sustainable groundwater management plan

3.6.4 Impact Findings

3.6.4.1 Proposed Action and Alternative Segments

During construction activities, runoff from work areas could result in a slight increase in turbidity in surface waters within the Action Area. Potential increases in turbidity would be minimized or prevented with implementation of BMPs (e.g., limiting work to the dry season, mulch mats, straw wattles silt fencing, detention basins, and monitoring) and adherence to erosion and stormwater management practices to contain soil and runoff on the Action Area, as described in **Appendix G**. The implementation of BMPs will prevent or reduce soil entering the waterway, thereby maintaining water quality standards. As Proposed Action facilities are buried underground, there is no anticipation that the long-term operation of the Proposed Action would lead to increased runoff or change drainage patterns. Impacts to surface water are expected to be direct, short term, and minor as a result of the Proposed Action.

No direct effects to wetlands are expected, as the Project will be bored under wetlands, and bore pits will be placed outside of wetland and riparian areas. Most wetlands along the route are small, averaging less than 0.1 acre. The conduit would be buried a minimum of 36 inches deep within the road shoulder. The Project will fully avoid wetlands. Wetlands are discussed in greater detail in Section 3.3.4.1.

No effects to groundwater would be expected from the Proposed Action, as it does not remove groundwater or affect groundwater recharge. Although the Proposed Action would place conduit and fiber optic cable within 100-year flood zone areas, the facilities would be buried and would allow flood flows to occur unimpeded. Impacts from the Proposed Action do not meet the adverse impact thresholds listed above.

No effects are expected from the operations and maintenance phase of the Proposed Action, as the facilities will be accessed via existing roads and vaults, and no new disturbance or changes to hydrology would be required to operate and maintain the fiber optic network.

Impacts to hydrology and water quality do not meet the adverse impact thresholds listed above and will be avoided and minimized with the implementation of measures in **Appendix G**. These measures require the Proponent to develop and implement an SWPPP; develop and implement a spill prevention plan; develop and implement an HDD Contingency Frac-Out Plan; visually inspect the bore path and stream area for frac-outs at all times during HDD activities; develop and implement a Restoration Plan to guide the restoration of temporarily disturbed natural areas; and minimize erosion by maintaining runoff control structures, roadside diversion ditches, erosion-control structures, and energy dissipaters to the standards of the permits and SWPPP.

3.6.4.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not be built, and the environmental setting would remain as is. There would be no effects to hydrology and water quality.

3.7 Land Use/Planning

The Project intersects land under the jurisdiction of the federal government, state government, tribal, and private entities (**Table 5**). It follows existing roads managed by Caltrans, USFS, and counties, with about 130 miles following Caltrans-managed ROW.

TABLE 5. MILEAGE CROSSED BY JURISDICTION

Agency/Landowner	Miles Crossed
USFS STNF	62.2
USFS SRNF	14.6
NPS, WNRA	10.1
BLM	22.6
USBR	2.6
Hoopa Valley Reservation	3.15
Blue Lake Rancheria	0.36
<u>Caltrans (fee-owned ROW)</u>	<u>72.2</u>
State (Other)	1.9
Private	<u>142.0</u> 214.2

The primary existing land uses in the Action Area are transportation and utilities. While the Proposed Action would be surrounded by a variety of land uses that range from undeveloped federally owned and private lands to developed land in urban and rural areas, the primary surrounding land uses are forest land and developed communities. Developed land uses within or adjacent to the Action Area include agricultural land, industrial properties, suburban residential properties, rural residential properties, undeveloped woodland and forest land, urban areas, and recreation areas.

3.7.1 Regulatory Setting

The various federal, state, and local agencies governing the land that the Proposed Action would cross outline their goals and strategies for development in land and resource management documents. Land use designations, management policy, and zoning for the cities and counties in the Action Area are outlined in the respective General Plans and zoning codes for each jurisdiction (**Appendix S**).

3.7.1.1 General Plan Policy and Caltrans Policy

General Plans

Humboldt County's General Plan outlines policies that encourage the construction and use of broadband services, compatibility between land uses, and the undergrounding of utilities (Humboldt County 2017). Shasta County's General Plan outlines objectives and policies urging minimal conflict between adjacent land uses and connecting communities to urban services (Shasta County 2004b).

The incorporated communities that the Proposed Action would intersect generally support the creation of additional public infrastructure and the undergrounding of utilities. General Plan language from the cities of Arcata, Redding, and Trinidad encourage the undergrounding of utilities whenever possible (City of Arcata 2000; City of Redding 2000; City of Trinidad 1978). Language from the City of Anderson General Plan and the Blue Lake Community Action Plan support the development of communication connections and increased infrastructure (City of Anderson 2007; Humboldt County 2003). Language from the City of Eureka General Plan encourages both the creation of broadband infrastructure and the undergrounding of utilities (City of Eureka 2018).

Caltrans

Caltrans general ROW policy allows for utility facilities within conventional Caltrans ROWs (Caltrans 2019).

3.7.1.2 Zoning Information

Shasta and Humboldt counties identify in their zoning ordinances that public utilities may be permitted in any zoning (Humboldt County 2000; Shasta County 2011). Trinity County's zoning allows for utilities to be permitted in any district as long as a use permit is obtained (Trinity County 2010).

The Proposed Action would intersect land within Shasta and Humboldt counties zoned for residential living, commercial uses, industrial uses, public facilities, recreation, national recreation areas, and unclassified uses (Humboldt County 2019; Shasta County 2019). The Proposed Action would intersect Humboldt County land zoned for industrial, agricultural, commercial, residential, timber production, unclassified, and professional uses. The Proposed Action would also intersect zones designated for flood plains, natural resource areas, and public facilities (Humboldt County 2019).

The cities of Anderson and Arcata permit the construction of utilities in any zoning district (City of Anderson 2019; City of Arcata 2019a). The cities of Redding, Blue Lake, Trinity, and Eureka do not list broad permission or refusal of utilities in all zoning districts. In these areas, the Proposed Action would work with the cities to acquire all required permitting and legal permission for the Proposed Action before any construction takes place (City of Blue Lake 2019; City of Eureka 2019a; City of Redding 2019a; City of Trinidad 2008).

