Initial Study/Draft Mitigated Negative Declaration

IP Networks, Inc.
Last Mile
Fiber Optic Cable Installation Project

Application No. 01-03-006

Prepared by: California Public Utilities Commission

With Technical Assistance from: Jones & Stokes

May 2002

Initial Study/Draft Mitigated Negative Declaration for IP Networks, Inc. Last Mile Fiber Optic Cable Installation Project

Application No. 01-03-006

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May 2002

California Public Utilities Commission. 2002. Initial study/draft mitigated negative declaration for IP Networks, Inc., Last Mile fiber optic cable installation project. May. San Francisco, CA. With technical assistance from Jones & Stokes, Sacramento, CA.

California Public Utility Commission

Draft Mitigated Negative Declaration

1. Project Title:	IP Networks, Inc. Last Mile Fiber Optic Cable Installation Project
2. Lead Agency Name and Address:	California Public Utilities Commission Energy Division-Analysis Branch 505 Van Ness Avenue San Francisco, CA 94102
3. Contact Person and Phone Number:	Jensen Uchida, Regulatory Analyst 415-703-5484
4. Project Location:	San Francisco Bay Area and Sacramento Metropolitan urban areas
5. Project Sponsor's Name and Address:	IP Networks, Inc. 30 Corporate Park, Suite 300 Irvine, CA 92606
6. General Plan Designation:	Not applicable
7. Zoning:	Not applicable

8. Description of Project: IP Networks proposes to offer Last Mile telecommunications service in urban areas, within the San Francisco Bay Area and Sacramento Metropolitan area, to various entities (their clients) by constructing new fiber optic cable facilities and ancillary equipment between structures to which the service would be provided. The term Last Mile refers to the distance between the source facility and the new customer. Installation locations and methods include: use of existing dark fiber Unbundled Network Element; use of existing conduits, ducts, and rights-of-way of existing utilities and other companies for installation of new fiber optic cable; obtain pole attachment rights to authorize installation of fiber optic cable on existing utility structures; construct new underground conduit in existing public and utility rights-of-way; and construct new central offices.

IP Networks has not identified all customers and therefore did not list specific construction locations at the time of submittal of their application for the Certificate of Public Convenience and Necessity (CPCN). Because it is not possible to exactly identify the location of each potential customer, the project has no preplanned routes. To adapt to this type of project, the California Public Utilities Commission (CPUC) developed the Last Mile initial study/mitigated negative declaration (IS/MND) as a process-oriented approach that sets performance standards for analyzing potential impacts and for identifying and implementing required mitigation measures. Because the specific locations are

not known, the Last Mile initial study takes the conservative approach of presenting all possible impacts and the required mitigation measures. This process provides CEQA compliance for CPUC and responsible agencies, but does not limit the authority of the responsible agencies issuing permits and approvals for future specific project routes.

9. **Surrounding Land Uses and Setting:** Construction of new fiber optic cable facilities and ancillary equipment along multiple routes and at selected locations in the San Francisco Bay Area and Sacramento Metropolitan urban areas. See table 2-1 in chapter 2 Project Description for details.

10. **Other Public Agencies whose Approval Is Required:** See section 2.2 in chapter 2 Project Description for details.

Environmental Factors Potentially Affected:

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist in chapter 4 of the attached initial study.

[X] Aesthetics	[ ] Agricultural Resources	[X] Air Quality
[X] Biological Resources	[X] Cultural Resources	[X] Geology/Soils
[X] Hazards and Hazardous Materials	[X] Hydrology/Water Quality	[X] Land Use/Planning
[ ] Mineral Resources	[X] Noise	[ ] Population/Housing
[ ] Public Services	[X] Recreation	[X] Transportation/Traffic
[X] Utilities/Service Systems	[X] Mandatory Findings of Significance	

To ensure that any potential environmental impacts will not be significant, the applicant will follow the "subsequent approval process for specific routes" and will incorporate mitigation measures into the project design or as conditions of approval. See attached figure and table.

Findings:

Based on the findings of the initial study and implementation of the mitigation measures identified therein, the project would not:

- degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of California history or prehistory;
- achieve short-term, to the disadvantage of long-term, environmental goals;
- have impacts that are individually limited, but cumulatively considerable; and
- have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.

Determination:

The CPUC has reviewed the proposed project and has determined that the project, based on the initial study attached hereto, will not have a significant effect on the environment. An environmental impact report is not required pursuant to the California Environmental Quality Act of 1970. This environmental review process and negative declaration is done in accordance with CEQA (PRC 21000 et seq.), the State CEQA Guidelines (14 CCR 15000 et seq.), and CPUC CEQA Rule 17.1, "Special Procedure for Implementation of CEQA."

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

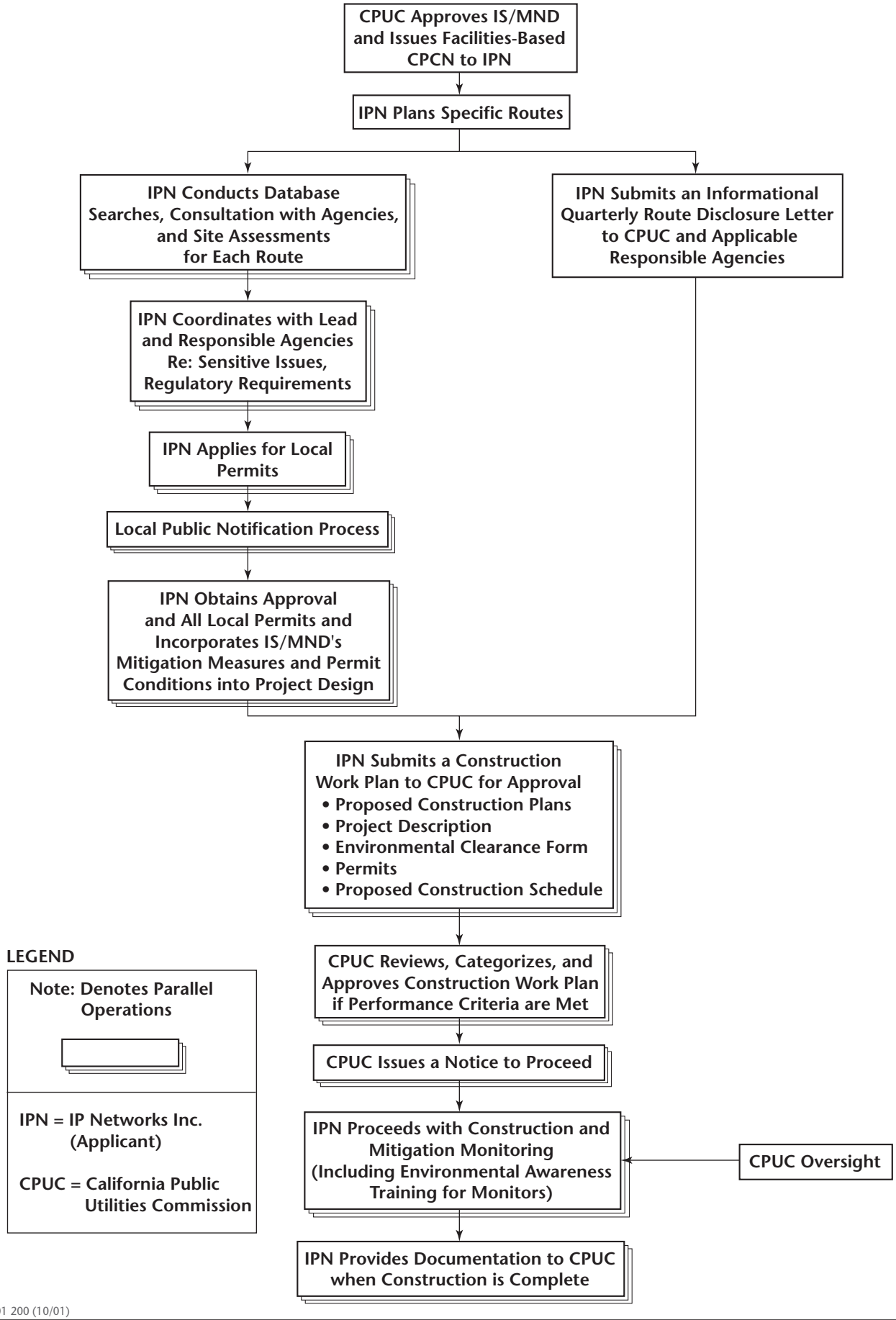
☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature	Date
Printed Name	Title



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Subsequent Approval Process for Specific Routes

Impacts	Mitigation Measures
	Aesthetics
AES-1: Adverse effect on a scenic vista or damage to a scenic resource	**AES-MM-1:** Identify scenic resources within 1,500 feet of the proposed alignment and locate all permanent substantial aboveground features 1,000 feet away from scenic resources
AES-2: Possible visual effect resulting from construction of central offices	**AES-MM-2:** Review and comply with local planning documents, zoning, and other ordinances regarding utility lines and buildings
AES-3: Possible light and glare effect resulting from construction of central offices	**AES-MM-3:** Use non-reflective material and directed lighting fixtures for all central offices
	Agricultural Resources
None	None
	Air Quality
AIR-1: Temporarily increased levels of air pollutants during construction exceeding air district thresholds	**AIR-MM-1:** Implement construction BMPs to reduce dust and air emissions **AIR-MM-2:** Obtain air permit
AIR-2: Temporary emissions exceeding limits from operating emergency backup generators	**AIR-MM-3:** Obtain authority to construct and permit to operate emergency backup generators, where required
	Biological Resources
BIO-1: Potential disturbance of special-status plant populations	**BIO-MM-1:** Retain a qualified botanist to conduct botanical surveys and document special-status plant populations **BIO-MM-2:** Avoid impacts on state- and federally listed and CNPS 1b special-status plant populations by establishing and observing exclusion zones **BIO-MM-3:** Avoid impacts on CNPS Lists 2 and 4 special-status plant populations by implementing specific measures **BIO-MM-4:** Confine construction equipment and associated activities to the designated work area

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-5: Retain qualified biologists and resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction
BIO-2: Potential introduction of new noxious weeds or spread of existing noxious weed	**BIO-MM-7:** Conduct a noxious-weed survey and document noxious-weed infestation
	BIO-MM-8: Avoid the dispersal of noxious weeds into uninfested areas
BIO-3: Potential disturbance of special-status wildlife species	**BIO-MM-9:** Retain a qualified wildlife biologist to conduct a habitat assessment for special- status wildlife species
	BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources
	BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction
	BIO-MM-10: Avoid impacts on vernal pool habitats by establishing and observing exclusion zones around vernal pools and hydrologically connected areas
	BIO-MM-11: Avoid disturbance to elderberry shrubs by establishing and observing exclusion zones
	BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones
	BIO-MM-13: Avoid disturbing active special-status raptor nests by establishing exclusion zones during the breeding season or constructing during the non-breeding season

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-14: Avoid disturbing active Swainson's hawk nests by establishing and observing buffer zones
	BIO-MM-15: Avoid disturbing active burrowing owl nests and implement standard DFG guidelines during the non-breeding season
	BIO-MM-16: Avoid San Joaquin kit fox dens by conducting preconstruction searches and rerouting around occupied habitat
	BIO-MM-17: Avoid disturbance to nesting cliff swallows by implementing timing restrictions and removing unoccupied nests
	BIO-MM-18: Avoid roosting bats by postponing bridge attachments on bridges that support roosting sites
	BIO-MM-19: Avoid impacts on state and federally listed wildlife species by rerouting around habitat areas
	BIO-MM-20: Fill or cover open trenches daily
BIO-4: Potential construction-related impacts on threatened, endangered, and other special-status fish species	**BIO-MM-21:** Retain a qualified fisheries biologist to identify streams and assess habitat for threatened, endangered, and other special-status fish species
	BIO-MM-22: Prepare and implement a storm water pollution prevention plan outlining BMPs for construction activities
	BIO-MM-23: Avoid in-water construction in all flowing streams that have the potential to support threatened, endangered, and other special-status fish species
	BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources
	BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-24: Avoid and minimize disturbance of woody riparian vegetation along drainages
	BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are substantially disturbed during construction activities
BIO-5: Potential removal or disturbance of woody riparian vegetation	**BIO-MM-26:** Identify and document woody riparian habitat
	BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources
	BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction
	BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones
	BIO-MM-24: Avoid and minimize disturbance of woody riparian vegetation along drainages
	BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are disturbed during construction activities
BIO-6: Potential short-term disturbance of waters of the United States (including wetland communities)	**BIO-MM-27:** Identify and delineate waters of the United States (including wetlands)
	BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources
	BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are disturbed during construction activities
	BIO-MM-28: Minimize disturbance and restore other waters of the United States to pre-project conditions
	BIO-MM-29: Minimize disturbance and restore jurisdictional wetlands to preproject conditions
	BIO-MM-30: Avoid and protect specified jurisdictional wetlands adjacent to construction areas
BIO-7: Potential temporary disturbances to wildlife movements	**BIO-MM-12:** Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones
BIO-8: Potential temporary increases in sedimentation and turbidity resulting in the interference of migratory fish habitat	**BIO-MM-4:** Confine construction equipment and associated activities to the project routes in areas that support sensitive resources
	BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction
	BIO-MM-21: Retain a qualified fisheries biologist to identify streams and assess habitat for threatened, endangered, and other special-status fish species
	BIO-MM-22: Prepare and implement a stormwater pollution prevention plan outlining BMPs for construction activities
	BIO-MM-24: Avoid and minimize disturbance of woody riparian vegetation along drainages
	BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are substantially disturbed during construction activities

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-28: Minimize disturbance and restore other waters of the United States to preproject conditions
BIO-9: Potential conflict with local policies or ordinances protecting biological resources	**BIO-MM-31:** Review local city and county policies, ordinances and conservation plans, and comply with requirements
BIO-10: Potential conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan	**BIO-MM-31:** Review local city and county policies, ordinances and conservation plans, and comply with requirements
Cultural Resources	
CUL-1: Potential disturbance of cultural resource sites	**CUL-MM-1:** Complete a cultural resource inventory of the proposed project study area and determine methods to avoid impacts on potentially significant cultural resource sites **CUL-MM-2:** Conduct test excavation to determine resource significance, and if significant, conduct data recovery excavation
CUL-2: Potential for ground-disturbing activities to damage unidentified buried cultural resource sites	**CUL-MM-3:** Stop work if cultural resources are discovered during ground-disturbing activities
CUL-3: Potential for indirect impacts on historic structures associated with placing central office buildings	**CUL-MM-4:** Place central office buildings to avoid impacts on the setting of significant and potentially significant historic resources
CUL-4: Potential for proposed project activities to damage previously unidentified human remains on non-federal land	**CUL-MM-5:** Comply with state laws pertaining to the discovery of human remains
Geology, Seismicity, and Soils	
GEO-1: Possible temporary accelerated erosion and sedimentation from soil disturbance and vegetation removal	**BIO-MM-22:** Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities

Table A-4. Continued

Impacts	Mitigation Measures
Hazards and Hazardous Materials	
HAZ-1: Possible release of hazardous materials during construction	**BIO-MM-22:** Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities **HAZ-MM-1:** Ensure proper labeling, storage, handling, and use of hazardous materials **HAZ-MM-2:** Report all significant releases or threatened releases of hazardous materials
HAZ-2: Possible discovery and accidental release of buried and unknown hazardous waste	**HAZ-MM-3:** Avoid known hazardous waste and contamination sites **HAZ-MM-4:** Report all discovery of hazardous waste, including soil and groundwater contamination, to the local hazardous materials response agency
HAZ-3: Possible exposure of the public or environment to hazardous materials sites	**HAZ-MM-3:** Avoid known hazardous waste and contamination sites **HAZ-MM-4:** Report all discovery of hazardous waste, including soil and groundwater contamination, to the local hazardous materials response agency
HAZ-4: Possible safety hazard due to helicopter or other aircraft in the vicinity of public or public-use airport	**HAZ-MM-5:** Undertake all flight operations in accordance with federal air administration safety and flight regulations
HAZ-5: Possible temporary limited emergency access	**HAZ-MM-6:** Prepare and implement a traffic safety plan, and coordinate with local transportation and emergency response agencies
HAZ-6: Possible temporary exposure of people or structures to wildland fires	**HAZ-MM-7:** Prepare a fire prevention and management plan
Hydrology and Water Quality	
HYD-1: Possible increase in sediment-loading into waterbodies as a result of project construction	**BIO-MM-5:** Retain qualified biologists and resource specialists to monitor construction activities near specified sensitive biological areas **BIO-MM-6:** Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones **BIO-MM-22:** Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities. **BIO-MM-1:** Ensure proper labeling, storage, handling, and use of hazardous materials **HYD-MM-1:** Employ non-invasive construction methods at stream crossings
HYD-2: Possible temporary degraded water quality from accidental spills of hazardous materials during construction in exceedance of reportable quantities	**BIO-MM-22:** Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities **HAZ-MM-1:** Ensure proper labeling, storage, handling, and use of hazardous materials
HYD-3: Possible temporary water quality degradation from discharge of directional drilling slurry into waterbodies	**HYD-MM-2:** Integrate directional drilling slurry containment protocol into SWPPP or BMPs documentation as initially described in mitigation measure BIO-MM-22 **HYD-MM-3:** Inform governing agencies of the selected directional-drilling slurry to be used for directional drills **BIO-MM-5:** Retain qualified biologists and resource specialists to monitor construction activities near specified sensitive biological areas **BIO-MM-6:** Conduct a biological resource education program for construction crews and enforce construction restrictions before construction **BIO-MM-12:** Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones **BIO-MM-22:** Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities **HAZ-MM-1:** Ensure proper labeling, storage, handling, and use of hazardous materials