The Proposed Action would intersect areas within the cities of Anderson, Redding, Trinidad, Arcata, and Eureka with a variety of zoning designations, including commercial, public facilities, business, downtown, planned development, open space, residential, shopping, public facilities, and industrial uses (City of Anderson 2005; City of Arcata 2019b; City of Eureka 2019b; City of Redding 2019b; City of Trinidad 2008).

3.7.1.3 Wild and Scenic Rivers Act

The Proposed Action would cross the Trinity River in nine locations; however, all but two of these locations would be bridge attachments, fully avoiding impacts to the river. Portions of the Trinity River are protected under the WSRA. Federal agencies cannot participate in the development of projects which would have a direct and

adverse impact to a river’s “outstandingly remarkable values” (ORVs). The Trinity River’s ORVs are its 1) free-flowing condition, 2) anadromous and resident fisheries, 3) outstanding geologic resource values, 4) scenic values, 5) recreational values, 6) cultural and historic values, and the values associated with 7) water quality (USBR 2006). The USFS and NPS, as the agencies with jurisdiction, will issue a WSRA Section 7 determination for the two applicable crossings.

3.7.2 Analysis Area

The analysis area for land use includes the roadways the Proposed Action follows (generally a 25-foot-wide corridor along the alignment) as well as several areas where construction activities will occur outside the road shoulder (i.e., ILA buildings as well as one bore bit located in a grassy, graveled area above the northwestern bank of the Trinity River where the Project will cross under the river via HDD). The 25-foot-wide corridor is a temporary construction area needed for a period of approximately 2 years. For the purpose of ongoing operations and maintenance, however, Vero will only be requesting permits for a 10-foot-wide ROW within the larger 25-foot-wide corridor.

3.7.3 Impact Thresholds

The Proposed Action could have adverse impacts to land use/planning if it:

- Physically divides an established community
- Conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect

3.7.4 Impact Findings

3.7.4.1 *Proposed Action and Alternative Segments*

The Proposed Action would be located within and compatible with ROWs of roadways or utility corridors; thus, it would have no impact on land use outside of those corridors. The Proposed Action would be constructed within Caltrans ROWs, USFS road ROWs, and county road ROWs. Prior to obtaining encroachment permits for construction within road ROWs, the Proponent would ensure the facilities are engineered and constructed in accordance with the requirements and specifications set by each respective road ROW management agency. Construction, operation, and maintenance of the Proposed Action would not result in loss of any structures, businesses, or residences associated with public service. Likewise, the Proposed Action would cross several communities and populated areas, but because the Proposed Action would be primarily built underground with aboveground connections being attached to already-existing infrastructure, no physical barriers that could divide these communities would be created by the Proposed Action. Specific ILA building locations are unknown at this time; however, measures in **Appendix G** provide parameters for where ILA buildings can or cannot be sited. All ILA buildings would be on non-public land in areas with like facilities or usage (e.g., commercial, industrial, paved, pre-disturbed, etc.). ILA buildings would not be sited such that they conflict with or disrupt land use.

Short-term impacts from the Proposed Action may include reduced accessibility due to the presence of construction activities and machinery within communities and roadways. Although construction activities would not conflict with any existing land use activities, the noise, dust, and traffic associated with construction could potentially temporarily disturb these uses. In addition, the presence of construction equipment and personnel during construction activities could potentially temporarily restrict access to areas along the alignment. Compliance with noise, traffic, air quality, and other measures described in **Appendix G** would further reduce these construction impacts to land use.

The Proposed Action would not conflict with any policy outlined in the federal and local management documents listed in **Appendix S**. Several agencies, counties, and cities expressly outline policy or statements encouraging utility construction and the undergrounding of utilities.

Regarding the WSRA, the Project would cross under the Trinity River using the HDD method at two locations. One crossing is proposed to be along Chimariko Road at Coopers Bar northwest of Junction City (**Figure 6**). This location is on private land. Both bore pits would be located at least 250 feet away from the bank of the river, and the bore path would be to a depth of 20 feet below the bed of the river. The other crossing is along an alternative segment near Big Bar on STNF land (**Figure 6**). The crossing may HDD under the Trinity River along Coral Bottom Road if the bridge at this location is unable to have conduit attached. Bore pits in this location would be away from the riverbank and riparian vegetation; both pits would be sited along paved roadways on either side of the existing bridge.



Figure 6. Trinity River HDD crossing locations: Chimariko Road (left) and Coral Bottom Road (right)

A WSRA Section 7 analysis was completed and is attached to the EA/IS as **Appendix P**. The USFS and NPS, as the appropriate river-managing agencies, are the signatory authorities for the determination. In summary, the Project is not expected to impact the Trinity River’s ORVs protected under the WSRA:

- 1) *Free-flowing Condition*: Fiber optic conduit would be attached to bridges or bored under the river, not affecting the flowing of water
- 2) *Anadromous and Resident Fisheries*: The BE finds the Project is not likely to adversely impact anadromous fish; the only risk is from a frac-out under the river, which will be closely monitored and managed per the Contingency Frac-Out Plan (**Appendix E**). **Appendix B** includes USFWS and NMFS responses to ESA consultations
- 3) *Outstanding Geologic Resource Values*: Impacts to geology are negligible; the Project will not impact any outstanding geologic features. Section 3.5 includes a detailed analysis of geology
- 4) *Scenic Values*: Conduit would be placed underneath bridges, out of sight and not impacting scenic values of the river. See **Table 3** for rationale on the Project’s overall no effect finding for visual resources
- 5) *Recreational Values*: Conduit would be attached to bridges or bored under the river and will not impact recreational use of the river. Section 3.9 includes a detailed analysis of recreation impacts
- 6) *Cultural and Historic Values*: The Cultural Resource Inventory Report finds no adverse effect to cultural or historic values. **Appendix C** includes the SHPO’s response to NHPA consultations

- 7) *Water Quality*: Impacts to water quality are unlikely; the only risk is from a frac-out under the river, which will be closely monitored and managed according to the Contingency Frac-Out Plan (**Appendix E**). Section 3.6 includes a detailed analysis of water quality

Operation, maintenance, and emergency repairs would have no effect on land use because the proposed cables would be underground. Operations and maintenance activities would occur in the same area as Proposed Action construction; therefore, they would have no further effect on land use. The effects of any emergency repairs would be similar to those described for construction, albeit for a shorter duration and within a smaller footprint within an already disturbed area.

Impacts from the Proposed Action to land use do not meet the adverse impact thresholds listed above and are expected to be indirect, short term, and negligible to none.

3.7.4.2 *No-Action Alternatives*

Under the No-Action Alternative, the Proposed Action would not be built, and land use would remain as is. There would be no effects to land use.

3.8 **Noise**

Noise impacts are based on an evaluation of the estimated noise generated from implementation of the Project in comparison to ambient noise levels. Sensitive noise receptors are generally defined as residences, schools, religious facilities, hospitals, and parks. The severity of the impact is based on the difference in noise levels (i.e., current ambient noise levels versus Project noise levels) and the absolute noise level resulting from implementation of the Project.

Noise is measured using a logarithmic scale in units of dB that correspond to the sound pressure of a noise source or sources. The typical scale used is A-weighted dB (dBA), which weights the various frequency bands based on human perception. In general, a 3-dBA difference is considered “just noticeable” by humans, while a 5-dBA change is far more perceptible. A 10-dBA change is typically perceived as an approximate doubling of loudness. The equivalent A-weighted sound level (L_{eq}), which averages the noise over a 24-hour period, is typically used to describe environmental noise levels.

A second descriptive scale for environmental noise is the day-night average (L_{dn}). This is the same as the L_{eq} except that a 10-dBA penalty is applied to nighttime noise (10:00 p.m. to 7:00 a.m.). A third descriptive scale for noise measurement is the Community Noise Equivalent Level (CNEL). This scale uses the same dBA scale but applies a 5-dBA penalty to noise generated during the evening (7:00 p.m. to 10:00 p.m.) and a 10-dBA penalty for noise generated during nighttime hours (10:00 p.m. to 7:00 a.m.) and averages the noise over a 24-hour period.

3.8.1 Regulatory Setting

Both Trinity County and Shasta County have adopted specific noise ordinances that dictate noise standards for new projects. Shasta County requires an acoustical analysis where impacts would be greater than the established thresholds. Shasta County’s noise standards are set at 55 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA during nighttime hours (10:00 p.m. to 7:00 a.m.) (Shasta County 2018). However, these standards are directed at projects that would result in permanent noise impacts and are not relevant to construction projects such as Digital 299 due to the temporary, short-term nature of construction-related noise. In lieu of specific construction noise standards, the U.S. Department of Transportation general assessment criteria were used (**Table 6**).

TABLE 6. GENERAL CONSTRUCTION NOISE ASSESSMENT CRITERIA—ACCEPTABLE LIMITS

Land Use	1-hour L_{eq} (dBA)		8-hour L_{eq} (dBA)		Weighted L_{dn} (dBA)
	Day	Night	Day	Night	30-day average ^a
Residential	90	80	80	70	75
Commercial	100	100	85	85	80
Industrial	100	100	90	90	85

^a In urban areas with very high ambient noise levels ($L_{dn} > 65$ dBA), L_{dn} from construction operations should not exceed existing ambient plus 10 dB. 24 hour L_{eq} , not L_{dn}

Source: USDOT 2012

Due to the nature of the Project, the construction impacts are analyzed against the short-term construction guidelines.

3.8.2 Analysis Area

The analysis area includes the alignment of the Proposed Action and any potential sensitive receptors within 0.125 mile. A distance of 0.125 mile was chosen since noise from construction activities would naturally attenuate over this distance to around 60 dBA L_{dn} , which is generally considered acceptable. There are some private residences along the alignment, but these are only considered sensitive receptors if there would be a long-term effect or acute effect during nighttime hours. A total of 5 hospitals, 37 schools and day cares, and 44 places of worship have been identified within 0.125 mile of the route.

Much of the analysis area is either sparsely populated rural areas or unpopulated private and public lands. Portions of the alignment through the SRNF and STNF follow rural roads with little traffic. In these areas, there is little to no regular anthropogenic noise. Rural background noise levels can be as low as 25 to 35 dBA (Caltrans 2009).

Along major roads and SR 299, ambient noise is substantially greater. Ambient noise is in excess of 65 dBA L_{dn} within 45 feet of the centerline of SR 299 from the Trinity County line to Redding (Shasta County 2018). SR 299 to the east of Blue Lake Boulevard in Humboldt County has a 65 dBA CNEL approximately 70 feet from the centerline of the road.

3.8.3 Impact Thresholds

The Proposed Action could have adverse impacts to noise if it:

- Generates a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies
- Generates excessive ground-borne vibration or ground-borne noise levels
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposes people residing or working in the Project area to excessive noise levels

3.8.4 Impact Findings

3.8.4.1 Proposed Action and Alternative Segments

Implementation of the Proposed Action would require the use of large equipment during construction to install the conduit, fiber optic line, vaults, and ILA buildings. Construction would typically last 8 to 10 hours per day during daylight hours. Noise levels for the various construction methods are given in **Appendix M**. Noise generation was modeled using the Roadway Construction Noise Model to estimate the total noise based on the typical equipment used for each construction method (FHWA 2017). The modeling results are provided in **Table 7**; these results assume the use of typical construction equipment based on the Federal Highway Administration Construction Noise Handbook with usage factors of up to 50 percent and individual equipment noise of up to 85 dBA.

TABLE 7. ESTIMATED PROPOSED ACTION CONSTRUCTION NOISE LEVELS

Construction Method	Estimated L_{eq} at 50 feet	Estimated L_{eq} at 100 feet	Estimated L_{eq} at 660 feet (0.125 mile)	Estimated L_{dn} at 660 feet (0.125 mile)
Plowing and Bridge Attachments	86.9	80.9	64.5	60.7
Trenching/rock sawing	87.3	81.2	64.9	61.1
HDD	87.4	81.4	65.0	61.2
Cable pulling and vault placement	85.0	79.0	62.6	59.1

Note: Figures provided are dBA

For all construction methods, the estimated noise is less than 65 dBA at a 0.125-mile distance, and the L_{dn} is no more than 61.2 dBA. The daytime construction noise levels at a distance of 50 feet are less than the recommended 1-hour L_{eq} maximum for residential areas (90 dBA) but over the 8-hour L_{eq} (80 dBA). The estimated L_{dn} levels for construction are within acceptable limits for sensitive receptors. Proposed Action construction would also result in ground-borne vibration due to trenching and rock sawing; however, these impacts would be temporary and localized and are not considered excessive in nature. Considering that construction noise impacts at a single location would typically not last longer than 2 to 3 days and would be restricted to daytime hours, construction impacts to sensitive receptors and residences do not meet the adverse impact thresholds and are likely to be direct, short term, and negligible to minor.