Table A-4. Continued

Impacts	Mitigation Measures
HYD-4: Possible increased flood hazards from possible placement of central offices within the floodplain	**HYD-MM-4:** Design central offices to comply with floodplain ordinances
Land Use and Planning	
LAN-1: Potential inconsistency with county, city, or local land use plans and policies	**AES-MM-2:** Review and comply with local land use plans, policies, zoning, and other ordinances
LAN-2: Potential inconsistency with conservation plan	**BIO-MM-12:** Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones
Mineral Resources	
None	None
Noise	
NOI-1: Temporary exposure of residences and other sensitive receptors to construction noise in excess of local standards	**NOI-MM-1:** Employ noise-reducing construction practices
NOI-3: Exposure of nearby sensitive receptors to excessive noise levels from use of emergency backup generators and other support equipment at central offices	**NOI-MM-2:** Design and locate emergency backup generators and other support equipment to limit noise from the engine generator
Population and Housing	
None	None
Public Services	
None	None
Recreation	
REC-1: Use of recreational facilities as staging or other work area	**REC-MM-1:** Avoid impacts on recreational facilities

Table A-4. Continued

Impacts	Mitigation Measures
Transportation/Traffic	
TRA-1: Potential for roadway safety hazards	**HAZ-MM-6:** Prepare and implement a traffic safety plan and coordinate with local transportation and emergency response agencies
TRA-2: Temporary inadequate access to areas along the project alignment resulting from construction-related and operation maintenance activities	**HAZ-MM-6:** Prepare and implement a traffic safety plan and coordinate with local transportation and emergency response agencies
TRA-3: Increased parking demand created by construction activities	**TRA-MM-1:** Limit all parking to right-of-way and pre-approved staging areas
Utilities and Service Systems	
UTI-1: Potential damage to subsurface utilities during trenching	**UTI-MM-1:** Determine the location of subsurface utilities and avoid during construction activities
UTI-2: Generation of solid waste resulting from construction activities	**UTI-MM-2:** Recycle and dispose of construction materials

Initial Study Contents

Tables

Page

Figures

Follows Page

Chapter 1
Introduction

IP Networks, Inc., (IPN) proposes to offer Last Mile telecommunications service in urban areas in Northern California to various entities (their clients) by constructing new fiber optic cable facilities and ancillary equipment between structures to which the service would be provided. The term Last Mile refers to the distance between the source facility and the new customer. IPN has not identified all customers and therefore did not list specific construction locations at the time of submittal of their application for the Certificate of Public Convenience and Necessity (CPCN). Because it is not possible to exactly identify the location of each potential customer, the project has no preplanned routes or specific project maps. To adapt to this type of project, the California Public Utilities Commission (CPUC) developed the Last Mile initial study/mitigated negative declaration (IS/MND) as a process-oriented approach that sets performance standards for analyzing potential impacts and for identifying and implementing required mitigation measures.

This chapter introduces the project proponent, the lead agency, and responsible agencies; defines the scope of this Last Mile IS/MND; outlines how the unique aspects of this project are analyzed under the California Environmental Quality Act (CEQA); and discusses the subsequent process for authorizing specific Last Mile routes.

1.1 Project Proponent and Agencies

1.1.1 Project Proponent

On July 6, 2000, the CPUC approved IPN as a Limited Facilities-Based Competitive Local Carrier. On January 3, 2001, IPN applied to the CPUC for a CPCN requesting authorization to expand its authority to operate as a Full Facilities-Based Competitive Local Carrier and Inter-Exchange Carrier (Application No. 01-03-006). The authority being sought under this proceeding would enable IPN to undertake new construction projects consistent with the activities and methods described in Chapter 2, “Project Description” (see page 2-1).

IPN's targeted market areas will be developed in three phases. In phase 1 (the purpose of this application), IPN intends to provide Last Mile services in the San Francisco Bay Area and Sacramento metropolitan areas. CPUC authorization for Phases 2 and 3 will be sought at a later date.

1.1.2 Lead Agency

CEQA applies to discretionary government activities that are defined as projects and have the potential to result in either a direct or indirect physical change in the environment. An activity is considered a project if it requires issuance of a lease, permit, license, certificate, or other entitlement by a public agency. The CPUC is designated CEQA lead agency for approval of this project under CEQA by virtue of its discretionary authority to issue a CPCN, as requested by IPN (State CEQA Guidelines Sec. 15378(a); California Public Resources Code [PRC] sec 21065). The CPUC's objective is to prepare a document that will set forth processes to ensure compliance pursuant to CEQA (PRC 21000 et seq.), the State CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.), and CPUC CEQA Rule 17.1, "Special Procedure for Implementation of CEQA."

Because the CPUC is a state agency and the project is of statewide importance, this IS/MND will be sent to the State Clearinghouse for a 30-day public review period. The CPUC will consider the IS/MND, together with any comments received, before approving the project and issuing the CPCN (PRC sec 21091(f)).

1.1.3 Responsible Agencies

The proposed action would occur in several jurisdictions and require approvals and permits from various state and local agencies (city, county, regional). These agencies may be considered *responsible agencies* under CEQA. A responsible agency is an agency other than the lead agency that has a legal responsibility for approving a project. The responsible agency must actively participate in the lead agency's CEQA process by reviewing the document and using it for the approval of the project. The responsible agency may also use this IS/MND to achieve CEQA compliance when issuing permits (i.e., encroachment permit) required to authorize each specific project route. In addition, the responsible agency may require additional permit conditions.

1.2 CEQA Compliance and Scope of this Last Mile Initial Study/Mitigated Negative Declaration

IPN's proposed Last Mile project consists of the installation of fiber optic cable from the nearest existing fiber optic line to the customer, as customers request it. This Last Mile IS/MND identifies the potential environmental effects of this activity, sets performance standards, and provides mitigation and a compliance

process for avoiding or reducing potentially significant impacts to less-than-significant levels.

The document analyses the significance of potential impacts from construction, maintenance, and operation of the proposed project; and identifies the mitigation measures or processes needed to avoid or reduce each potential impact to a less-than-significant level. Project construction would be confined to the geographic urban study areas described in the project description (chapter 2) and evaluated in this document. No unauthorized construction requiring CEQA review would be permitted in areas beyond the scope of this study and outside the urban study areas. The specific environmental issues analyzed in this IS/MND include all topics in the environmental checklist form presented in Appendix G of the State CEQA Guidelines (Section 15063).

The objective of this IS/MND is to establish a clear process for implementing mitigation measures and ensuring mitigation and local permit compliance. The mitigation measures include sufficient detail to enable IPN to avoid or reduce all potentially significant impacts associated with the construction activity.

The following textbox gives an overview of the objectives and the limits of this Last Mile IS/MND:

This Last Mile IS/MND

Does:	**Does NOT:**
• Ensure CEQA compliance for CPUC (lead agency) to approve the project and issue a facilities-based CPCN.	• Provide the applicant with unauthorized blanket approval to install cable anywhere in the urban study area.
• Ensure CEQA compliance for responsible agencies issuing permits and approvals for future specific project routes.	• Provide CEQA compliance for unauthorized projects outside the urban study area identified.
• Provide the process for determining appropriate mitigation measures and monitoring once a specific route is identified.	• Limit the authority of the responsible agencies issuing permits and approvals for future specific project routes.

1.3 Identification and Approval of Specific Project Routes

Following the CEQA process, IPN will prepare informational-only quarterly route disclosure letters, which identify specific project routes within the urban study area identified in this IS/MND. These quarterly reports will be submitted to the CPUC and to affected agencies upon request. A process to identify required mitigation measures for each specific project route is specifically

addressed in the Mitigation Monitoring Compliance and Reporting Plan (MMCRP) included in appendix A of this document, and is summarized in the flow diagram in figure 1. This process is designed to ensure that resource impacts are properly studied and mitigated; that all route-specific permits and approvals are acquired from responsible agencies and conditions included are followed; and that proper public notice occurs prior to the CPUC issuing a Notice to Proceed for each specific project route in the urban study areas identified in this document.

This Last Mile IS/MND and MMCRP also document the process for achieving compliance with various state and federal requirements (i.e., federal Endangered Species Act [ESA], Clean Water Act [CWA], National Historic Preservation Act [NHPA]). However, compliance may require additional activities not documented in this IS/MND, such as preparation of a cultural resources inventory report in compliance with the NHPA, because the requirements may not be known until the field surveys are conducted as part of the MMCRP.

For each specific project, IPN will be required to prepare a construction work plan (see outline and forms in appendix B) in compliance with the MMCRP to be reviewed and approved by the CPUC. The CPUC will authorize project construction only after the construction work plan has been deemed complete. Figure 1 outlines the steps necessary to obtain the CPUC's authorization for construction.

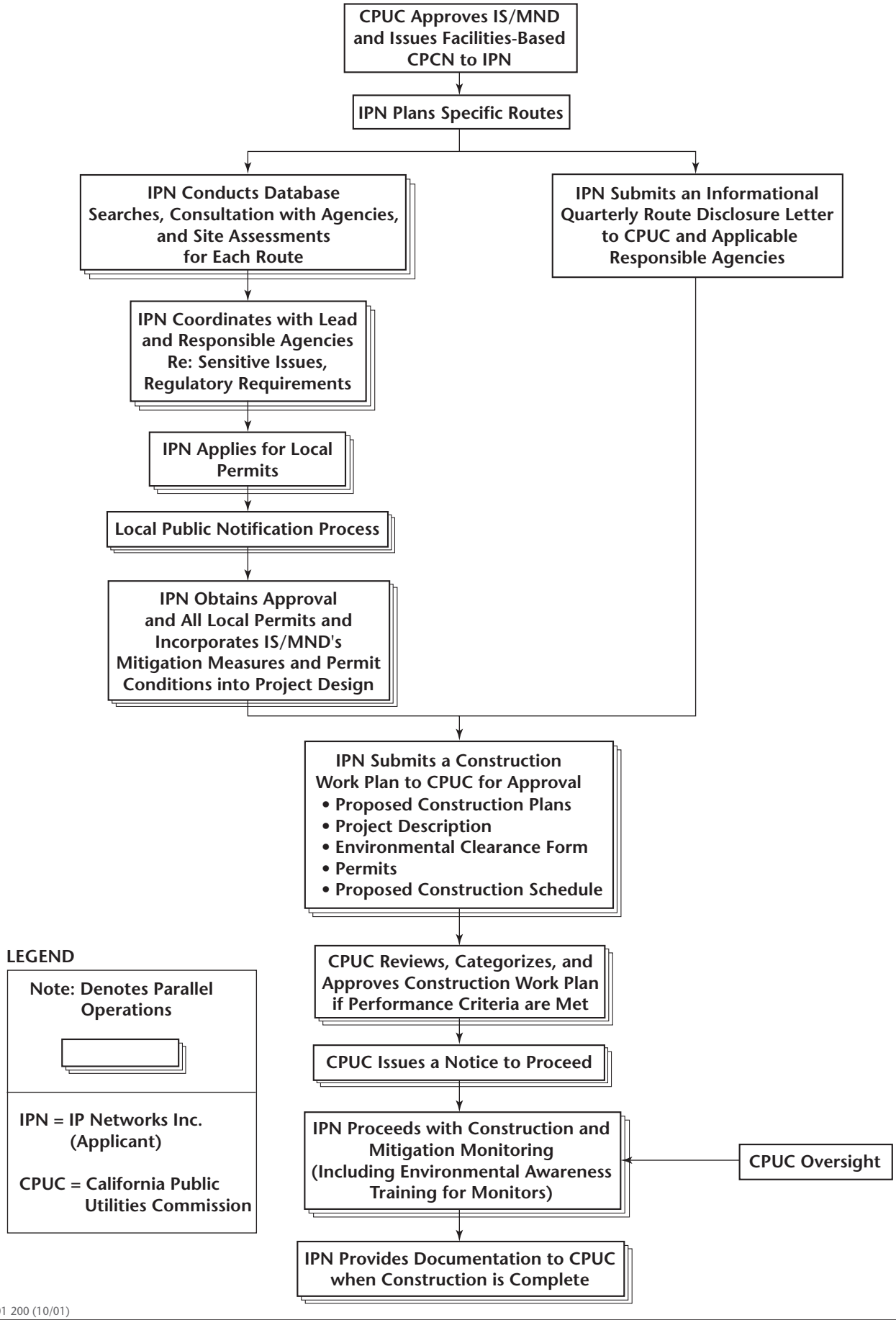

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Figure 1
Subsequent Approval Process for Specific Routes

Chapter 2
Project Description

IPN proposes to offer Last Mile telecommunication service in urban areas in Northern California to various entities (their clients) by constructing new fiber optic cable facilities and ancillary equipment between structures to which the service would be provided (figure 2). A complete list of cities and counties in which IPN intends to provide service is provided in table 2-1.

IPN proposes to offer Last Mile service by utilizing existing fiber optic cable facilities, conduit, duct, and pole systems, or by constructing new connections. IPN has executed agreements with Pacific Bell, and Pacific Gas and Electric Co. (PG&E), and will be executing agreements with Silicon Valley Power in Santa Clara, the City of Palo Alto Utilities Department, and other municipalities and service providers to allow IPN use of existing systems. IPN will also construct facilities (e.g., regenerator and optical-amplifier [OP-AMP] stations) on PG&E's electric utility facility sites and on other electric utility sites. The installation locations and methods are described below:

- Use existing dark fiber Unbundled Network Element (UNE).
- Use existing conduits, ducts, and rights-of-way of existing utilities and other companies for installation of new fiber optic cable.
- Obtain pole attachment rights to authorize installation of fiber optic cable on existing utility structures, using either existing or new brackets.
- Construct new underground conduit in existing public and utility rights-of-way. Conduit would be installed adjacent to or in close proximity with other existing utility facilities. In limited circumstances, construction of the new conduit would involve digging into the street surface and the area immediately below to permit the placement of conduit in a trench approximately 12 inches wide and 4 feet deep. Upon completion of the construction, the street surface would be returned to condition of equal or better quality than the original condition. New construction would generally occur within a range of approximately 50 to 5,000 feet from existing fiber to the structure and company receiving service.

  The conduit would be accessible via manholes that would be placed along the right-of-way, approximately one per block in downtown areas or one every several hundred feet in suburban areas. Ground disturbance required for the placement of a manhole would not typically exceed 10 by 10 feet surface area.

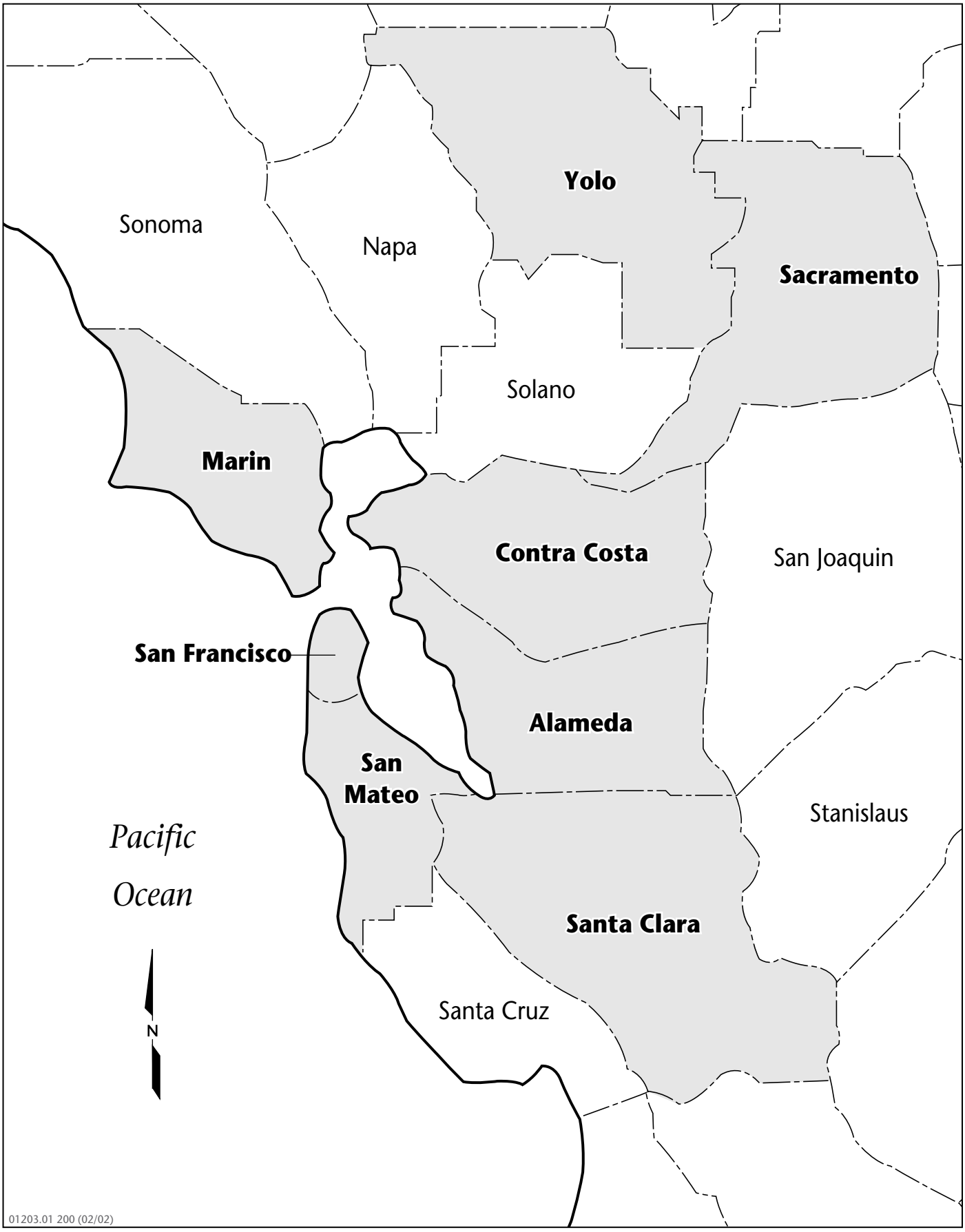
- Construct facilities referred to in this document as "central offices" (e.g., regenerator and OP-AMP stations that house electrical equipment). Central offices would typically consist of one 300-square-foot-large prefabricated structure within a fenced area and located on private property. The central offices would be outfitted with heat, ventilation, and air conditioning (HVAC), a backup power supply, and security lighting. A natural-gas or diesel generator would be used. The diesel generator would require a 250-gallon fuel tank. Noise associated with the central offices would consist of infrequent operation of the backup generator. The backup generator would shut off after a maximum of 3 hours. The central offices would be expanded to meet demand and could include three to eight prefabricated concrete buildings of approximately 300 square feet each, located at intervals of up to 40 miles. In order to identify areas where most construction could occur, IPN has identified point-of-presence (POP) zones, extending 1 to 3 miles from a center point(s) within most of the targeted areas (i.e., cities) (figure 2). However, the exact locations of each customer, and therefore specific fiber installation projects, are not known at this time.

2.1 Construction Methods

IPN anticipates that there would be very little construction of new network facilities and would make every effort to avoid new construction by utilizing facilities in existing conduits, ducts, dark fiber UNEs, or central offices wherever possible. IPN has identified five methods to provide an underground fiber optic cable system: purchase dark fiber, utilize existing conduits, utilize aerial cable entrances, install new in-ground conduits, and construct central offices. IPN anticipates that any in-ground construction would be in existing rights-of-way and would occur on paved streets or sidewalks in urban areas. IPN has identified primary 3-mile radius POP zones where construction would occur. With any of the alternative construction methods, fiber would be routed from the self-installed or third-party manhole to the end user's premises.

For purposes of this IS/MND, the following activities associated with fiber optic cable system construction have been defined:

- **Use of Existing Structures:** This activity is limited to the use of existing conduits or other facilities, such as existing surface-accessible manholes or existing overhead conduit. No subsurface excavation will occur; ground disturbance will be minimal. Existing road and utility rights-of-way will be used for access, and previously disturbed sites will be used for equipment staging areas. No new access roads will be constructed.
- **Minor Ground-Disturbing Activities**: This activity is limited to installation using new manholes or handholes along existing fiber optic cable lines. Existing road and utility rights-of-way will be used for access and previously disturbed sites for equipment staging areas. No new access roads will be constructed.
- **Moderate Ground-Disturbing Activities**: This includes linear construction activities such as trenching and directional drilling, and the construction of



Jones & Stokes

Figure 2
Regional Location

Table 2-1. IP Networks Geographic Locations of Proposed Fiber Optic Cable System Installation

San Francisco Bay Area			
Alameda County:	Contra Costa County:	San Mateo County:	Santa Clara County:
Alameda	Concord	Atherton	Campbell
Berkeley	Lafayette	Belmont	Cupertino
Castro Valley	Orinda	Brisbane	Los Altos
Dublin	Pacheco	Burlingame	Los Altos Hills
Emeryville	Pittsburg	Colma	Los Gatos
Fremont	Pleasant Hill	Daly City	Milpitas
Hayward	San Ramon	East Palo Alto	Mountain View
Livermore	Walnut Creek	Foster City	Palo Alto
Newark		Hillsborough	San Jose
Oakland	San Francisco County:	Menlo Park	Santa Clara
Pleasanton	San Francisco	Millbrae	Saratoga
San Leandro		Redwood City	Sunnyvale
San Lorenzo		San Bruno	
Union City		San Carlos	Marin County:
		San Mateo	San Rafael
		South San Francisco	

Sacramento Metropolitan Area	
Sacramento County:	Yolo County:
Arden-Arcade *	West Sacramento
Carmichael *	
Fair Oaks *	
Rancho Cordova *	
Sacramento	

* Unincorporated area.

aboveground structures (i.e., central offices). Existing road and utility rights-of-way will be used for access and previously disturbed sites for equipment staging areas. No new access roads will be constructed. Impacts that would result from the construction of aboveground structures may be unique and will be specifically discussed.

- **Significant Variation to Analyzed Methods**: Any construction activities not defined above and activities that are outside the geographic boundaries analyzed in this document.

These definitions of construction activities will be used later in this document as part of the technical impact analysis and in the MMCRP (appendix A) to determine which mitigation are appropriate for different levels of construction activity. IPN is not currently proposing any activities that would fall within the definition of the fourth type of construction activities, or proposing any construction in areas beyond the scope of this study and outside the urban study areas. The next sections include additional detail on typical construction methods that IPN anticipates employing.

2.1.1 Purchasing Dark Fiber Unbundled Network Elements

Where possible and economically viable, IPN would purchase existing dark fiber (fiber optic cables without any of the needed electronics). IPN would then install all necessary multiplexers and amplifiers within existing structures to enable them to provide service to the end user. In some cases, the installation of manholes or assist points may be necessary, which would lead to minor ground disturbance.

2.1.2 Utilizing Existing Conduits

Fiber optic cable would be placed inside existing conduits so that placement of the cable would not cause any short-term street surface disturbance. IPN would first determine whether existing building entry points were available for use. If available, fiber optic cable would be placed in the existing conduits. If none were available, existing contracts with another fiber optic cable service provider would be utilized. The construction of conduit by another provider is not analyzed in this document. In some cases the installation of manholes or assist points may be necessary, which would lead to minor ground disturbance.

2.1.3 Utilizing Aerial Cable Entrances

If no conduits for building entry could be constructed in the street, and/or there is an aerial pole line existing immediately adjacent to the building, IPN would obtain pole attachment rights to authorize installation of fiber optic cable on

existing utility structures, using either existing or new brackets, and construct an aerial building entrance. In some cases the installation of one or more new poles may be necessary, which would lead to minor ground disturbance.

2.1.4 Constructing Manholes/Handholes

The conduits would be accessible via manholes that would be placed along the right-of-way approximately one per block in downtown areas or one every several hundred feet in suburban areas. Manholes typically measure 4 by 4 by 6 feet with only the manhole lid visible at the surface. Handholes, used to assist the installation of fiber optic cable inside the conduit, are smaller in size than manholes and typically require less ground disturbance.

2.1.5 Installing New In-Ground Conduits

If no existing conduits, or conduits secured from another provider, were available on economic terms agreeable by the parties, IPN would construct a new conduit structure. Construction would occur primarily in existing utility rights-of-way and conduits would typically be installed adjacent to or in close proximity of other existing utility facilities. The route would be developed based on the nearest existing manhole of the leased third-party fiber provider and the existing entrance structure provided by the building owner/developer. Construction activities involved in the installation of new in-ground conduits include trenching and directional drilling.

Trenching

The typical construction process would consist of using trenching/excavating equipment to cut a minimum 6-inch-wide opening, preferably immediately off the concrete curb and gutter line in the asphalt area. The trench would be to a depth of approximately 48 inches, depending upon the location of other utilities, with a 2-inch gravel base. Conduits would be placed at the bottom of the trench. The trench would then be backfilled and compacted, and the surface restored to a condition of equal or better quality as the original condition.

Directional Drilling

Directional drilling equipment may be used in order to construct around complicated utility systems or other areas needing to be avoided without causing damage. Larger work areas are required for drilling. Pilot and receiving holes are dug to begin and end the drill tunnel. These holes vary in size depending upon the length of the proposed drill. Directional drilling often requires a lubricating slurry to help lubricate the drill bit, prevent the bore tunnel from

collapsing, and carry drill cuttings to the surface. The viscosity of the slurry used will vary depending upon existing subsurface conditions.

2.1.6 Constructing Central Offices

Construction of central offices would require minimal construction. The central offices (i.e., regenerator stations at 200-mile intervals and/or OP-AMP stations at intervals of up to 40 miles) include outside elements that are identical. Construction would include grading, laying a building pad, and assembling prefabricated units. The areas would be fenced. The central offices would be on public or private property and are mostly anticipated to supplement existing utility systems.

2.1.7 Establishing Staging and Parking Areas

Staging areas for construction equipment, materials, fuels, lubricants, and solvents would be established along each project route during construction to allow more efficient use and distribution of materials and equipment. No new staging areas would be established in undisturbed areas. All staging areas would be located on private lands in existing contractor yards or public lands if authority is granted by local municipalities; existing commercial areas used for storing and maintaining equipment; previously cleared, graded, or paved areas; or level areas where grading and vegetation-clearing are not required.

2.2 Regulatory Environment

The proposed project is subject to local city, county, and special district permits, such as encroachment permits, grading permits and air district permits. In addition, several state and federal regulatory permits would potentially be required. The permits of broadest possible application to the proposed project and the permit requirements are briefly described below.

- County or city codes typically require a local land use or encroachment permit prior to the installation of conduits within public rights-of-way. This permit is primarily issued through the local planning department.
- County or city codes typically require a grading permit prior to the commencement of grading activities within the local jurisdiction. This permit is primarily issued through the local public works department. Best management practices (BMPs) for sediment and erosion control are often required.
- Air quality management districts are responsible for the development and enforcement of regulations for the control of air pollution within their jurisdiction. Air quality permits are issued for facilities and construction activities that are regulated by the applicable air district.

- Section 401 of the Clean Water Act (CWA) requires a water quality certification to be obtained from the applicable regional water quality control board (RWQCB) for discharge activities that may affect water quality. The permit establishes measures to ensure water quality protection and is a required prerequisite for issuance of a Nationwide Permit No. 12 (see below).
- Section 402 of the CWA requires a national pollution discharge elimination system (NPDES) general permit to be obtained from the applicable RWQCB before construction that may result in 5 acres or more of soil disturbance. A storm water pollution prevention plan (SWPPP) containing erosion control measures is required. EPA will issue a new general permit in December 2002 for activities that disturb between 1 and 5 acres. The appropriate RWQCB enforces the general permit.
- Section 404 of the CWA requires issuance of an individual or nationwide permit (in this instance, Nationwide Permit No. 12 for discharges associated with excavation, backfilling, or bedding of utility lines) by the U.S. Army Corps of Engineers (USACE) before discharge of fill into waters of the United States, including wetlands.
- Section 10 of the Rivers and Harbors Act requires permit authorization for activities occurring within designated navigable waterways to maintain navigability in the interest of interstate commerce.
- Section 7 of the federal Endangered Species Act (ESA) requires all federal agencies, in consultation with U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), to ensure that their actions do not "jeopardize the continued existence of species listed as endangered or threatened, or result in the destruction or adverse modification of the critical habitat of these species." In addition, Section 7 prohibits federal agencies from implementing an action that would result in the "take" of a species listed as threatened (if not subject to a special rule) or endangered, or adversely affect critical habitat unless a biological opinion (BO), issued upon completion of formal consultation, authorizes the action. "Take" includes the action of, or attempt to, harm, harass, and kill and individual of a species. Section 7 requires and establishes protocols for preconstruction wildlife surveys and mitigation measures.
- Section 10 of the ESA authorizes the conditions for USFWS or NMFS to issue an incidental take permit when a nonfederal project may result in take that is incidental to, and not the purpose of, the implementation of an otherwise lawful activity. The permit requires preparation and implementation of a habitat conservation plan that would offset the take of individuals which may occur as an incidental effect of the project by providing for the overall preservation of their species through specific mitigation measures.
- Section 106 of the National Historic Preservation Act (NHPA) requires examination of cultural resources before various federal agencies can provide permits under their jurisdiction. Section 106 establishes requirements and protocols for preconstruction cultural resource surveys and mitigation of impacts on cultural resources.

- Section 1603 of the California Department of Fish and Game (DFG) Code requires a stream- and lake-bed alteration agreement from DFG before any action that would substantially divert or obstruct the natural flow or alter the bed, bank, or channel of designated drainages, rivers, streams, and lakes. Potential impacts must be mitigated.
- Section 2081(b) of the DFG Code requires the issuance of an incidental-take permit before any public or private action may be performed that would potentially hunt, pursue, catch, capture, or kill (take) a state-listed endangered or threatened species. The permit requires that the impacts of the take are minimized and fully mitigated, that the take is consistent with DFG recovery programs, that funding for mitigation and monitoring programs is adequately assured, and that the action would not jeopardize continued existence of the species.

The California State Lands Commission requires an easement (PRC 6301) for state lands crossed by the route below the ordinary high-water mark of tidal waters and below the low-water mark of non-tidal waterways.

Chapter 3
Environmental Setting

This chapter includes an overview of the existing physical environmental conditions (i.e., the environmental baseline) at the time this analysis was prepared. The project proposed by IPN is to operate fiber optic cable in conduits between sources of existing fiber and the structures in which the service would be provided. The project would consist of multiple linear routes that would be located in the cities and unincorporated areas listed in table 2-1 in chapter 2, "Project Description." The exact locations of each customer, and therefore the specific route of each fiber installation, are not known at this time. However, it is known that the fiber/conduits would be installed in urban areas dominated by development and pavement.

Following is setting information relative to the resource topics or issue areas that are addressed in this initial study, including regulatory requirements. Additional information for each environmental issue relative to potential impacts has been included in chapter 4.

3.1 Aesthetics

The visual setting of the project would be urban metropolitan areas. Surrounding land uses would include primarily mixed-use residential, commercial, and industrial. The project would be located predominantly in existing disturbed corridors for public and utility rights-of-way, including pipelines, utilities, railroads, and roads.

Scenic resources, including highways, historic buildings, and natural features, are usually described in city and county general plans. In addition, the California Department of Transportation (Caltrans) lists scenic highways that are officially designated or considered eligible in the state scenic highway system (table 3.1-1) (California Department of Transportation 1996). These resources could be located within the proposed project area.

3.1.1 Regulations, Approvals, and Permits Applicable to Aesthetics

Section 320 of the California Public Utilities Code requires that all new or relocated electric and communication distribution facilities located within 1,000 feet of an official designated scenic highway and visible from that highway be buried underground where feasible. Local jurisdictions are required to develop and adopt protection measures in the form of ordinances to apply to the area of land within the scenic corridor.

Some localities may require approval of a conditional-use or special-use permit before construction. Minimizing visual impacts will likely be one consideration in the granting of such permit applications.

3.2 Agriculture

California is the nation's leading agricultural state, with $27.2 billion worth of total production and income in 2000 (California Department of Food and Agriculture 2001). The variety of climates and soils in the state, together with the long growing-season and availability of water, make it suitable for growing a wide variety of crops.

The loss of agricultural land is an increasingly important issue in California. The state's growing population is resulting in the conversion of agricultural lands to suburban and urban uses. According to the 1996–1998 Farmland Conversion Report of the California Department of Conservation's Farmland Monitoring and Mapping Project, approximately 21,600 acres (34 square miles) of prime farmland and farmland of statewide importance was converted to non-agricultural uses between 1996 and 1998 (California Department of Conservation 2000). As land is converted to other uses and agriculture enters into increasing competition with urban and natural resource users for water (increasing the cost of water and reducing its reliability), the agricultural economy of some parts of the state is being adversely affected.

Because the project is proposed for dense metropolitan areas, it is unlikely that agricultural lands would be part of the affected environment.