Impacts will be further minimized by the implementation of measures listed in **Appendix G** which require the proponent to turn off idling construction equipment that is not imminently needed, ensure that equipment is in good condition and complies with manufacturers' recommended noise abatement measures (e.g., mufflers and engine enclosures), and avoid construction during evening and nighttime hours (7:00 p.m. to 7:00 a.m.) and on weekends.

Long-term operation of the Proposed Action is not anticipated to result in substantial noise impacts to any receptors. The fiber optic line itself is not a noise source. The ILA buildings contain generators as backup power sources that would be run intermittently for maintenance. There would be no effect from noise from the operational phase of the Proposed Action.

3.8.4.2 *No-Action Alternative*

Under the No-Action Alternative, the Proposed Action would not be built, and the environmental setting would remain as is. There would be no effects from noise.

3.9 Recreation

Recreation in the Action Area includes areas that are designated for or otherwise used for hiking, biking, fishing, hunting, kayaking, rafting, and other recreational activities. This section summarizes which recreational lands would be intersected by the Proposed Action and how those land uses may be affected.

3.9.1 Regulatory Setting

Recreational areas are identified and managed via county and city general plans and federal agencies' various management plans (see **Appendix S**). These plans were reviewed and considered in the analysis of potential impacts to recreation.

3.9.2 Analysis Area

The analysis area for recreation includes public land where the Proposed Action would intersect areas used or managed for recreation, including the following:

- *WNRA*, a popular recreation area managed by the NPS. Boating and sport fishing are some of the most popular recreational activities within the WNRA (NPS 1999). The Proposed Action crosses 10 miles following existing roads through WNRA
- *Hlel Din trail* and four unnamed trails within USFS lands (SRNF and STNF) cross the Proposed Action alignment where it follows USFS roadways
- Other miscellaneous recreation areas within USFS land, including campgrounds, viewpoints, and river access sites, which are open to the public for dispersed recreation (USFS 1995a, 1995b) and which the Proposed Action alignment would intersect
- The *Trinity River* is the only identified recreation area the Proposed Action would cross on BLM land. The river is used for fishing, boating, kayaking, rafting, hiking, and other activities (BLM 2021). The route crosses the river in nine total locations, attaching to bridges at seven crossings and boring under the river at the other two crossings
- *Hammond Trail*, a popular hiking/biking/walking trail along the Mad River west of McKinleyville, and the *Manilla Dunes* in Humboldt County. The Proposed Action follows Hammond Trail for 5.4 miles and parallels the dunes along portions of the Mad River
- *Deadwood Hole Fishing Area and Mad River Slough Wildlife Area*, managed by the CDFW, are crossed by the Proposed Action alignment
- *Clam Beach County Park*, managed by Humboldt County, is crossed in its southeastern corner where the Proposed Action would use HDD to bore underneath a parking area
- *Little River State Beach and Shasta Historic Park*, managed by the CDPR, is crossed by the Proposed Action alignment via bridge attachment over a section of the Little River under CSLC jurisdiction. The Project is not anticipated to impact recreation uses in this area, which include hiking and parking for beach access
- *Benton Dog Park* in Redding is intersected by the Proposed Action alignment
- *Dellanina Nature Preserve and Shay Park* in Arcata is intersected by the Proposed Action alignment

3.9.3 Impact Thresholds

The Proposed Action could have adverse impacts to recreation if it:

- Increases the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
- Includes recreational facilities or requires the construction or expansion of recreational facilities which might have an adverse physical effect on the environment

3.9.4 Impact Findings

3.9.4.1 Proposed Action and Alternative Segments

The Proposed Action would generally be constructed within or adjacent to developed roadways and in some areas would involve attaching fiber optic conduit to existing utility poles or bridges. Conduit would be attached to bridges within CSLC jurisdiction, but the Proposed Action would not impact recreation usage on or under those bridges. The fiber optic line would be constructed in developed portions of recreation areas and thus would not permanently alter recreational use in the Action Area. There would be some temporary disturbance during construction of the Proposed Action when construction equipment may bring increased traffic to the routes used by the public for accessing recreational areas along the alignment. Construction may be an inconvenience but would not block or inhibit the public from accessing recreational areas. These impacts would have no long-term effects on the quality or use of the recreational areas intersected by the Proposed Action.

This analysis focuses on the two recreational areas that may be most affected by the Project: the 10-mile crossing of the WNRA and the 5.4-mile crossing of Hammond Trail. The Project would be located along SR 299 within the WNRA and would have no long-term effect on recreational uses such as fishing and boating. Short-term impacts including increased traffic, lane closures, and slowed access to recreational facilities could occur but would not reduce recreational use.

The Proposed Action would install conduit immediately adjacent or within/under about 5.4 miles of Hammond Trail, lasting approximately two months total. Most of the trail can be left open during construction with equipment operating and safely barricaded along half of the trail, allowing pedestrians and cycles to safely pass and use the trail. There is a narrow approximately 1.6-mile portion along the cliffs between Airport Road and Central Avenue that would need to be closed during construction for 16 to 20 days; however, closures would only occur Monday through Friday, and the trail would be opened during this time for public use on weekends. The Proponent will work with the County to display appropriate signage for trail users as well as safety cones and barricades to keep trail users safe. After construction, the trail would be restored to its original state, and no long-term impacts to its recreational capacity would occur.

While the specific ILA building locations are unknown at this time, they will not be placed in recreation use areas, as described in the measures in **Appendix G**. Operations and maintenance activities would have minimal impacts to recreation. These could include the presence of vehicles and equipment which would not reduce recreation access.

The Proposed Action would not create any additional recreational capacity and would not cause any increase in the usage of the recreational areas and facilities near it. Increase of recreation would not occur from the Proposed Action, and no additional facilities would need to be created if the Proposed Action were constructed.

Potential impacts to recreation from the Proposed Action do not meet the adverse impact thresholds listed above and are expected to be direct, short term, and negligible to none. Impacts will be further minimized by the

implementation of measures listed in **Appendix G**, which require the Proponent to use appropriate signage to alert recreational users to any closures limiting the use of the Hammond Trail; restore the Hammond Trail to pre-construction conditions; and refrain from siting ILA buildings in the viewshed of designated recreation use areas.

3.9.4.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not be built, and the environmental setting would remain as is. There would be no effects to recreation use.

3.10 Socioeconomics and Environmental Justice

Socioeconomics is a term used to describe aspects of the Project that are either social or economic in nature. Environmental justice is a term describing a set of principles and practices intended to ensure the equitable implementation of environmental laws, policies, regulations, and programs. The socioeconomics and environmental justice analysis evaluates how elements of the human environment such as population, employment, housing, and public services may be affected by the Proposed Action, as well as how environmental justice considerations such as equity and access may be affected. This analysis will also evaluate how the Project is anticipated to help bridge the “digital divide” (i.e., the disparity in broadband access wherein lower income, non-white, older, and rural individuals are disproportionately underserved).

3.10.1 Regulatory Setting

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” was issued February 11, 1994 (59 Federal Register 7629). Executive Order 12898 “is intended to promote nondiscrimination in Federal programs substantially affecting human health and the environment, and to provide minority communities and low-income communities access to public information on, and an opportunity for participation in, matters relating to human health and the environment.”

At the state level, environmental justice is defined by California law as “the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies” (Gov. Code, § 65040.12, subd. (e)). The CPUC Environmental and Social Justice Action Plan commits the CPUC to objectives including integrating equity and access considerations in CPUC proceedings; striving to improve access to high-quality water, communications, and transportation services for underrepresented communities; and promoting economic and workforce development opportunities in those communities (CPUC 2019). The CSLC Environmental Justice Policy directs CSLC to, among other goals, leverage its jurisdiction over State-owned Public Trust lands to facilitate and encourage projects that alleviate or remove barriers to racial and social equity, including broadband internet infrastructure (CSLC 2018). California Executive Order N-73-20, issued in August 2020, requires state agencies to work together to bridge the “digital divide” (PPIC 2021).

3.10.2 Analysis Area

The Proposed Action crosses incorporated cities of various sizes, including wide-ranging rural communities with differing levels of rural services and large, sparsely developed rural resource areas. Counties and communities crossed by the Proposed Action were considered as the analysis area for socioeconomics and environmental justice. Demographic information for the Action Area is summarized in **Appendix T**.

Ethnically and racially, the counties crossed by the Digital 299 alignment are notably less diverse than the state as a whole. Trinity and Shasta counties have the greatest percentage of residents classified as white (about 807 percent) followed by Humboldt County at about 784 3-percent; statewide, California’s white, non-Hispanic

population makes up about ~~37~~⁷² percent of the entire population. In all three counties, people identified as Hispanic or Latino were the next largest group (between about 7 and 12 percent), which is substantially less than California as a whole, at 39 percent. The next largest population in the study area is those identifying as American Indian (between about 3 and 7 percent), which is substantially higher than California's rate of less than 2 percent. Black or African American and Asian populations in the three counties (less than 1.5 percent Black and about 3 percent Asian) were substantially lower than the state as a whole (about 6.5 percent Black and 15.5~~3~~ percent Asian). ~~Homeownership rates in all three counties are about 68 and 65 percent, which are well above the state's homeownership rate of 55.39 percent, while only about 5 percent of Trinity County's households own their homes. Humboldt County (57.20 percent) is slightly above and Shasta County (16 percent) are also well below the statewide average. The~~ homeownership rates in Trinity and Shasta counties are about 68 and 65 percent, which are well above the state's homeownership rate of 55.39 percent, while only about 5 percent of Trinity County's households own their homes. Humboldt County (57.20 percent) is slightly above and Shasta County (16 percent) are also well below the statewide average. ~~Despite the counties' homeownership rates, the cities of Arcata (36 percent) and Eureka (44 percent) have homeownership rates well below the state and county average, and the city of Redding is about the same as California as a whole. overall, and Redding all have homeownership rates higher than California as a whole.~~ Despite the counties' homeownership rates, the cities of Arcata (36 percent) and Eureka (44 percent) have homeownership rates well below the state and county average, and the city of Redding is about the same as California as a whole.

The median annual income per household for the state of California was ~~\$78,672~~^{67,169} in ~~2020~~¹⁷ (U.S. Census Bureau ~~2020~~¹³). The median annual incomes vary widely between the affected counties and largest cities, but all are well below the state average (see **Appendix T**). Unemployment rates and poverty rates varied between counties and communities along the Project route, with no specific pattern. The average annual unemployment rates in ~~2021~~¹⁷ for Humboldt, Shasta, and Trinity counties were ~~4.38~~⁹, ~~4.96~~⁸, and ~~4.49~~⁶ percent, respectively, compared with ~~5.47~~⁷ percent for California as a whole. Poverty status is determined by comparing annual household income to poverty thresholds, which vary by family size, number of children, and age of the householder, although not geographically. Poverty thresholds are updated annually based on changes in the Consumer Price Index and were assumed to be ~~\$21,330~~^{\$31,661} per year for this analysis. Census estimates indicated ~~11.51~~^{13.3} percent of the people in California were in households with incomes below the poverty level in ~~2020~~¹⁷, with all three counties having higher poverty rates than the state, ranging from ~~148~~ percent (Shasta County) to ~~182~~ percent (Trinity County~~Humboldt County~~) (U.S. Census Bureau ~~2020~~¹³).

~~Humboldt and Trinity County is~~ counties are among the California counties with the lowest broadband subscription rates—fewer than 75 percent of households had subscriptions in ~~2020~~¹⁹—while Humboldt and Shasta County~~counties~~, though still underserved compared to the rest of the state, ~~has~~ have slightly greater broadband coverage (~~PPIC 2021~~^{U.S. Census Bureau 2020}). Generally speaking, rural areas of California have the lowest broadband subscription rates due to financial, technological, and topological barriers. Throughout the state, Black, Latino, low-income, and rural households are disproportionately underserved by broadband access.