3.2.1 Regulations, Approvals, and Permits Applicable to Agricultural Resources

The California Farmland Protection Act (also known as the Williamson Act) is the state's primary method for conserving farmland. This voluntary program is administered at the county level and offers property tax incentives to farmers who promise to keep their land in agricultural use. Under the act, owners of farm and grazing lands may enter into a contract with their county limiting the use of

Table 3.1-1. Caltrans Scenic Highways Near IPN's Proposed Project Alignments

County	Route	Location	Designation
Santa Clara	9	Saratoga to Route 17 near Los Gatos	Eligible
Santa Clara	9	Santa Cruz County line at Saratoga Gap to Blaney Plaza (Route 85)	Officially designated
Santa Clara	9	Blaney Plaza in Saratoga to Route 35	Officially designated
Contra Costa	24	Alameda-Contra Costa county line to Interstate 680 in Walnut Creek	Eligible
Contra Costa	24	East Portal Caldecott tunnel to Interstate 680 near Walnut Creek	Officially designated
Santa Clara/Santa Cruz/San Mateo/San Francisco	35	Entire route	Eligible
San Francisco/Alameda	80	Route 280 near First Street in San Francisco to Route 61 in Oakland	Eligible
Alameda	84	Route 238 to Interstate 680 near Sunol	Eligible
Alameda/Contra Costa	239	Entire route	Eligible
Santa Clara/San Mateo/San Francisco	280	Route 17/Interstate 80 near First Street in San Francisco	Eligible
San Jose/Alameda	580	Interstate 5 southwest of Vernalis to Interstate 80	Eligible
Alameda	580	San Joaquin County line to Route 205	Officially designated
Alameda	580	San Leandro city limit to Route 24 in Oakland	Officially designated
Alameda/Contra Costa	680	Santa Clara-Alameda county line to Route 24 in Walnut Creek	Eligible
Alameda	680	Mission Boulevard in Fremont to Bernal Avenue near Pleasanton	Officially designated
Alameda	680	Bernal Avenue near Pleasanton to Contra Costa County line	Officially designated
Contra Costa	680	Alameda County line to Route 24	Officially designated

their land to agriculture for a period of at least 10 years. In response, the county will assess the land at its productive value rather than its fair market value. This reduces property tax increases that would otherwise arise from speculation over land values. Development within agricultural areas also is subject to local zoning requirements, which vary from jurisdiction to jurisdiction.

3.3 Air Quality

The primary factors that determine the air quality of a region are the types and distribution of pollutant sources and the amounts of pollution emitted from those sources. Weather patterns and topography are also important factors. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to control the movement and dispersal of air pollutants.

3.3.1 Bay Area and Sacramento Valley Climate and Meteorology

California's climate varies from Mediterranean (most of the state) to steppe (scattered foothill areas) to alpine (high Sierra) to desert (Colorado and Mojave deserts). Atmospheric conditions that create temperature inversions, (i.e., layers of warm air that lie over cooler, ocean-modified air) and permit stagnant air masses to remain for long periods allow the concentration of pollutants to increase. This aggravates smog over urban, industrial, and agricultural areas.

San Francisco Bay Area Climate and Meteorology

The San Francisco Bay Area is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays. The complex terrain, especially at higher elevations, distorts the normal wind flow patterns in the Bay Area. The greatest distortion occurs when low-level inversions are present and the air beneath the inversion flows independently of air above the inversion, a condition that is common during the summer months.

The only major break in California's Coast Ranges occurs in the Bay Area where the Coast Ranges split into western and eastern ranges. San Francisco Bay lies between the two ranges. The gap in the western coast range is known as the Golden Gate, and the gap in the eastern coast range is the Carquinez Strait. These gaps allow air to pass into and out of the Bay Area and the Central Valley.

The Bay Area is characterized by moderately wet winters and dry summers. Winter rains account for about 75% of the average annual rainfall. During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing are usually high, and thus pollution levels tend to be low.

However, frequent dry periods do occur during the winter, where mixing and ventilation are low and pollutant levels build up.

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate, or the San Bruno gap. The air flowing in from the coast to the Central Valley, called the Delta breeze, begins developing at or near ground level along the coast in the late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the Delta breeze depends largely on the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of sea breeze will be inhibited and stagnant air quality conditions are likely to result.

Sacramento Valley Climate and Meteorology

The Sacramento Valley is bounded by the Coast and Diablo Ranges on the west and the Sierra Nevada on the east. The Carquinez Strait is a sea-level gap between the Coast Ranges and the Diablo Range. The prevailing wind direction in the Sacramento County portion of the Sacramento Valley air basin is from the south and south-southeast, although winds from the northwest are also common. The winds from the south are primarily due to marine breezes that blow through the Carquinez Strait. These breezes are strongest in the spring and summer. The north winds are more frequent during winter**.**

The region experiences temperature inversions, which limit atmospheric mixing and trap pollutants, resulting in high pollutant concentrations near the surface. Surface inversions (0–500 feet) are most frequent during the winter, while subsidence inversions (1,000–2,000 feet) are most frequent during the summer. Generally, the lower the inversion base height and the greater the rate of temperature increase from base to the top, the more pronounced effect the inversion will have on inhibiting dispersion.

3.3.2 Regulations, Approvals, and Permits Applicable to Air Quality

Federal Regulatory Environment

The federal Clean Air Act (FCAA) was passed in 1963 by the U.S. Congress and has been amended several times, most recently in 1990. The FCAA requires the U.S. Environmental Protection Agency (EPA) to establish national ambient air quality standards (NAAQS) for air pollutants or air pollutant groups that pose a threat to human health or welfare. The EPA has established NAAQS for six criteria pollutants: ozone, sulfur dioxide, nitrogen dioxide, lead, particulate matter, and carbon monoxide (CO) (table 3.3-1). Two separate standards have

Table 3.3-1. Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard, as Parts per million		Standard, as micrograms per cubic meter		Violation Criteria	
			State	National	State	National	State	National
Ozone	O_3	8 hours	N/A	0.08	N/A	160	N/A	If 3-year average of annual third-highest daily 8-hour maximum exceeds standard
		1 hour	0.09	0.12	180	235	If exceeded	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
Carbon monoxide (Lake Tahoe only)		8 hours	6	N/A	7,000	N/A	If exceeded	N/A
Nitrogen dioxide	NO_2	Annual average	N/A	0.053	N/A	100	N/A	If exceeded
		1 hour	0.25	N/A	470	N/A	If exceeded	N/A
Sulfur dioxide	SO_2	Annual average	N/A	0.03	N/A	80	N/A	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	N/A	655	N/A	N/A	N/A
Hydrogen sulfide	H_2S	1 hour	0.03	N/A	42	N/A	If equaled or exceeded	N/A
Vinyl chloride	C_2H_3Cl	24 hours	0.010	N/A	26	N/A	If equaled or exceeded	N/A
Inhalable particulate matter	PM10	Annual geometric mean	N/A	N/A	30	N/A	If exceeded	N/A
		Annual arithmetic mean	N/A	N/A	N/A	50	N/A	If exceeded
		24 hours	N/A	N/A	50	150	N/A	If exceeded on more than 1 day per year
Fine particulate matter	PM2.5	Annual arithmetic mean	N/A	N/A	N/A	15	N/A	If spatial average exceeded on more than 3 days in 3 years
		24 hours	N/A	N/A	N/A	65	N/A	If exceeds 98th percentile of concentrations in a year
Sulfate particles	SO_4	24 hours	N/A	N/A	25	N/A	If equaled or exceeded	N/A
Lead particles	Pb	Calendar quarter	N/A	N/A	N/A	1.5	N/A	If exceeded no more than 1 day per year
		30 days	N/A	N/A	1.5	N/A	If equaled or exceeded	N/A

Notes:
All standards are based on measurements at 25ºC and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.
N/A = not applicable.

been set for particulate matter: one for particles 10 microns or less in diameter (PM10) and the other for particles 2.5 microns or less in diameter (PM2.5).

Air basins that are not in violation of an ambient air quality standard are considered to be in attainment for that standard. Conversely, air basins with recorded violations of an ambient air quality standard are classified as nonattainment areas for that pollutant. Most air basins are classified as nonattainment areas for one or more pollutants, and attainment areas for other pollutants. Also, for certain pollutants, such as PM10, California has more stringent standards than the federal standard. Consequently, an air basin may be classified as a nonattainment area for the state PM10 standard, while it is in attainment for the federal PM10 standard.

Air basins classified as nonattainment areas for the NAAQS must prepare state implementation plans that describe the specific steps that will be taken to bring the nonattainment area into compliance. Those steps primarily include rules and regulations to limit air emissions from specific stationary and mobile sources. The FCAA contains specific dates by which the NAAQS must be met or federal actions can be imposed.

California Regulatory Environment

The California Clean Air Act (CCAA) of 1988 differs from the FCAA in that there are no sanctions or specific deadlines for attainment of the California Ambient Air Quality Standards (CAAQS), also shown in table 3.3-1. Under the CCAA, air quality attainment is required at the earliest practicable date, and reasonable progress must be made each year.

Similar to the FCAA, the CCAA requires attainment plans for designated nonattainment areas, which are areas that currently violate the ambient air quality standards. The California Air Resources Board (ARB) is responsible for preparing the plans for meeting the NAAQS and CAAQS. The ARB has delegated to the California air districts the responsibility for preparing air quality attainment plans. The CCAA, unlike the FCAA, does not require an air quality attainment plan for areas designated as nonattainment for the PM10 CAAQS.

Local Air Quality Regulatory Environment

The ARB has delegated much of its air pollution control authority to local air pollution control districts and air quality management districts (AQMDs). The proposed project would be within the Bay Area AQMD, the Sacramento Metropolitan AQMD, and the Yolo-Solano AQMD. For certain air basins covering more than one county, a unified air district has been formed to manage air quality issues throughout the basin (e.g., Bay Area AQMD). In other multi-county air basins, individual county air districts manage air quality in only their counties (e.g., Sacramento Metropolitan AQMD and Yolo-Solano AQMD, which

are both part of the Sacramento Valley air basin). Table 3.3-2 shows the air basins and AQMDs in the proposed project region.

Table 3.3-2. California Air Basins and Local Air Districts Crossed by Project Route

Air Basin	Local Air Districts
San Francisco Bay Area	Bay Area Air Quality Management District
Sacramento Valley	Sacramento Metropolitan Air Quality Management District
	Yolo-Solano Quality Management District

Individual air districts or groups of air districts prepare air quality management plans designed to bring their jurisdiction into compliance with nonattainment area pollutants. Those plans are submitted to the ARB for approval. The air quality management plans usually contain an emission inventory and a list of rules proposed for adoption.

Potential emissions generated by the proposed project would be from construction activities used to install fiber optic cable and construct central offices. These activities include using existing access points and existing conduits, constructing new access points, constructing new in-ground conduits, and/or attaching aerial cable. Each of these activities would require varying quantities of construction equipment.

The proposed project would also require the installation and use of emergency generators at central offices. All central offices would be electrically powered with power purchased from local utilities and also have emergency generators powered by diesel combustion engines for use during power outages. Most of the air districts affected by the proposed project have existing rules and regulations governing the operation of internal-combustion engines. Those regulations either exempt engines designated as emergency standby engines or exempt engines that operate less than a specified number of hours per year.

The attainment/nonattainment status for the Bay Area and Sacramento Valley air basins with regard to the pollutants of most concern related to construction and operation of the proposed project are described below.

Pollutants of Concern and Attainment/Nonattainment Status

Table 3.3-3 shows the attainment/nonattainment status for the Bay Area and Sacramento Valley air basins with regard to the pollutants of most concern that could be generated during construction and operation of the project. Those pollutants include ozone, PM10, CO, and nitrogen dioxide. These pollutants,

each of which is described below, are emitted as part of construction equipment exhaust. Respirable particulates are emitted when construction vehicles emit dust into the ambient air. Also, the diesel engines that power the central offices' emergency backup generators would release PM10, CO, and the ozone precursors, reactive organic gases (ROG) and oxides of nitrogen (NO_X).

Table 3.3-3. Air Quality Requirement Attainment Status by Pollutant and Air Basin

Air Basin	State Ozone	Federal Ozone	State PM10	Federal PM10	State CO	Federal CO	State NO_2	Federal NO_2
San Francisco Bay Area	N	N	N	A	A	A	A	A
Sacramento Valley	N	N	N	N	A	A	A	A

Notes:
Air basins classified as nonattainment areas have at least one area within that basin that has shown a violation of the relevant ambient standard.
A = Attainment N = Nonattainment.
Source: California Air Resources Board 1999.

Ozone. Ozone is a respiratory irritant and an oxidant that, when present at unhealthy levels, increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Ozone is a severe eye, nose, and throat irritant. It also attacks synthetic rubber, textiles, plants, and other materials. Ozone causes extensive damage to plants by leaf discoloration and cell damage.

Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include ROG and NO_X, react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. The ozone precursors, ROG and NO_X, are emitted by mobile sources and by stationary combustion equipment.

State and federal standards for ozone have been set for a 1-hour averaging time. The state 1-hour ozone standard is 0.09 parts per million (ppm), not to be exceeded. The federal 1-hour ozone standard is 0.12 ppm, not to be exceeded more than three times in any 3-year period. The EPA recently replaced the 1-hour ozone standard with an 8-hour standard of 0.08 ppm. However, areas classified as nonattainment for ozone must attain the 1-hour ozone standard. After an area has achieved attainment of the 1-hour standard, then the 1-hour standard is no longer applicable and the area must strive to meet the 8-hour ozone standard.

All areas that would be crossed by the project routes are nonattainment areas for the state and federal ozone standards.

PM10 and PM2.5. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled (PM10 or smaller). Particulates can damage human health and retard plant growth. Particulates also reduce visibility, stain buildings, and corrode materials.

PM10 emissions are generated by a wide variety of sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic (including construction traffic), and secondary aerosols formed by reactions in the atmosphere.

The federal ambient air quality standard for particulate matter currently applies to PM10 and PM2.5. The California ambient air quality standard only applies to PM10.

The state PM10 standards are 50 micrograms per cubic meter as a 24-hour average and 30 micrograms per cubic meter as an annual geometric mean. The federal PM10 standards are 150 micrograms per cubic meter as a 24-hour average and 50 micrograms per cubic meter as an annual arithmetic mean. The federal PM2.5 standards equal 15 micrograms per cubic meter for the annual average and 65 micrograms per cubic meter for the 24-hour average.

All areas that would be crossed by the project routes are nonattainment areas for the state PM10 standards. The San Francisco Bay Area is an attainment area for the federal PM10 standard; the Sacramento Valley is a nonattainment area for the federal PM10 standard.

Carbon Monoxide. CO is essentially inert to plants and materials but can have significant effects on human health. CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea to death.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions. These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. Monitored CO concentrations have been improving due to the use of oxygenated fuels in California. Violations of the CO concentrations are generally a problem in heavily urbanized areas.

State and federal CO standards have been set for both 1-hour and 8-hour averaging times. The state 1-hour standard is 20 ppm by volume, and the federal 1-hour standard is 35 ppm. Both state and federal standards are 9 ppm for the 8-hour averaging period.

All areas that would be crossed by the project routes are attainment areas for the state and federal CO standards.

Nitrogen Oxides. NO_X contributes to smog, injures plants and animals, and can affect human health. In addition, NO_X contributes to acidic deposition and, in the presence of sunlight, reacts with ROG to form photochemical smog.

NO_X is primarily emitted by combustion sources, including both mobile and stationary sources. NO_X is also emitted by a variety of area sources ranging from wild and prescribed fires to water and space heating systems powered by fossil fuels.

The state NO_X standard equals 0.25 ppm on a 1-hour average. The federal NO_X standard equals 0.053 ppm on an annual average.

All areas that would be crossed by the project routes are attainment areas for the state and federal NO_X standards.

3.4 Biological Resources

This biological resources setting section includes an overview of the vegetation, wetland, wildlife, and fisheries resources that are known or have the potential to occur in IPN's proposed project region. The information presented in this setting section is general and is not based on any site-specific field surveys. Additional detailed information will be provided by IPN's environmental consultant for project-specific routes and facilities. This detailed information will be provided to the CPUC to support approval of each project route and associated facilities.

Jones & Stokes reviewed the following sources of information to prepare this biological resources setting section:

- California Department of Fish and Game's (DFG's) California Natural Diversity Database (CNDDB) records for Contra Costa, Marin, Santa Clara, San Francisco, Alameda, San Mateo, Sacramento, and Yolo Counties (2001),
- California Native Plant Society's (CNPS's) Inventory of Rare and Endangered Vascular Plants of California – 6th Edition (July 6, 2000).
- previously prepared environmental documents,
- published and unpublished literature, and
- Jones & Stokes file information.

3.4.1 Biological Resource Definitions and Issues

This section provides definitions and overview discussions for the following biological resources:

- plant communities and associated wildlife habitats,

- noxious weeds,
- waters of the United States (including wetlands), and
- special-status species.

Plant Communities and Associated Wildlife Habitats

The project region encompasses a variety of geologic formations, climatic conditions, and associated common and sensitive plant communities. Most of the project region is dominated by common herbaceous upland and artificially created plant communities. The most common upland and artificially created plant communities that occur along roadways and other disturbed areas in the project region include annual grassland, ruderal habitats, agricultural lands, and landscaped areas.

Sensitive plant communities occur throughout developed and undeveloped areas within IPN's proposed project region. Sensitive plant communities are those communities that are especially diverse, regionally uncommon, considered sensitive natural communities (as defined by Holland 1986), or regulated by state or federal agencies (e.g., Section 404 of the CWA). Most sensitive plant communities are given special consideration because they provide important ecological functions, including providing water quality maintenance and essential habitat for plants and wildlife. Some plant communities support a unique or diverse assemblage of plant species and therefore are considered sensitive from a botanical standpoint. Sensitive plant communities that may occur in the project region include various types of riparian communities, seasonal and perennial wetland communities, and oak woodland and savanna communities.

Noxious Weeds

For the purpose of this analysis and future project-specific assessments, a *noxious weed* is a plant that has the potential to displace native plants and natural habitats, affect the quality of forage on rangelands, or affect cropland productivity. High-priority noxious weeds include all California Department of Food and Agriculture state A-rated species. Some B- and C-rated species should be included on the target list if they are identified by the county agricultural commissions as target noxious weeds. Additional weeds should also be included in the target list if they are considered to have great potential for displacing native plants and damaging natural habitats and are not considered too widespread to be effectively controlled.

Because noxious weeds have been identified as issues of concern, they are addressed in this Last Mile IS/MND. Two federal acts and one executive order direct weed control: the Carlson-Foley Act of 1968, the Federal Noxious Weed Act of 1974, and a federal executive order on invasive species (February 3, 1999). Local counties are also concerned about noxious weed infestation and dispersal on private and public lands.

Waters of the United States (Including Wetlands)

For the purpose of this document, the term *waters of the United States* is used as an encompassing term by the USACE for areas that would qualify for federal regulation under Section 404 of the CWA. Waters of the United States are separated into "wetlands" and "other waters of the United States."

Wetlands are defined as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 Code of Federal Regulations [CFR] 328.3[b], 40 CFR 230.3). For a wetland to qualify as jurisdictional by USACE and therefore be subject to regulation under Section 404 of the CWA, the site must support a prevalence of hydrophytic vegetation, hydric soils, and wetland hydrology. The USACE's definition of waters of the United States is used to identify wetlands in the field.

Other waters of the United States are sites that typically lack one or more of the three indicators identified above. Other waters of the United States identified in the proposed project area include drainages, playas, alkali flats, and unvegetated clay pools. For the purpose of this document, *drainages* include all streams, creeks, rivers, and other surface features with defined beds and banks.

Special-Status Species

For the purpose of this analysis, special-status species include:

- listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.11 [listed animals] and 50 CFR 17.12 [listed plants] and various notices in the Federal Register for proposed species);
- candidates for possible future listing as threatened or endangered under the federal ESA (58 FR 188: 51144-51190, September 30, 1993);
- federal species of concern (former C2 candidates);
- listed by the state of California as threatened or endangered under the California ESA (14 CCR 670.5);
- animal species of special concern to DFG (Remsen 1978 [birds], Jennings and Hayes 1994 [reptiles and amphibians], Williams 1986 [mammals]
- animal species fully protected in California (DFG Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians].
- plants listed as rare under the California Native Plant Protection Act of 1977 (DFG Code, Section 1900 et seq); and
- plants considered by CNPS to be "rare, threatened, or endangered in California" (Lists 1B and 2, and selected lists 3 and 4 species identified in Skinner and Pavlik 1994).

Special-Status Plants

A total of 112 special-status plant species were identified as potentially occurring in the project geographic region (table 3.4-1). Most of these species are associated with annual grassland and wetland habitats in the project region.

Special-Status Wildlife

A total of 83 special-status wildlife species were identified as potentially occurring in the project region (table 3.4-2), including 24 species state or federally listed as threatened or endangered. Although the predominantly urban setting of the project region makes it unlikely that habitat capable of supporting many special-status species would occur along the project routes, a conservative approach was taken to ensure that appropriate mitigation measures were included should such habitat be encountered.

Special-Status Fish

A total of 16 special-status fish could exist in drainages crossed in the project area, including seven fish species presently listed as threatened or endangered under the federal ESA, two candidate species for listing as threatened or endangered under the federal ESA, and five species that are federal species of concern (table 3.4-3).

3.4.2 Regulations, Approvals, and Permits Applicable to Biological Resources

This section describes the federal and state regulations, permits, and policies that may apply to the proposed project.

U.S. Army Corps of Engineers and U.S. Environmental Protection Agency Regulation of Waters of the United States, Including Wetlands

USACE and the Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into waters of the United States, including wetlands, under Section 404 of the CWA. Projects that would result in the placement of dredged or fill material into waters of the United States require a Section 404 permit from USACE. Some classes of fill activities may be authorized under general permits if specific conditions are met.

Utility line construction activities, such as fiber optic cable installation activities, that result in the placement of fill into waters of the United States generally may

Table 3.4-1. Special-Status Plant Species Potentially Occurring in IPN Project Geographical Regions in the S. F. Bay Area and Sacramento Metropolitan Area

Common and Scientific Name	Status[a] Federal/State/ CNPS	Distribution	Habitat	Blooming Period
San Mateo thorn-mint *Acanthomintha duttonii*	E/E/1B	Central Coast, San Francisco Bay area, endemic to San Mateo County	Annual grassland and open areas in chaparral and coastal scrub, on serpentinite vertisol clay soil, below 900'	Apr-Jun
Blasdale's bent grass *Agrostis blasdalei*	--/--/1B	Southern north coast, northern central coast, northern San Francisco Bay regions including portions of Mendocino, Marin, Santa Cruz, Sonoma Counties	Coastal bluff scrub, coastal dunes, coastal prairie, perennial grasslands, below 330'	May-Jul
Sharsmith's onion *Allium sharsmithae*	--/--/1B	Mt Hamilton Range, San Francisco Bay region, Alameda, Santa Clara, and Stanislaus Counties	Rocky serpentine slopes in chaparral or cypress woodland, between 1,300-3,900'	Mar-May
Large-flowered fiddleneck *Amsinckia grandiflora*	E/E/1B	Mt Diablo foothills in Alameda, Contra Costa, and San Joaquin Counties, currently known from only three natural occurrences	Annual grassland, cismontane woodland, on open grassy slopes below 1,200'	Apr-May
Santa Cruz manzanita *Arctostaphylos andersonii*	--/--/1B	Western San Francisco Bay region, Santa Cruz mountains. Santa Clara, Santa Cruz, and San Mateo Counties	Chaparral and edges of broad-leaved upland forest, chaparral, north coast coniferous forest, below 2,300'	Nov-Apr
Mount Diablo manzanita *Arctostaphylos auriculata*	--/--/1B	Endemic to Contra Costa County especially Mt Diablo area, San Francisco Bay area	Chaparral in canyons and on slopes on sandstone, 490-1,650'	Jan-Mar
Franciscan manzanita *Arctostaphylos hookeri* ssp. *franciscana*	--/--/1A	Historical occurrence in San Francisco presumed extinct in the wild	Coastal scrub on serpentine, below 990'	Feb-Apr
Presidio manzanita *Arctostaphylos hookeri* ssp. *ravenii*	E/E/1B	Northern central coast, San Francisco Presidio, San Francisco County	Chaparral, coastal prairie, coastal scrub, serpentine soils	Feb-Mar
San Bruno Mountain manzanita *Arctostaphylos imbricata*	--/E/1B	Western San Francisco Bay, San Bruno Mountain, San Mateo County	Chaparral	Feb-May
Contra Costa manzanita *Arctostaphylos manzanita* ssp. *laevigata*	--/--/1B	Eastern San Francisco Bay region, Mount Diablo, southern inner north coast range, Vaca Mountains, Contra Costa County	Rocky areas in chaparral on sandstone, 1,640-3,600'	Jan-Feb
Montara manzanita *Arctostaphylos montaraensis*	--/--/1B	Endemic to San Mateo County, San Bruno Mountains, Montara mountains	Maritime chaparral, coastal scrub, 650'-1,640'	Jan-Mar

Table 3.4-1. Continued

Common and Scientific Name	Status[a] Federal/State/ CNPS	Distribution	Habitat	Blooming Period
Pallid manzanita *Arctostaphylos pallida*	T/E/1B	Eastern San Francisco Bay area, Sobrante and Huckleberry ridges, Berkeley-Oakland Hills, Alameda and Contra Costa Counties	Chaparral, on dry stony ridges, cismontaine woodland, broadleaf forest, 660-1,155', in shale	Jan-Mar
Marsh sandwort *Arenaria paludicola*	E/E/1B	Known only from three occurrence near Black Lake on Nipomo Mesa, San Luis Obispo County. Historically more wide ranging through central and south coast	Boggy meadows, freshwater marshes, and swamps, below 1,000'	May-Aug
Suisun Marsh aster *Aster lentus*	--/--/1B	Sacramento - San Joaquin delta, Suisun Marsh, Suisun Bay. Contra Costa, Napa, Sacramento, San Joaquin, and Solano Counties	Brackish and freshwater marsh, below 500'	Aug-Nov
Jepson's milk-vetch *Astragalus rattanii* var. *jepsonianus*	--/--/1B	Southern inner north Coast Range, Colusa, Glenn, Lake, Napa, Tehama, and Yolo Counties	Grasslands and open grassy areas in chaparral, on serpentinite soils, between 1,140-2,000'	Apr-Jun
Ferris's milk-vetch *Astragalus tener* var. *ferrisae*	--/--/1B	Central Valley from Butte to Alameda County	Aubalkaline flats and floodlands, usually on adobe soils of valley and foothill grasslands, below 200'	Apr-May
Alkali milk-vetch *Astragalus tener* var. *tener*	--/--/1B	Merced, Solano, and Yolo Counties; historically more widespread	Grassy flats and vernal pool margins, on alkali soils, below 200'	Mar-Jun
Heartscale *Atriplex cordulata*	--/--/1B	Western Central Valley and valleys of adjacent foothills	Alkali grassland, alkali meadow, alkali scrub, below 660'	May-Oct
Brittlescale *Atriplex depressa*	--/--/1B	Western Central Valley and valleys of adjacent foothills on west side of Central Valley	Alkali grassland, alkali meadow, alkali scrub, chenopod scrub, playas, valley and foothill grasslands on alkaline or clay soils, below 660'	May-Oct
San Joaquin spearscale *Atriplex joaquiniana*	--/--/1B	West edge of Central Valley from Glenn County to Tulare County	Alkali grassland, alkali scrub, alkali meadows, saltbush scrub, below 1,000'	Apr-Sept
Big-scale balsamroot *Balsamorhiza macrolepis* var. *macrolepis*	--/--/1B	San Francisco Bay region, Sierra Nevada foothills, Coast Ranges, eastern Cascade Ranges, Sacramento Valley	Rocky annual grassland and fields, foothill woodland hillsides, sometimes serpentine, below 4,600'	Mar-Jun
Big tarplant *Blepharizonia plumosa* ssp. *plumosa*	--/--/1B	Interior Coast Range foothills, Alameda, Contra Costa, San Joaquin, Stanislaus*, and Solano* Counties	Annual grassland, on dry hills and plains, 50-1,500'	Jul-Oct

Table 3.4-1. Continued

Common and Scientific Name	Status[a] Federal/State/ CNPS	Distribution	Habitat	Blooming Period
Mt. Diablo fairy-lantern *Calochortus pulchellus*	--/--/1B	Northeastern San Francisco Bay, Mount Diablo, Endemic to Contra Costa and Alameda Counties	On wooded, brushy slopes of chaparral, cismontane woodland, riparian woodland, valley and foothill grassland, 650-2,600'	Apr-Jun
Sharsmith's harebell *Campanula sharsmithiae*	--/--/1B	Southern San Francisco Bay, northern inner south coast range, mount Hamilton range, Santa Clara and Stanislaus Counties	Barren, rocky serpentine areas in chaparral, 1,300-3,000'	May-Jun
Bristly sedge *Carex comosa*	--/--/2	Scattered occurrences throughout California, Oregon and Washington	Wet places and lake margins	May-Sep
Tiburon Indian paintbrush *Castilleja affinis* ssp. *neglecta*	E/T/1B	Southern inner north Coast Ranges, northwestern San Francisco Bay region, Marin, Napa and Santa Clara Counties	Serpentine grasslands	April-June
Coyote ceanothus *Ceanothus ferrisae*	E/--/1B	Northeastern San Francisco Bay, Mount Hamilton Range, Santa Clara County	Chaparral, coastal scrub, annual grassland, on serpentine soils	Jan-Mar
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	--/--/1B	East San Francisco Bay Area, Salinas Valley, Los Osos Valley	Annual grassland, on lower slopes, flats, and swales, sometimes on alkaline or saline soils, below 700'	Jun-Nov
San Francisco Bay spineflower *Chorizanthe cuspidata* var. *cuspidata*	--/--/1B	Central coast, San Francisco bay area. Alameda*, Marin, San Francisco, San Mateo, Sonoma and possibly Santa Clara Counties	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub on sandy soils	Apr-Jul
Robust spineflower *Chorizanthe robusta* var. *robusta*	E/--/1B	Central coastal California, Alameda*, Monterey, San Francisco*, San Mateo*, Santa Clara*, and Santa Cruz Counties	Coastal bluff scrub, coastal dunes openings in cismontane woodland, on sandy soil	May-Sep
Mt. Hamilton thistle *Cirsium fontinale* var. *campylon*	--/--/1B	Mt. Hamilton Range, eastern San Francisco Bay area, Alameda, Santa Clara, and Stanislaus Counties	Freshwater seeps and streams on serpentine outcrops. chaparral, cismontaine woodland, valley and foothill grassland 1,000-2,500'	Apr-Oct
Fountain thistle *Cirsium fontinale* var. *fontinale*	E/E/1B	Endemic to San Mateo County	Seeps in chaparral and grassland, on serpentinite	Jun-Oct
Compact cobwebby thistle *Cirsium occidentale* var. *compactum*	--/--/1B	Southern central coast, Monterey, San Francisco, and San Luis Obispo Counties	Chaparral, coastal dunes, coastal prairie, coastal scrub	Apr-Jun
Lost thistle *Cirsium praeteriens*	--/--/1A	Vicinity of Palo Alto; believed to be extinct	Unknown	

Table 3.4-1. Continued

Common and Scientific Name	Status[a] Federal/State/ CNPS	Distribution	Habitat	Blooming Period
Surf thistle *Cirsium rhothophilum*	--/T/1B	Southern central coast, Santa Barbara and San Luis Obispo Counties	Coastal bluff scrub, coastal dunes	Apr-Jun
Presidio clarkia *Clarkia franciscana*	E/E/1B	San Francisco Bay, Presidio, Oakland hills, Alameda and San Francisco Counties	Serpentine grassland, coastal scrub	May-July
Point Reyes bird's-beak *Cordylanthus maritimus* ssp. *palustris*	--/--/1B	Coastal Northern California, Humboldt County to Santa Clara County	Coastal salt marsh	Jun-Oct
Hispid bird's-beak *Cordylanthus mollis* ssp. *hispidus*	--/--/1B	Central Valley; Alameda, Kern, Merced, Placer, and Solano Counties	Meadow, grassland, playa, on alkaline soils, below 500'	Jun-Sep
Soft bird's-beak *Cordylanthus mollis* ssp. *mollis*	E/R/1B	San Francisco Bay region, Suisun Marsh, Contra Costa, Marin*, Napa, Solano, Sacramento*, and Sonoma* Counties	Tidal salt marsh	Jul-Sep
Mt. Diablo bird's-beak *Cordylanthus nidularius*	--/R/1B	Northeastern San Francisco Bay, eastern slope of Mount Diablo, Endemic to Contra Costa County	Chaparral on serpentinite	Jul-Aug
Palmate-bracted bird's-beak *Cordylanthus palmatus*	E/E/1B	Livermore Valley and scattered locations in the Central Valley from Colusa County to Fresno County	Alkaline grassland, alkali meadow, chenopod scrub	May-Oct
Mt. Hamilton coreopsis *Coreopsis hamiltonii*	--/--/1B	Eastern San Francisco Bay, Santa Clara and Stanislaus Counties	Steep shale talus slopes of cismontane woodland	Mar-May
Livermore tarplant *Deinandra bacigalupii*	--/--/1B	Endemic to two occurrences near Livermore in Alameda County	Alkaline meadows, 490-610'	None
Hospital Canyon larkspur *Delphinium californicum* ssp. *interius*	--/--/1B	Inner South Coast Ranges, eastern San Francisco Bay, Alameda, Contra Costa, Merced, San Benito, Santa Clara, San Joaquin, and San Luis Obispo Counties	Openings in chaparral, mesic cismontane woodland, on moist slopes and ravines, 750-3,600'	Apr-Jun
Recurved larkspur *Delphinium recurvatum*	--/--/1B	San Joaquin Valley and central valley of the South Coast Ranges, Contra Costa County to Kern County	Subalkaline soils in annual grassland, saltbush scrub, cismontane woodland, vernal pools, 100-2,000'	Mar-May