3.10.3 Impact Thresholds

The Proposed Action could have adverse impacts on socioeconomic and environmental justice if it:

- Induces substantial unplanned population growth in an area either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)
- Displaces substantial numbers of existing people or housing, requiring replacement housing to be built elsewhere
- Does not adequately employ last-mile connections and local internet service provider (ISP) partnerships to provide high-speed internet to underserved communities along the route, exacerbating the “digital divide”

3.10.4 Impact Findings

3.10.4.1 *Proposed Action and Alternative Segments*

A number of positive effects could be experienced by introducing and enhancing high-speed broadband access to residences and businesses, government, medical, and educational organizations along the Proposed Action alignment. The Proposed Action would provide a valuable communication path that would secure continuous telecommunications, support projected population growth, and provide an improved and more reliable high-speed data access and internet service to current and projected future government, residential, and business customers.

Creating new business opportunities may increase competition among local ISPs, potentially lowering the cost of high-speed internet for underserved individuals along the route. Expanding broadband access in unserved and underserved rural communities may improve access to education (e.g., remote learning), healthcare (e.g., telehealth in areas experiencing physician shortages), financial services (e.g., remote banking), and employment (e.g., telecommuting, job searches, and job training) (PPIC 2021). In these ways, the Project is anticipated to help bridge the “digital divide” (i.e., the disparity in broadband access in California experienced disproportionately by non-white, lower income, older, less educated, and rural communities). Furthermore, according to California Executive Order N-73-20, issued in August 2020, “the COVID-19 pandemic has amplified the extent to which broadband is essential for public safety, public health, and economic resilience”.

Public comments received during scoping expressed concern about the potential economic impact to local exchange carriers. The Digital 299 fiber optic cable would allow tie-ins along the line for local providers to tap into broadband and distribute across their networks. The Proponent would offer commercially reasonable rates that are fair and non-discriminatory to local exchange carriers, which would not cause adverse economic impact. Public comments received can be found in the Scoping Summary Report in **Appendix N**.

Construction of the Proposed Action is expected to take up to 24-36 months to complete. Given that construction and long-term operations of the Proposed Action are likely to require only a small number of workers for a relatively short period, the Proposed Action would have no noticeable effect on population growth, employment rates, or the demand for housing in the communities adjacent to the Proposed Action Area. Because the Proposed Action is not expected to induce substantial population growth, government and community facilities and services would be unaffected by its implementation. The Proposed Action would contribute to a minor increase in local revenues as a result of contributions to expenditures associated with its construction, such as building materials, wages, and other goods and services, including food and lodging. In addition, the Proposed Action would provide contributions to local taxes and revenues associated with property taxes, property easement fees, and real estate purchases and transfers; however, these effects would be minor and brief.

Executive Order 12898 requires the federal government to analyze its actions to determine if they have the potential to have disproportionately high or adverse human health or environmental effects on minority and/or low-income populations. The potential effects of the Proposed Action would not be expected to disproportionately affect any particular population. The area in the immediate vicinity of the Proposed Action is for the most part sparsely populated and does not have an unusually high minority population. The Project would pass through sensitive communities in Redding, Arcata, and Eureka that are already burdened by pollution; however, it would also provide infrastructure to increase access in those communities to reliable internet and cellular service. Environmental effects that would occur at a greater distance, such as visual or air quality impacts, would be minor and would affect the population equally, without regard to race or ethnicity. Individuals who experience these minor impacts equally may nonetheless experience differing abilities to afford the broadband benefits.

Potential impacts to socioeconomics and environmental justice from the Proposed Action do not meet the adverse impact thresholds listed above. The Project is not anticipated to negatively impact minority or low-income communities, and it is likely that beneficial impacts may occur as a result of the Proposed Action.

3.10.4.2 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not be built, and the environmental setting would remain as is. There would be no effects to population, housing, employment, or income to adjacent communities. In addition, there would be no environmental or socioeconomic effects that would be expected to disproportionately affect a particular population beyond those that may currently exist. Under the No-Action Alternative, the beneficial socioeconomic impacts of the Proposed Action would not be realized. The Proposed Action service area would continue to be underserved or unserved, which would result in limited opportunities for improved education and medical, employment, and economic development in the Action Area.

3.11 Cumulative Impacts

Cumulative impacts result when the effects of an action are added to or interact with effects from other actions in a particular place and within a particular time. The cumulative impacts of an action can be viewed as the total effects of that action on a resource, ecosystem, or human community and all other activities affecting that resource regardless of what entity (federal, non-federal, or private) is taking the actions (CEQ ~~1987~~2022).

Considerations that go into evaluating cumulative effects include the following: 1) whether the resource is especially vulnerable to incremental effects, 2) whether the Proposed Action is one of several actions in the same geographic area, 3) whether other activities in the area have similar effects on the resource, or 4) whether these effects have been historically significant for this resource (CEQ ~~1987~~2022).

3.11.1 Projects Identified for Consideration in Cumulative Impacts

Stakeholder agencies provided lists of projects or activities in the area where either ministerial or discretionary approval are required. Additionally, 14 federal, state, and local agency websites were reviewed for information on current or planned projects. Over 100 initial projects were evaluated for relevance to Digital 299. Activities and projects include commercial projects, transportation projects, vegetation management, waterway projects, and utility projects. Not included are activities and projects within the urban areas/city limits of the cities of Anderson, Arcata, Eureka, and Redding; the initial evaluation determined that activities within these urban areas were not likely to impact vulnerable resources.

A stepwise analysis was performed on the projects to determine whether they warrant consideration in the cumulative impacts analysis for Digital 299. Projects or activities that met the following criteria were considered for further evaluation:

- 1) A project or activity located within or proximate to the Proposed Action alignment
- 2) A project or activity that would result in similar impacts to resources affected by the Proposed Action

After a systematic review of the projects, most were found to not be within or proximate to the study area. A total of 17 projects warranted further review; of those, 5 projects are clearly within the project area and may contribute to cumulative impacts. **Appendix U** describes these projects.

3.11.2 Projects Evaluated Further for Cumulative Impacts

There are five projects within the Project area that may contribute to cumulative impacts. These five projects are described below relative to combined impacts on those resources Digital 299 may impact. In other words, resources with a recommended finding of no effect (see **Table 3**) are not evaluated for cumulative impacts since the Proposed Action would not affect them.

3.11.2.1 Klamath River Rural Broadband Initiative

Tribes and agencies are partnering to install new middle-mile and last-mile broadband services in Humboldt County via the Klamath River Rural Broadband Initiative. The project would be constructed from mid-2022 through mid-2024, lasting approximately 24 months. According to the Proponent's EA submitted to the CPUC in May 2020 (Karuk Tribe 2020), the project area is north of the Digital 299 project area, with one portion of near-overlap along the coast near McKinleyville north to Trinidad.

In this area, the Klamath project follows a path slightly inland from McKinleyville north to Orick, passing east of Trinidad, while Digital 299 follows Highway 101 along the coast north to Trinidad. The projects would provide further redundancy in the area, and construction is not expected to overlap. This portion of Digital 299 is a last-mile connection planned for phase 2 construction in 2024 or later.

Considering that there would not be an increase in temporary impacts during these projects' construction and that Digital 299 would not have permanent impacts (e.g., ILA buildings) nor impacts that meet the adverse impact thresholds listed above (see **Table 3**), these projects are not expected to have cumulative impacts to resources considered in this EA/IS.

3.11.2.2 Samoa-Arcata-Eureka Fiber Optic Project

This project included the installation of new conduit in Humboldt County, specifically around Humboldt Bay and in the cities of Arcata and Eureka. The areas of new conduit directly overlap the Digital 299 project alignment. Both projects are proposed by the same applicant, Vero, but serve different purposes.

The Samoa-Arcata project is designed to be installed within pre-disturbed roadways and shoulders and would have available empty conduit for the Digital 299 fiber cables. Construction of the Samoa-Arcata project would be complete in 2021 and early 2022, before Digital 299 begins construction in this area (California Coastal Commission 2020). Further, this project would allow Digital 299 to avoid further ground disturbance in this area since existing conduit would be accessed via handholes constructed as part of the Samoa-Arcata project.

Considering that there would not be an increase in temporary impacts during these projects' construction and that Digital 299 would not include any further ground disturbance or permanent impacts in this area, these projects are not expected to have cumulative impacts to resources considered in this EA/IS.

3.11.2.3 ~~Wildfires~~ Wildfire Restoration, Various Locations

The expansive Carr Fire in 2018 and scattered smaller wildfires in 2020 affected WNRA, SRNF, and STNF lands. Some of the fires overlapped the Project area. In 2021, the Monument Fire burned along approximately 30 miles of the route, affecting mostly STNF lands. Changed environmental conditions post-fire were described in the Project's resource reports. Impacts and measures were updated to protect any newly sensitive or newly revealed resources discovered after the fires.

Fire restoration work may result in temporary road closures, additional traffic, and impeded access to recreation opportunities along SR 299 during restoration. By the time Digital 299 goes to construction in 2022, it is presumed the most critical restoration work would be completed. WNRA and both forests are issuing permits for the Project and would coordinate to ensure construction of the Project does not overlap remaining restoration projects.

Since Digital 299 would not permanently impact resources considered in this EA/IS, and restoration construction would not overlap the Project's construction, these past wildfires are not expected to have cumulative impacts to resources considered in this EA/IS.

3.11.2.4 Caltrans Tidy Waters ROW

Caltrans is planning on placing stormwater mitigation improvements along SR 299 in Trinity County. The Tidy Waters project area overlaps the Digital 299 alignment. Considering the Notice of Exemption was posted in November 2019 (Caltrans 2020), it is likely the improvements have been or would be in place by the time Digital 299 begins construction in 2022.

Caltrans D2 is issuing the Digital 299 Proponent an encroachment permit for the Project. Caltrans and Vero would coordinate closely prior to and during construction to avoid overlapping construction with Caltrans' regular operations and maintenance work along SR 255, including the Tidy Waters improvements.

Since construction is not expected to overlap and because Digital 299 does not propose permanent impacts, especially related to waterways and stormwater, these projects are not expected to have cumulative impacts to resources considered in this EA/IS.

3.11.2.5 Trinity River Channel Rehabilitation Site Oregon Gulch

The BLM and USBR are coordinating to rehabilitate portions of the Trinity River and issued a FONSI for the work in May 2021 (USBR and BLM 2021). Activities include reconstructing channels and sloughs, lowering the floodplain, and placing wood and logs. The Digital 299 Project intersects a portion of the rehabilitation site, mostly in upland areas where active rehabilitation work is not planned. Rehabilitation construction may occur through 2026.

The Digital 299 Project would be constructed under the Trinity River in this area using the HDD method. Bore entry and exit pits would be placed well outside the bed and bank of Trinity River (see the Contingency Frac-out Plan in **Appendix E**), causing no permanent impacts to the river or surrounding area.

The BLM and USBR are both issuing the Digital 299 Proponent permits and Notices to Proceed to construction for the Project. The BLM, USBR, and the Proponent would coordinate closely prior to and during construction in this area to avoid overlapping construction. Without an increase in temporary impacts and with no permanent impacts from Digital 299 anticipated in this area, these projects are not expected to have cumulative impacts to resources considered in this EA/IS.

CHAPTER 4 CONSULTATIONS AND SCOPING

4.1 Cooperating Agencies

The following federal and state agencies contributed to the development of this EA/IS: the BLM, FHWA, USFS STNF and SRNF, NPS WRNA, USACE, USBR, CPUC, Caltrans D1 and D2, CDFW, California State Land Department, and California State Water Resources Control Board. Each agency participated in planning, meetings, and reviewing Project reports, including findings in this EA/IS such that each can draw from it to support their separate Decisions under NEPA, CEQA, or other regulations.

4.2 Inter-agency Consultations

Technical reports to support inter-agency consultations were developed to analyze Project-wide impacts, including a Biological Assessment to support Section 7 consultation under the Endangered Species Act and a Cultural Resources Inventory Report to support Section 106 consultation under the NHPA.