Table 3.4-1. Continued

Common and Scientific Name	Status[a] Federal/State/ CNPS	Distribution	Habitat	Blooming Period
Western leatherwood *Dirca occidentalis*	--/--/1B	San Francisco Bay region, Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma Counties	Moist areas in broad-leaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, riparian woodland, 165-1,300'	Jan-Apr
Dwarf downingia *Downingia pusilla*	--/--/2	California's central valley and South America	Vernal pools and mesic valley and foothill grasslands, 1,500'	Mar-May
Santa Clara Valley dudleya *Dudleya setchellii*	E/--/1B	Santa Clara County	Cismontane woodland, valley and foothill grassland, serpentinite, rocky	May-Jun
Brandegee's eriastrum *Eriastrum brandegeae*	--/--/1B	Inner North Coast Ranges to East San Francisco Bay area: Colusa, Glenn, Lake, Santa Clara, Tehama, and Trinity Counties	Chaparral, oak woodland on volcanic substrate	May-Aug
Tracy's eriastrum *Eriastrum tracyi*	--/R/--	Colusa, Glenn, Santa Clara, Tehama, and Trinity Counties	Chaparral, cismontane woodland, on gravelly shale or clay soils, often in open areas, 1,000-2,500'	
Ben Lomond buckwheat *Eriogonum nudum* var. *decurrens*	--/--/1B	Contra Costa and Santa Cruz Counties	Chaparral, cismontane woodland, maritime ponderosa pine sandhills	Jun-Oct
Mt. Diablo buckwheat *Eriogonum truncatum*	--/--/1A	Historically known from Alameda, Contra Costa and Solano Counties	Coarse sandy soil in grasslands, 1,000-2,000'	Apr-Sep
San Mateo woolly sunflower *Eriophyllum latilobum*	E/E/1B	One known occurrence in San Mateo County	Open areas in coast live oak woodland, often on roadsides, sometimes on serpentine, 150-500'	May-Jun
Contra Costa wallflower *Erysimum capitatum* ssp. *angustatum*	E/E/1B	Contra Costa County	Inland dunes	Mar-Jul
Diamond-petaled California poppy *Eschscholzia rhombipetala*	--/--/1B	Interior foothills of south Coast Ranges from Contra Costa County to Stanislaus Counts, Carrizo Plain in San Luis Obispo County	Grassland, chenopod scrub, on clay soils, where grass cover is sparse enough to allow growth of low annuals	Mar-Apr
Hillsborough chocolate lily *Fritillaria biflora* var. *ineziana*	--/--/1B	Endemic to Hillsborough area in San Mateo County	Serpentine grassland	Mar-Apr
Talus fritillary *Fritillaria falcata*	--/--/1B	South inner coast ranges. Alameda, Monterey, San Benito, Santa Clara, and Stanislaus Counties	Chaparral, oak woodland, coniferous forest on serpentinite talus	Mar-May

Table 3.4-1. Continued

Common and Scientific Name	Status[a] Federal/State/ CNPS	Distribution	Habitat	Blooming Period
Fragrant fritillary *Fritillaria liliacea*	--/--/1B	Coast Ranges from Marin County to San Benito County	Adobe soils of interior foothills, coastal prairie, coastal scrub, annual grassland, often on serpentinite, below 1,350'	Feb-Apr
Adobe-lily *Fritillaria pluriflora*	--/--/1B	Northern Sierra Nevada foothills, inner Coast Range foothills, Sacramento Valley, Butte, Colusa, Glenn, Lake, Napa, Plumas, Solano, Tehama, and Yolo Counties	Adobe soil, chaparral, woodland, valley and foothill grassland	Feb-Apr
Bogg's Lake hedge-hyssop *Gratiola heterosepala*	--/E/1B	Inner north Coast Ranges, Central Sierra Nevada foothills, Sacramento Valley and Modoc Plateau; Fresno, Lake, Lassen, Madera, Modoc, Placer, Sacramento, Shasta, San Joaquin, Solano, and Tehama Counties	Clay soils in areas of shallow water, lake margins and vernal pool margins	Apr-Jun
San Francisco gumplant *Grindelia hirsutula* var. *maritima*	--/--/1B	Coastal California, Monterey, Marin, Santa Cruz, San Francisco, San Luis Obispo, and San Mateo Counties	Coastal bluff scrub, coastal scrub, sandy soils on serpentine grassland	Aug-Sep
Hall's harmonia (a.k.a. madia) *Harmonia hallii a.k.a. Madia h.*	--/--/1B	Inner North Coast Ranges, Colusa, Lake, Napa, and Yolo Counties	Chaparral on serpentinite	Apr-Jun
Diablo rock rose *Helianthella castanea*	--/--/1B	San Francisco Bay area, Alameda, Contra Costa, Marin*, San Francisco*, and San Mateo Counties	At chaparral/oak woodland ecotone, often in partial shade, on rocky soils, 80-3,800'	Apr-Jun
Brewer's western flax *Hesperolinon breweri*	--/--/1B	Southern north inner Coast Range, northeast San Francisco Bay region, especially Mt. Diablo, Known only from Contra Costa, Napa, and Solano Counties	Serpentine slopes in chaparral, and grasslands, 100-2,300'	May-Jul
Marin western flax *Hesperolinon congestum*	T/T/1B	Marin, San Francisco, and San Mateo Counties	Chaparral, serpentinite grassland	May-Jul
Napa western flax *Hesperolinon serpentinum*	--/--/1B	Lake and Napa Counties	Chaparral on serpentinite	May-Jul
Rose-mallow a.k.a. California hibiscus *Hibiscus lasiocarpus*	--/--/2	Central and southern Sacramento Valley, deltaic central valley, Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo Counties	Wet banks, freshwater marshes, generally below 135'	Aug-Sep
Santa Cruz tarplant *Holocarpha macradenia*	T/E/1B	Coastal California from Marin County to San Luis Obispo County	Coastal prairie and annual grasslands, on sandy, clay soils, 30-900'	Jun-Oct

Table 3.4-1. Continued

Common and Scientific Name	Status[a] Federal/State/ CNPS	Distribution	Habitat	Blooming Period
Kellogg's horkelia *Horkelia cuneata* ssp. *sericea*	--/--/1B	Coastal California from Marin to Santa Barbara Counties	Openings in closed-cone coniferous forest, coastal scrub, maritime chaparral, on sandy or gravelly soils	Apr-Sep
Northern California black walnut *Juglans californica* var. *hindsii* a.k.a. *Juglans hindsii*	--/--/1B	Last two native stands in Napa and Contra Costa Counties. Historically widespread through southern north inner Coast Range, southern Sacramento Valley, northern San Joaquin Valley, San Francisco Bay region.	Canyons, valleys, riparian forest, riparian woodland, 160-660'	Apr-May
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	--/--/1B	Eastern Sacramento Valley, northeastern San Joaquin Valley, Butte, Calaveras, Placer, Sacramento, and Yuba Counties	Vernal pool margins, 100-330'	Mar-May
Contra Costa goldfields *Lasthenia conjugens*	E/--/1B	Scattered occurrences in Coast Range valleys and southwest edge of Sacramento Valley, Alameda, Contra Costa, Mendocino, Napa, Santa Barbara*, Santa Clara*, and Solano Counites. Historically distributed through the north coast, southern Sacramento Valley, San Francisco Bay region and the south coast.	Alkaline or saline vernal pools and swales, below 700'	Mar-Jun
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	--/--/1B	Central valley, especially the San Francisco Bay region, Alameda, Contra Costa, Fresno, Marin, Napa, Sacramento, San Benito, Santa Clara, San Joaquin, and Solano Counties	Coastal and estuarine marshes, below 1000'	May-Jun
Beach layia *Layia carnosa*	E/E/1B	Scattered occurrences along coastal California from Humboldt County to Santa Barbara County	Coastal dunes, coastal scrub on sandy soil	Apr-Jul
Colusa layia *Layia septentrionalis*	--/--/1B	Inner north Coast Range: Colusa, Glenn, Lake, Mendocino, Napa, Sonoma, Sutter, Tehama, and Yolo Counties	Sandy or serpentine soils in grasslands and openings in chaparral and foothills woodlands, 300-3,600'	Apr-May
Legenere *Legenere limosa*	--/--/1B	Primarily located in the lower Sacramento Valley, also from north Coast Ranges, northern San Joaquin Valley and the Santa Cruz mountains.	Deep, seasonally wet habitats such as vernal pools, ditches, marsh edges, and river banks, below 500'	May-Jun
Heckard's pepper-grass *Lepidium latipes var. heckardii*	--/--/1B	Southern Sacramento Valley, Glenn, Solano, and Yolo Counties	Annual grassland on margins of alkali scalds, below 660'	Apr-May

Table 3.4-1. Continued

Common and Scientific Name	Status[a] Federal/State/ CNPS	Distribution	Habitat	Blooming Period
Crystal Springs lessingia *Lessingia arachnoidea*	--/--/1B	San Mateo and Sonoma Counties	Serpentine grassland and open grassy areas in serpentine chaparral, cismontane woodland	Jul-Oct
San Francisco lessingia *Lessingia germanorum*	E/E/1B	San Francisco and San Mateo Counties	Coastal scrub, on remnant dunes	Jun-Nov
Smooth lessingia *Lessingia micradenia* var. *glabrata*	--/--/1B	Santa Clara County	Chaparral on serpentinite, often on roadsides, 400-1,380'	Aug-Nov
Mason's lilaeopsis *Lilaeopsis masonii*	--/R/1B	Southern Sacramento Valley, Sacramento - San Joaquin River delta, northeast San Francisco Bay area, Alameda, Contra Costa, Marin*, Napa, Sacramento, San Joaquin, and Solano Counties	Freshwater and intertidal marshes, streambanks in riparian scrub, generally at sea level	Apr-Oct
Delta mudwort *Limosella subulata*	--/--/2	Deltiac central valley, Contra Costa, Sacramento, San Joaquin, and Solano Counties; Oregon	Muddy or sandy intertidal flats and marshes, streambanks in riparian scrub generally at sea level	May-Aug
Mt. Hamilton lomatium *Lomatium observatorium*	--/--/1B	Santa Clara County		
Showy madia *Madia radiata*	--/--/1B	Scattered populations in the interior foothills of the south Coast Ranges, Contra Costa, Fresno, Kings, Kern, Monterey, Santa Barbara, San Benito, San Joaquin, and San Luis Obispo Counties	Oak woodland, grassland, slopes below 3,000'	Mar-May
Hall's bush mallow *Malacothamnus hallii*	--/--/1B	Alameda, Contra Costa, Merced, and Santa Clara Counties	Chaparral between 30-2,500'	May-Sep
Robust monardella *Monardella villosa* ssp. *globosa*	--/--/1B	North Coast Ranges and Eastern San Francisco Bay Area; Alameda, Contra Costa, Humboldt, Lake, Marin, Napa, San Mateo, and Sonoma Counties	Oak woodland and grassy openings in chaparral	June-July
Pincushion navarretia *Navarretia myersii* a.k.a. *N. m.* ssp. *m.*	--/--/1B	Central valley, Amador, Lake, Merced, and Sacramento Counties	Edges of vernal pools, 60-300'	May
Colusa grass *Neostapfia colusana*	T/E/1B	Central Valley, Colusa*, Glenn*, Merced, Solano, Stanislaus, and Yolo Counties	Adobe soils of vernal pools, generally below 650'	May-Sep

Table 3.4-1. Continued

Common and Scientific Name	Status[a] Federal/State/ CNPS	Distribution	Habitat	Blooming Period
Antioch Dunes evening-primrose *Oenothera deltoides* ssp. *howellii*	E/E/1B	Northeast San Francisco Bay region, Contra Costa and Sacramento Counties	Inland dunes generally below 330'	Mar-Sep
Slender Orcutt grass *Orcuttia tenuis*	T/E/1B	Sierra Nevada and Cascade Range foothills, from Siskiyou County to Sacramento County	Vernal pools, generally between 650-3,600'	May-Jul
Sacramento Orcutt grass *Orcuttia viscida*	E/E/1B	Endemic to Sacramento County	Vernal pools below 330'	May-Jun
Dudley's lousewort *Pedicularis dudleyi*	--/R/1B	Monterey, Santa Cruz*, San Luis Obispo, and San Mateo Counties	Maritime chaparral, North Coast coniferous forest, valley and foothill grassland	Apr-Jun
White-rayed pentachaeta *Pentachaeta bellidiflora*	E/E/1B	One occurrence in San Mateo County, historically known also from Marin and Santa Cruz Counties	Annual grassland, often on serpentinite	Mar-May
San Francisco popcorn-flower *Plagiobothrys diffusus*	--/E/1B	Santa Cruz and San Francisco* Counties	Coastal prairie, valley and foothill grassland	Apr-Jun
Hairless popcorn-flower *Plagiobothrys glaber*	--/--/1A	Coastal valleys from Marin County to San Benito Counties	Alkaline meadows, coastal salt marsh	Apr-May
Bearded popcorn-flower *Plagiobothrys hystriculus*	--/--/1A	Endemic to Solano* County, presumed extinct.	Mesic grassland, vernal pools	Apr-May
Slender-leaved pondweed *Potamogeton filiformis*	--/--/2	Lassen, Merced, Mono, Santa Clara*, San Mateo, and Sierra Counties, Arizona, Nevada, Oregon, Washington	Freshwater marsh, shallow emergent wetlands	May-Jul
Hickman's cinquefoil *Potentilla hickmanii*	E/E/1B	Monterey, San Mateo, and Sonoma* Counties	Freshwater marshes, seeps, and small streams in open areas in coastal scrub or coniferous forest	Apr-Aug
Sanford's arrowhead *Sagittaria sanfordii*	--/--/1B	Scattered locations in Central Valley and Coast Ranges	Freshwater marshes, sloughs, canals, and other slow-moving water habitats, below 1,000'	May-Aug
Adobe sanicle *Sanicula maritima*	--/R/1B	Coastal Monterey, San Francisco, and San Luis Obispo Counties. Historically known from the San Francisco Bay area, Alameda* and San Francisco* Counties	Moist clay or ultramafic soils, in meadows and grassland	Apr-May

Table 3.4-1. Continued

Common and Scientific Name	Status[a] Federal/State/ CNPS	Distribution	Habitat	Blooming Period
Rock sanicle *Sanicula saxatilis*	--/R/1B	Contra Costa and Santa Clara Counties	Bedrock outcrops and talus slopes in chaparral or oak woodland, 2,000-4,100'	Apr-May
Marsh skullcap *Scutellaria galericulata*	--/--/2	Contra Costa, Northern high Sierra Nevada, Modoc plateau, El Dorado, Nevada, Placer, Plumas, San Joaquin, Shasta, and Siskiyou Counties	Wet sites, mesic meadows, streambanks; coniferous forest between 330-6,900'	Jun-Sep
Blue skullcap *Scutellaria lateriflora*	--/--/2	Contra Costa, Northern San Joaquin Valley, east of the Sierra Nevada, Inyo and San Joaquin Counties, New Mexico, Oregon	Mesic meadows, marshes and swamps, generally below 1,640'	Jul-Sep
Rayless ragwort *Senecio aphanactis*	--/--/2	Scattered locations in central western California and southwestern California, from Alameda County to San Diego County	Oak woodland, coastal scrub, open sandy or rocky areas, on alkaline soils	Jan-Apr
Marin checkerbloom *Sidalcea hickmanii* ssp. *viridis*	--/--/1B	Sonoma County to San Mateo County	Chaparral on serpentinite	May-Jun
San Francisco campion *Silene verecunda* ssp. *verecunda*	--/--/1B	Northern Central Coast, San Francisco Bay area, San Francisco, San Mateo, Santa Cruz, and Sutter Counties	Coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grassland, in sandy areas, 100-2,100'	Mar-Jun
Most beautiful jewel-flower *Streptanthus albidus* ssp. *peramoenus*	--/--/1B	Eastern San Francisco Bay area, Central south coastal outer ranges. Alameda, Contra Costa, and Santa Clara Counties	Chaparral, annual grassland, on ridges and slopes on serpentinite outcrops, 450-3,200'	Apr-Jun
California seablite *Suaeda californica*	E/--/1B	Morro Bay, San Luis Obispo County, historically found in the south San Francisco Bay	Margins of tidal salt marsh	Jul-Oct
Showy Indian clover *Trifolium amoenum*	E/--/1B	Coast Range foothills, San Francisco Bay region, Mendocino County to Santa Clara County	Low elevation grasslands, including swales and disturbed areas, sometimes on serpentine soils	Apr-Jun
San Francisco owl's-clover *Triphysaria floribunda*	--/--/1B	Marin, San Francisco, and San Mateo Counties	Coastal prairie and annual grassland, on serpentinite	Apr-May
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	--/--/1A	Historically known from the northwest San Joaquin Valley and adjacent Coast Range foothills	Grasslands in alkaline hills below 1,500'	Mar-Apr
Crampton's tuctoria *Tuctoria mucronata*	E/E/1B	Southwestern Sacramento valley, Solano and Yolo Counties	Mesic grassland, vernal pools, below 500'	Apr-Jul

Table 3.4-1. Continued

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
PE = proposed for federal listing as endangered under the federal Endangered Species Act.
-- = no listing.