USACE is the lead federal agency for Section 7 consultation, which is expected to be informal. The Biological Assessment includes the USACE scope of consultation (waterways and adjacent areas) as well as analysis for other scopes of consultation as determined by federal agencies completing Section 7 consultation for this Proposed Action. The USFWS and NMFS response letters are included in **Appendix B**.

USACE plans to issue a Section 404 Nationwide Permit for the Proposed Action. In combination, the State Water Quality Control Board would certify the Proposed Action for water quality compliance through its 401 Water Quality Certification Program.

Each agency has led their own Section 106 processes, drawing from and submitting to SHPO findings of effect based on the same Project-wide Cultural Resources Inventory Report (Loftus et al. 2021). The SHPO response letters are included in **Appendix C**.

Additional discretionary permits that would be obtained as necessary prior to construction include CDFW 1600 Lake and Streambed Alteration Agreement, Coastal Commission Development permit, and encroachment permits from Caltrans and the counties.

4.3 Tribal Consultations

Tribes are being consulted under Section 106 of the NHPA and under the state process of AB 52. The list of Tribes to contact was compiled by the Native American Heritage Commission (NAHC), CPUC, and consulting agencies (**Table 8**). Formal consultation letters were mailed to these Tribes, as described in the Scoping Summary Report (**Appendix N**), and consultations and communications with Tribes remain on-going.

TABLE 8. TRIBES CONSULTED

Name	Name
Bear River Band of Rohnerville Rancheria	Big Lagoon Rancheria
Blue Lake Rancheria	Cher-Ae Heights Indian Community of the Trinidad Rancheria
Hoopa Valley Tribe	Karuk Tribe
Nor-Rel-Muk Wintu Nation	Paskenta Band of Nomlaki Indians

Name	Name
Quartz Valley Indian Community	Redding Rancheria
Resighini Rancheria	Round Valley Reservation/Covelo Indian Community
Shasta Indian Nation	Shasta Nation
Tsnungwe Council	Tsurai Ancestral Society
Winnemem Wintu Tribe	Wintu Educational and Cultural Council
Wintu Tribe of Northern California	Wiyot Tribe
Yurok Tribe	

4.4 Public and Agency Scoping

The scoping period for Digital 299 began on July 10, 2019, with the mailing of Proposed Action information. It lasted 33 days and concluded on August 12, 2019. A single newsletter containing Proposed Action information, public meeting times and locations, and instructions for submitting formal comments was produced in order to ensure consistent messaging. Material circulated included the newsletter, overview map, and comment form. Agencies and private landowners within 50 feet of the alignment were mailed a scoping package; specifically, 73 letters were mailed to agency contacts (**Table 9**), and 2,912 mailings were sent to private landowners. Proposed Action information was also posted on the CPUC website, newsletters were posted at local post offices, and announcements with a brief Proposed Action summary and public meeting information were placed in local newspapers.

TABLE 9. FEDERAL AND STATE AGENCIES CONTACTED DURING SCOPING

Name	Name
Bureau of Indian Affairs	CDPR
USBR	EPA, Region 9
California Coastal Commission	NAHC
California Department of Conservation	National Oceanic and Atmospheric Administration
California Department of Water Resources	SHPO
California Natural Resource Agency	State Lands Commission
California State Water Resources Control Board	USFWS
CDFW	
<i>Local Governments and Elected Officials Contacted for Scoping</i>	
1st Congressional District of California, Congressman Doug LaMalfa	1st Senate District of California, Senator Brian Dahle
2nd Congressional District of California, Congressman Jared Huffman	2nd Senate District of California, Senator Mike McGuire
City of Anderson	City of Arcata
City of Blue Lake	City of Eureka
City of Redding	City of Trinidad
Cottonwood Water District	Humboldt Bay Harbor, Recreation and Conservation District

Name	Name
Humboldt Bay Municipal Water District	Humboldt Bay Municipal Water District
Humboldt Community Service District	Humboldt County Administrative Office
Humboldt County Board of Supervisors	Humboldt County Office of Emergency Services
Humboldt County Planning Department	Humboldt County Resource Conservation District
Lewiston Community Services District	Manila Community Services District
McKinleyville Community Services District	Shasta Community Services District
Shasta County Administrative Office	Shasta County Public Works
Trinity County Board of Supervisors	Trinity County Department of Transportation
Trinity County Planning Department	Trinity County Resource Conservation District
Trinity Public Utilities District	Weaverville Community Services District
Western Shasta Resource Conservation District	Willow Creek Community Services District
<i>Organizations Contacted for Scoping</i>	
Environmental Protection Information Center	Sierra Club-Redwood Chapter
Hawkins Bar Volunteer Fire Department	Trinity County Fire Safe Council
Klamath Forest Alliance	Trinity County Collaborative
Klamath River Keeper	Willow Creek Fire Safe Council
Mid Klamath Watershed Council	Willow Creek Volunteer Fire Department
North Coast Environmental Center	-

Four public scoping meetings were held in late June 2019 in Redding, Lewiston, Weaverville, and Eureka. Collectively, 53 members of the public attended the 4 meetings. Representatives from Transcon Environmental, Inc. (Transcon); the Proponent; and at least one agency attended each meeting. The Scoping Summary Report (**Appendix N**) includes details on the scoping process, including outreach and responses.

4.4.1 Scoping Comments Received

A total of 80 comments were received from the public, agencies, and Tribes (**Appendix N**), including 9 from federal, state, or local agencies or elected officials; 1 from a non-governmental organization; and the remaining from private landowners or citizens. Two tribal comments were received, one from the Nor-Rel-Muk Wintu Nation and the other from the Tsnungwe Council. Tribal consultation is on-going. All written and oral comments received—whether from agencies, Tribes, or the public—were collected and considered in this analysis.

CHAPTER 5 LIST OF PREPARERS

Table 10 lists the preparers, contributors, and reviewers of this EA/IS.

TABLE 10. LIST OF PREPARERS

Name	Organization, Title	Sections
<i>Agency Reviewers and Contributors</i>		
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Michael Warner	Transcon, Principal NEPA/CEQA Advisor	Overall QA/QC

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