State

E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
C = candidate species for listing under the California Endangered Species Act
SSC = species of special concern in California.
-- = no listing.

California Native Plant Society

1A = List 1A species: presumed extinct in California.
1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
3 = List 3 species: plants about which more information is needed to determine their status.
4 = List 4 species: plants of limited distribution.
-- = no listing.
* = known populations believed extirpated from that County
? = population location within County uncertain

Table 3.4-2. Special-Status Wildlife Species Potentially Occurring in IPN Project Geographical Regions in the S. F. Bay Area and Sacramento Metropolitan Area

Common and Scientific Name	Status Federal/State	California Distribution	Habitats
Mimic Tryonia (=California brackishwater snail) *Tryonia imitator*	SC/--	Coastal Sonoma County south to Tijuana River, San Diego County.	Coastal tidal lagoons and marshes
Edgewood blind harvestman *Calcina* (=*Sitalcina*) minor	SC/--	Santa Clara and San Mateo Counties	Moist, open serpentine grasslands
California freshwater shrimp *Syncaris pacifica*	E/--	Found in 17 stream segments within Marin, Napa and Sonoma counties. Many of these stream segments are isolated from the others by barriers, dewatered areas and low quality habitat	Pool areas of low-elevation, low-gradient streams, among exposed live tree roots (e.g., willows and alders) of undercut banks, overhanging woody debris, or overhanging vegetation
Longhorn fairy shrimp *Branchinecta longiantenna*	E/--	Eastern margin of central Coast Ranges from Contra Costa County to San Luis Obispo County	Small, clear pools in sandstone rock outcrops of clear to moderately turbid clay- or grass-bottomed pools
Vernal pool fairy shrimp *Branchinecta lynchi*	T/--	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools
Vernal pool tadpole shrimp *Lepidurus packardi*	E/--	Shasta County south to Merced County	Vernal pools and ephemeral stock ponds
Opler's longhorn moth *Adela oplerella*	SC/--	Central coast ranges from Marin County south to Monterey.	Serpentine soils in open coastal grasslands.
Callippe silverspot *Speyeria callippe callippe*	SC/--	San Bruno Mountain, San Mateo County	Open hillsides where wild pansy (*Viola pedunculata*) grows; larvae feed on Johnny jump-up plants, whereas adults feed on native mints and non-native thistles
Mission blue *Icaricia icarioides missionensis*	E/--	San Bruno Mountain, San Mateo County; Twin Peaks, San Francisco County	Hill and ridgetops, as well as slopes with south exposure with caterpillar food plants, *Lupinus* spp.
Bay checkerspot butterfly *Euphydryas editha bayensis*	T/--	Vicinity of San Francisco Bay	Native grasslands on outcrops of serpentine soil; California plantain and owl's clover are host plants
San Bruno elfin butterfly *Incisalia mossii bayensis*	E/--	Found only on the San Francisco peninsula	Inhabits rocky outcrops and cliffs in coastal scrub. Its patchy distribution reflects that of its host plant, stonecrop (*Sedum spathulifolium*)

Table 3.4-2. Continued

Common and Scientific Name	Status Federal/State	California Distribution	Habitats
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/--	Stream side habitats below 3,000 feet throughout the Central Valley	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant
California tiger salamander *Ambystoma californiense* (=*A. tigrinum* c.)	C/SSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to Santa Barbara County	Small ponds, lakes, or vernal pools in grass-lands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy
Western spadefoot *Scaphiopus hammondii*	SC/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands
Northern red-legged frog *Rana aurora aurora*	SC/SSC	Del Norte, Humboldt, and western Siskiyou Counties	Usually found near ponds or other permanent water bodies with extensive vegetation
California red-legged frog *Rana aurora draytoni*	T/SSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehema County to Fresno County	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May estivate in rodent burrows or cracks during dry periods
Foothill yellow-legged frog *Rana boylii*	SC/SSC	Occurs in the Klamath, Cascade, north Coast, south Coast, Transverse, and Sierra Nevada Ranges up to approximately 6,000 feet	Creeks or rivers in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge. Usually found near riffles with rocks and sunny banks nearby
Northwestern pond turtle *Clemmys marmorata marmorata*	SC/SSC	Occurs from the Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests
Southwestern pond turtle *Clemmys marmorata pallida*	SC/SSC	Occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts; range overlaps with that of the northwestern pond turtle throughout the Delta and in the Central Valley	Woodlands, grasslands, and open forests; aquatic habitats, such as ponds, marshes, or streams, with rocky or muddy bottoms and vegetation for cover and food
California horned lizard *Phrynosoma coronatum frontale*	SC/SSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging
Silvery legless lizard *Anniella pulchra pulchra*	SC/SSC	Along the Coast, Transverse, and Peninsular Ranges from Contra Costa County to San Diego County with spotty occurrences in the San Joaquin Valley	Habitats with loose soil for burrowing or thick duff or leaf litter; often forages in leaf litter at plant bases; may be found on beaches, sandy washes, and in woodland, chaparral, and riparian areas

Table 3.4-2. Continued

Common and Scientific Name	Status Federal/State	California Distribution	Habitats
Alameda whipsnake *Masticophis lateralis euryxanthus*	T/T	Restricted to Alameda and Contra Costa Counties	Valleys, foothills, and low mountains associated with northern coastal scrub or chaparral habitat; requires rock outcrops for cover and foraging
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	E/E	Northern San Mateo County southward along the coast and the eastern slope of the Santa Cruz Mountains to the Santa Clara County line	Favors ponds, lakes, and marshy areas containing abundant vegetation, which it uses for cover
Giant garter snake *Thamnophis gigas*	T/T	Central Valley from Fresno north to the Gridley/Sutter Buttes area; has been extirpated from areas south of Fresno	Sloughs, canals, and other small water-ways where there is a prey base of small fish and amphibians; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter
San Joaquin whipsnake *Masticophis flagellum ruddocki*	SC/SSC	From Colusa county in the Sacramento Valley southward to the grapevine in the San Joaquin Valley and westward into the inner coast ranges. An isolated population occurs at Sutter Buttes. Known elevational range from 20 to 900 meters	Occurs in open, dry, vegetative associations with little or no tree cover. It occurs in valley grassland and saltbush scrub associations. Often occurs in association with mammal burrows
Common loon *Gavia immer* (nesting)	--/SSC	Primarily a winter visitor to California, but an occasional year-round resident; found along the entire coast and large inland bodies of water; formerly nested in northeastern California	Nearshore coastal waters and bays; less common at large inland bodies of deep water with productive fisheries
American white pelican *Pelecanus erythrorhynchos* (nesting colony)	--/SSC	Historically, nested at large lakes throughout California; only breeding colonies in the state occur at lower Klamath National Wildlife Refuge, Siskiyou County, and at Clear Lake, Modoc County; winters along the California coast from southern Sonoma Count	Freshwater lakes with islands for breeding; inhabits river sloughs, freshwater marshes, salt ponds, and coastal bays during the rest of the year
Double-crested cormorant *Phalacrocorax auritus* (rookery site)	--/SSC	Winters along the entire California coast and inland over the Coast Ranges into the Central Valley from Tehama County to Fresno County; a permanent resident along the coast from Monterey County to San Diego County, along the Colorado River, Imperial River	Rocky coastlines, beaches, inland ponds, and lakes; needs open water for foraging, and nests in riparian forests or on protected islands, usually in snags
Western least bittern *Ixobrychus exilis hesperis* (nesting)	SC/SSC	Permanent residents along the Colorado River and Salton Sea and in isolated areas in Imperial, San Diego, and Los Angeles Counties; summers at Tulare Lake and parts of Fresno, Merced, Madera, Siskiyou, and Modoc Counties; and in marshlands of Yolo, Sutter	Marshes and along pond edges, where tules and rushes can provide cover; nests are built low in the tules over the water

Table 3.4-2. Continued

Common and Scientific Name	Status Federal/State	California Distribution	Habitats
White-faced ibis *Plegadis chihi* (rookery site)	SC/SSC	Both resident and winter populations on the Salton Sea and in isolated areas in Imperial, San Diego, Ventura, and Fresno Counties; breeds at Honey Lake, Lassen County, at Mendota Wildlife Management Area, Fresno County, and near Woodland, Yolo County	Prefers freshwater marshes with tules, cattails, and rushes, but may nest in trees and forage in flooded agricultural fields, especially flooded rice fields
Aleutian Canada goose *Branta canadensis leucopareia*	T/--	The entire population winters in Butte Sink, then moves to Los Banos, Modesto, the Delta, and East Bay reservoirs; stages near Crescent City during spring before migrating to breeding grounds	Roosts in large marshes, flooded fields, stock ponds, and reservoirs; forages in pastures, meadows, and harvested grainfields; corn is especially preferred
White-tailed kite *Elanus leucurus*	--/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands
Bald eagle *Haliaeetus leucocephalus*	T/E	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean.
Golden eagle *Aquila chrysaetos*	PR/SSC, FP	Foothills and mountains throughout California. Uncommon nonbreeding visitor to lowlands such as the Central Valley	Nest on cliffs and escarpments or in tall trees overlooking open country. Forages in annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals
Northern harrier *Circus cyaneus*	--/SSC	Occurs throughout lowland California. Has been recorded in fall at high elevations	Grasslands, meadows, marshes, and seasonal and agricultural wetlands
Sharp-shinned hawk *Accipiter striatus*	--/SSC	Permanent resident in the Sierra Nevada, Cascade, Klamath, and north Coast Ranges at mid elevations and along the coast in Marin, San Francisco, San Mateo, Santa Cruz, and Monterey Counties. Winters over the rest of the state except at very high elevations	Dense canopy ponderosa pine or mixed-conifer forest and riparian habitats
Cooper's hawk *Accipiter cooperii*	--/SSC	Throughout California except high altitudes in the Sierra Nevada. Winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range. Scattered breeding pairs in urban environments	Nests in a wide variety of habitat types, from riparian woodlands and digger pine-oak woodlands through mixed conifer forests

Table 3.4-2. Continued

Common and Scientific Name	Status Federal/State	California Distribution	Habitats
Swainson's hawk *Buteo swainsoni*	--/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields
Ferruginous hawk *Buteo regalis*	SC/SSC	Does not nest in California; winter visitor along the coast from Sonoma County to San Diego County, east-ward to the Sierra Nevada foothills and south-eastern deserts, the Inyo-White Mountains, the plains east of the Cascade Range, and Siskiyou County	Open terrain in plains and foothills where ground squirrels and other prey are available
Merlin *Falco columbarius*	--/SSC	Does not nest in California. Rare but widespread winter visitor to the Central Valley and coastal areas	Forages along coastline in open grasslands, savannas, and woodlands. Often forages near lakes and other wetlands
American peregrine falcon *Falco peregrinus anatum*	--/E	Permanent resident along the north and south Coast Ranges. May summer in the Cascade and Klamath Ranges and through the Sierra Nevada to Madera County. Winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations
Prairie falcon *Falco mexicanus*	--/SSC	Permanent resident in the south Coast, Transverse, Peninsular, and northern Cascade Ranges, the southeastern deserts, Inyo-White Mountains, foothills surrounding the Central Valley, and in the Sierra Nevada in Modoc, Lassen, and Plumas Counties. Winters in the Central Valley, along the coast from Santa Barbara County to San Diego County, and in Marin, Sonoma, Humboldt, Del Norte, and Inyo Counties	Nests on cliffs or escarpments, usually overlooking dry, open terrain or uplands
California black rail *Laterallus jamaicensis coturniculus*	SC/T	Permanent resident in the San Francisco Bay and east-ward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations
California clapper rail *Rallus longirostris obsoletus*	E/E	Marshes around the San Francisco Bay and east through the Delta to Suisun Marsh	Restricted to salt marshes and tidal sloughs; usually associated with heavy growth of pickle-weed; feeds on mollusks removed from the mud in sloughs
Greater sandhill crane *Grus canadensis tabida*	--/T	Breeds in Siskiyou, Modoc, Lassen, Plumas, and Sierra Counties. Winters in the Central Valley, southern Imperial County, Lake Havasu National Wildlife Refuge, and the Colorado River Indian Reserve	Summers in open terrain near shallow lakes or freshwater marshes. Winters in plains and valleys near bodies of fresh water

Table 3.4-2. Continued

Common and Scientific Name	Status Federal/State	California Distribution	Habitats
Western snowy plover (coastal populations) *Charadrius alexandrinus nivosus* (nesting)	T/SSC	Winters along the coast from Del Norte County to San Diego County: breeding sites within this range are very limited Nests at inland lakes throughout northeastern, central, and southern California	Coastal beaches above the normal high tide limit with wood or other debris for cover Inland shores of salt ponds and alkali or brackish inland lakes
Western snowy plover (inland population) *Charadrius alexandrinus nivosus*	SC/SSC (Inland)	Winters along the coast from Del Norte County to San Diego County: breeding sites within this range are very limited Nests at inland lakes throughout northeastern, central, and southern California	Coastal beaches above the normal high tide limit with wood or other debris for cover Inland shores of salt ponds and alkali or brackish inland lakes
Mountain plover *Charadrius montanus*	C/SSC	Does not breed in California; in winter, found in the Central Valley south of Yuba County, along the coast in parts of San Luis Obispo, Santa Barbara, Ventura, and San Diego Counties; parts of Imperial, Riverside, Kern, and Los Angeles Counties	Occupies open plains or rolling hills with short grasses or very sparse vegetation; nearby bodies of water are not needed; may use newly plowed or sprouting grainfields
Long-billed curlew *Numenius americanus*	--/SSC	Nests in northeastern California in Modoc, Siskiyou, and Lassen Counties. Winters along the coast and in interior valleys west of Sierra Nevada	Nests in high-elevation grasslands adjacent to lakes or marshes. During migration and in winter; frequents coastal beaches and mudflats and interior grasslands and agricultural fields
California gull *Larus californicus* (nesting colony)	--/SSC	Winters along the Pacific coast from British Columbia to Mexico; in the interior of California, it frequents the Sacramento River Delta and Central Valley, the plains east of the Cascade Range, northern Plumas County and southwestern Mono County, the Lake	Forages in a variety of habitats, including beaches, mudflats, freshwater and alkali marshes, rivers, lakes, and urban areas; nests colonially on islands isolated from mainland predators
Black tern *Chlidonias niger* (nesting colony)	SC/SSC	Spring and summer resident of the Central Valley, Salton Sea, and northeastern California where suitable emergent wetlands occur	Freshwater wetlands, lakes, ponds, moist grasslands, and agricultural fields; feeds mainly on fish and invertebrates while hovering over water
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	--/E	Nests along the upper Sacramento, lower Feather, south fork of the Kern, Amargosa, Santa Ana, and Colorado Rivers	Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant
Western burrowing owl *Athene cunicularia hypugea*	SC/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows

Table 3.4-2. Continued

Common and Scientific Name	Status Federal/State	California Distribution	Habitats
Long-eared owl *Asio otus*	--/SSC	Permanent resident east of the Cascade Range from Placer County north to the Oregon border, east of the Sierra Nevada from Alpine County to Inyo County. Scattered breeding populations along the coast and in southeastern California. Winters throughout the Central Valley and southeastern California	Nests in abandoned crow, hawk, or magpie nests, usually in dense riparian stands of willows, cottonwoods, live oaks, or conifers
Short-eared owl *Asio flammeus*	--/SSC	Permanent resident along the coast from Del Norte County to Monterey County although very rare in summer north of San Francisco Bay, in the Sierra Nevada north of Nevada County, in the plains east of the Cascades, and in Mono County; small, isolated population	Freshwater and salt marshes, lowland meadows, and irrigated alfalfa fields; needs dense tules or tall grass for nesting and daytime roosts
Vaux's swift *Chaetura vauxi*	--/SSC	Coastal belt from Del Norte County south to Santa Cruz County and in mid elevation forests of the Sierra Nevada and Cascade Range	Nests in hollow, burned-out tree trunks in large conifers
Black swift *Cypseloides niger* (nesting)	--/SSC	Breeds very locally in the Sierra Nevada and Cascade Range, the San Gabriel, San Bernardino, and San Jacinto mountains, and in coastal bluffs from San Mateo county south to near San Luis Obispo county	Nests in moist crevice or cave on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons
Purple martin *Progne subis*	--/SSC	Coastal mountains south to San Luis Obispo County, west slope of the Sierra Nevada, and northern Sierra and Cascade ranges. Absent from the Central Valley except in Sacramento. Isolated, local populations in southern California	Nests in abandoned woodpecker holes in oaks, cottonwoods, and other deciduous trees in a variety of wooded and riparian habitats. Also nests in vertical drainage holes under elevated freeways and highway bridges
California horned lark *Eremophila alpestris actia*	--/SSC	Found throughout much of the state, less common in mountainous areas of the north coast and in coniferous or chapparal habitats	Common to abundant resident in a variety of open habitats, usually where large trees and shrubs are absent. Grasslands and deserts to dwarf shrub habitats above tree line
Loggerhead shrike *Lanius ludovicianus*	--/SSC	Resident and winter visitor in lowlands and foothills throughout California. Rare on coastal slope north of Mendocino County, occurring only in winter	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches

Table 3.4-2. Continued

Common and Scientific Name	Status Federal/State	California Distribution	Habitats
Bank swallow *Riparia riparia*	--/T	Occurs along the Sacramento River from Tahama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley; and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties. Small populations near the coast from San Francisco County to Monterey County	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam
California Yellow warbler *Dendroica petechia brewsteri* (nesting)	--/SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Two small permanent populations in San Diego and Santa Barbara Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	SC/SSC	Found only in the San Francisco Bay Area in Marin, Napa, Sonoma, Solano, San Francisco, San Mateo, Santa Clara, and Alameda Counties	Freshwater marshes in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover
Yellow-breasted chat *Icteria virens*	--/SSC	Nests locally in coastal mountains and Sierra Nevada foothills, east of the Cascades in northern California, along the Colorado river, and very locally inland in southern California	Nests in dense riparian habitats dominated by willows, alders, Oregon ash, tall weeds, blackberry vines, and grapevines
Alameda (South Bay) song sparrow *Melospiza melodia pusillula*	SC/SSC	Found only in marshes along the southern portion of the San Francisco Bay	Brackish marshes associated with pickleweed; may nest in tall vegetation or among the pickleweed
Suisun song sparrow *Melospiza melodia maxillaris*	SC/SSC	Restricted to the extreme western edge of the Delta, between the cities of Vallejo and Pittsburg near Suisun Bay	Brackish and tidal marshes supporting cattails, tules, various sedges, and pickleweed
Tricolored blackbird *Agelaius tricolor*	SC/SSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony
Salt marsh vagrant (wandering) shrew *Sorex vagrans halicoetes*	SC/SSC	Restricted to southern and northwestern San Francisco Bay	Midelevation salt marsh habitats with dense growths of pickleweed; requires driftwood and other objects for nesting cover

Table 3.4-2. Continued

Common and Scientific Name	Status Federal/State	California Distribution	Habitats
Fringed myotis *Myotis thysanodes*	SC/--	Occurs throughout California except the southeastern deserts and the Central Valley	Found in a wide variety of habitats from low desert scrub to high elevation coniferous forests. Day and night roosts in caves, mines, trees, buildings, and rock crevices
Long-eared myotis *Myotis evotis*	SC/--	Occurs throughout California except the southeastern deserts and the Central Valley	Occurs primarily in high elevation coniferous forests, but also found in mixed hardwood/conifer, high desert, and humid coastal conifer habitats
Long-legged myotis *Myotis volans*	SC/--	Mountains throughout California, including ranges in the Mojave desert	Most common in woodlands and forests above 4,000 feet, but occurs from sea level to 11,000 feet
Yuma myotis *Myotis yumanensis*	SC/--	Common and widespread throughout most of California except the Colorado and Mojave deserts	Found in a wide variety of habitats from sea level to 11,000 ft., but uncommon above 8,000 ft. Optimal habitat is open forests and woodlands near water bodies
Greater western mastiff bat *Eumops perotis californicus*	SC/SSC	Occurs along the western Sierra primarilly at low to mid elevations and widely distributed throughout the southern coast ranges. Recent surveys have detected the species north to the Oregon border	Found in a wide variety of habitats from desert scrub to montane conifer. Roosts and breeds in deep, narrow rock crevices, but may also use crevices in trees, buildings, and tunnels
Pallid bat *Antrozous pallidus*	--/SSC	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts
Pacific Townsend's (=western) big-eared bat *Corynorhinus townsendii townsendii*	SC/SSC	Coastal regions from Del Norte County south to Santa Barbara County	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings. Very sensitive to disturbances and may abandon a roost after one onsite visit
Pale Townsend's (=western) big-eared bat *Corynorhinus townsendii pallescens*	SC/SSC	Klamath Mountains, Cascades, Sierra Nevada, Central Valley, Transverse and Peninsular Ranges, Great Basin, and the Mojave and Sonora Deserts	Mesic habitats; gleans insects from brush or trees and feeds along habitat edges
San Joaquin pocket mouse *Perognathus inornatus*	SC/--	Occurs along the eastern side of the San Joaquin Valley	Favors grasslands and oak savannas with friable soils
Salt marsh harvest mouse *Reithrodontomys raviventris*	E/E	San Francisco, San Pablo, and Suisun Bays; the Delta	Salt marshes with a dense plant cover of pickle-weed and fat hen; adjacent to an upland site

Table 3.4-2. Continued

Common and Scientific Name	Status Federal/State	California Distribution	Habitats
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	SC/SSC	West side of Mount Diablo to coast and San Francisco Bay	Present in chaparral habitat and in forest habitats with a moderate understory
Berkeley kangaroo rat *Dipodomys heermanni berkeleyensis*	SC/--	Alameda and Contra Costa Counties	Open grassy hilltops & open spaces in chaparral & blue oak/digger pine woodlands. Needs fine, deep well-drained soil for burrowing
Point Reyes mountain beaver *Aplodontia rufa phaea*	SC/SSC	Known only from the Point Reyes area of Marin County	Slopes of ridges or gullies below 1,000 feet where there is abundant moisture, thick undergrowth of sword ferns and thimbleberries, and soft soil for burrowing
San Joaquin kit fox *Vulpes macrotis mutica*	E/T	Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County	Saltbush scrub, grassland, oak, savanna, and freshwater scrub
Ringtail *Basariscus astutas*	--/FP	Little information on distribution and abundance. Apparently occurs throughout the state except for the southern Central Valley and the Modoc Plateau	Occurs primarily in riparian habitats but also known from most forest and shrub habitats from lower to mid elevations

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act
T = listed as threatened under the federal Endangered Species Act
PE = proposed for federal listing as endangered under the Federal Endangered Species Act
C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list
SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking
PR = federally protected under the Golden Eagle Protection Act
-- = no listing

State

E = listed as endangered under the California Endangered Species Act
T = listed as threatened under the California Endangered Species Act
FP = fully protected under the California Fish and Game Code
SSC = species of special concern in California
-- = no listing

Table 3.4-3. Special-Status Fish Species Potentially Occurring in the IPN Project Geographical Regions

Species	State Status	Federal Status	Federal Register Citation	Location	Habitat Requirement	Reasons for Decline
Steelhead *Oncorhynchus mykiss*						
Central California Coast ESU	--	T	62 FR 43938, August 18, 1997	Russian River to Soquel Creek, Santa Cruz Co.	Cold, clear water with clean gravel of appropriate size for spawning. Most spawning occurs in headwater streams. Steelhead migrate to the ocean to feed and grow until sexually mature.	Habitat degradation, restricted access to spawning habitat; increased water temperatures and sedimentation; decreased water quality; flow alterations
		4(d) rule	65 FR 42422, July 10, 2000			
Central California Coast ESU critical habitat	--	D	65 FR 7764, February 16, 2000	All river reaches and estuarine areas accessible in coastal river basins from the Russian River to Soquel Creek (inclusive), and the drainages of San Francisco and San Pablo bays. Excluded are areas above specific dams or above naturally impassable barriers		
Central Valley ESU	--	T	63 FR 13347, March 19, 1998	Sacramento and San Joaquin Rivers and their tributaries	Cold, clear water with clean gravel of appropriate size for spawning. Most spawning occurs in headwater streams. Steelhead migrate to the ocean to feed and grow until sexually mature.	Habitat degradation, restricted access to spawning habitat; increased water temperatures and sedimentation; decreased water quality; flow alterations
		4(d) rule	65 FR 42422, July 10, 2000			
Central Valley ESU critical habitat	--	D	65 FR 7764, February 16, 2000	All river reaches accessible in the Sacramento and San Joaquin Rivers and their tributaries. Also included are river reaches and estuarine areas of the Sacramento-San Joaquin Delta, all waters from Chipps Island westward to Carquinez Bridge, all waters of San Pablo Bay westward of the Carquinez Bridge, and all waters of San Francisco Bay from San Pablo Bay to the Golden Gate Bridge. Excluded are areas of the San Joaquin River upstream of the Merced River confluence and areas above specific dams, or above longstanding naturally impassable barriers		

Table 3.4-3. Continued

Species	State Status	Federal Status	Federal Register Citation	Location	Habitat Requirement	Reasons for Decline
Chinook Salmon *Oncorhynchus tshawytscha*						
Central Valley Fall-Run	--	C	64 FR 50393, September 16, 1999		Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	reduced access to spawning habitat; habitat degradation
Central Valley Late Fall-Run	--	C	64 FR 50393, September 16, 1999	Sacramento River, Tuolumne River, Stanislaus River	Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	reduced access to spawning habitat; habitat degradation
Sacramento River Winter-Run	E	E	59 FR 440, January 4, 1992	Sacramento River, Calaveras River	Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	reduced access to spawning habitat; habitat degradation
Sacramento River Winter-Run critical habitat	--	D	58 FR 33212, June 16, 1993	The portion of the Sacramento River form Keswick Dam to Chipps Island, all waters westward from Chipps Island to the Carquinez Bridge, all waters of San Pablo Bay, and all waters of San Francisco Bay north of the San Francisco-Oakland Bay Bridge. Critical habitat includes the river water, river bottom, and adjacent riparian zones.		
Central Valley Spring-Run	T (Feb 5, 1999)	T	64 FR 50393, September 16, 1999	Sacramento River, Deer, Mill, Butte, and Big Chico creeks	Cold, clear water with clean gravel of appropriate size for spawning; most spawning occurs in headwater streams; migrate to the ocean to feed and grow until sexually mature.	reduced access to spawning habitat; habitat degradation

Table 3.4-3. Continued

Species	State Status	Federal Status	Federal Register Citation	Location	Habitat Requirement	Reasons for Decline
Central Valley Spring-run critical habitat	--	D	65 FR 7764, February 16, 2000	The portion of the Sacramento River form Keswick Dam to Chipps Island, all waters westward from Chipps Island to the Carquinez Bridge, all waters of San Pablo Bay, and all waters of San Francisco Bay north of the San Francisco-Oakland Bay Bridge. Critical habitat includes the river water, river bottom, and adjacent riparian zones.		
Coho Salmon *Oncorhynchus kisutch*						
Central California ESU	E[1]	T 4(d) rule	61 FR 56138, October 31, 1996 65 FR 42422, July 10, 2000	Punta Gorda, Humboldt Co. to San Lorenzo River, Santa Cruz Co.	Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	reduced access to spawning habitat; habitat degradation
Central California ESU critical habitat	--	D	64 FR 24049, May 5, 1999	All river reaches from Punta Gorda to San Lorenzo River. Water, substrate and adjacent riparian zones (within 300 horizontal feet from the normal line of high water) of estuarine and riverine reaches		
Delta Smelt *Hypomesus transpacificus*	T	T	58 FR 12854, March 5, 1993	Sacramento-San Joaquin Delta	Estuarine or brackish waters to 14 parts per thousand (ppt); spawn in shallow brackish water upstream of the mixing zone (zone of saltwater-freshwater interface) where salinity is around 2 ppt	reduction in outflows; entrainment losses to diversions; high outflows; change in food organisms; toxic substances; disease; competition; predation; loss of genetic integrity (hybridization with Wakasagi)
critical habitat	--	D	December 19, 1994	Areas of all water and submerged lands below ordinary high water and the entire water column bounded by and contained in Suisun Bay (including the contiguous Grizzly and Honker Bays); the length of Montezuma Slough and the existing contiguous waters of the Delta		

Table 3.4-3. Continued

Species	State Status	Federal Status	Federal Register Citation	Location	Habitat Requirement	Reasons for Decline
Longfin Smelt *Spirinchus thaleichthys*	SSC	SC	--	Sacramento-San Joaquin Delta, Humboldt Bay, Eel and Klamath River Estuaries	Brackish water for adult and juvenile rearing; spawning in fresh water on sandy gravel at temperatures between 7 and 14.5 C	reduction in outflow; entrainment in water diversions; climatic variations; toxic substances; introduced species
Sacramento Perch *Archoplites interruptus*	SSC	SC	--	Sacramento, San Joaquin, Pajaro and Salinas River systems, formerly in Clear Lake	warm water reservoirs and farm ponds; found in rooted and submerged vegetation and other submerged objects	introduced species; fragmentation of populations
Sacramento Splittail *Pogonichthys macrolepidotus*	SSC	T	64 FR 5963 February 8, 1999	Sacramento-San Joaquin Delta, lower portions of the Sacramento and San Joaquin rivers	Primarily low salinity shallow water; shallow, flooded vegetated habitat for spawning and foraging	changed estuarine hydraulics; modification of spawning habitat; climatic fluctuations toxic substances; introduced species, predation; exploitation
Green Sturgeon *Acipenser medirostris*	SSC	SC	--	Sacramento and Klamath Rivers	Cool water with cobble, clean sand or bedrock for spawning	harvest; alteration of spawning and rearing habitat; entrainment; toxic substances
River Lamprey *Lampetra ayresi*	SSC	SC	--	Coastal CA streams from San Francisco Bay north to OR border	adults need clear gravelly riffles for spawning and larvae use sandy backwaters	dams, diversions; pollution; channelization; urbanization
Pacific Lamprey *Lampetra tridentata*	--	--	--	Pacific coast streams	riffles in streams for spawning; larvae need muddy backwater	
Tomales Roach *Lavinia symmetricus spp.*	SSC	SC	--	Tributaries to Tomales Bay		siltation; bank erosion; loss of riparian habitat; dams and diversions; fluctuating flows

Table 3.4-3. Continued

Species	State Status	Federal Status	Federal Register Citation	Location	Habitat Requirement	Reasons for Decline
Hardhead *Mylopharodon conocephalus*	SSC	SC	--	Sacramento-San Joaquin River drainage - Pit River to Kern River	undisturbed areas of larger mid- and low elevation streams; clear deep pools with sand-gravel-boulder substrate with slow water velocities; adults use the lower half of the water column and juveniles use shallow edge water	dams and diversions of streams that eliminate habitat and fragment populations; predation by smallmouth bass

[1] South of San Francisco only

P = Proposed
T = Threatened
E = Endangered
C = Candidate
D = Designated Critical Habitat
SSC = California Species of Special Concern
SC = Federal Species of Concern
-- = No listing

be covered under Section 404 Nationwide Permit 12 (at the discretion of USACE). Nationwide permits do not authorize activities that are likely to jeopardize the existence of a threatened or endangered species (listed or proposed for listing under the federal ESA) or that may affect properties listed or eligible for listing in the NRHP (56 FR 59134-59138, November 22, 1991). In addition to conditions outlined under each nationwide permit, project-specific conditions may be required by USACE as part of the Section 404 permitting process.

The federal government also supports a policy of minimizing "the destruction, loss, or degradation of wetlands." Executive Order 11990 (May 24, 1977) requires that each federal agency take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. If waters of the United States are present and could be impacted by the project, a wetland delineation will be conducted and submitted to the USACE for verification.

Federal Policies on Riparian Communities in California

Riparian communities have a variety of functions, including providing high-quality habitat for resident and migrant wildlife, streambank stabilization, and filtration of runoff water. Throughout the United States, riparian habitats have declined substantially in extent and quality compared with their historical distribution and condition. These declines have increased concerns about dependent plant and wildlife species, leading federal agencies to adopt policies to arrest further loss. U.S. Fish and Wildlife Service (USFWS) mitigation policy identifies California's riparian habitats as belonging to resource Category 2, for which no net loss of existing habitat value is recommended (46 FR 7644, January 23, 1981).

State Policies and Regulations on Streams and Wetlands

DFG regulates activities that would interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. These activities are regulated under the DFG Code (Section 1601 for public agencies and Section 1603 for private individuals). Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Requirements may include avoidance or minimization of the use of heavy equipment, limitations on work periods to avoid impacts on wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses. Streambed alteration agreements will be obtained when necessary.

Federal Endangered Species Act

USFWS (jurisdiction over plants, wildlife, and resident fish) and National Marine Fisheries Service (NMFS) (jurisdiction over anadromous fish and marine fish and mammals) oversee the federal ESA. Section 7 of the ESA mandates that all federal agencies consult with USFWS and NMFS if they determine a situation will occur in association with the proposed project that *may affect* a listed species or its habitat. The purpose of consultation with USFWS and NMFS is to ensure that the federal agencies' actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species.

Section 9 of the federal ESA prohibits the "take" of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species' recovery. *Take* is defined as the action of or attempt to hunt, harm, harass pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibitions also apply to threatened species unless a special rule has been defined with regard to take at the time of listing.

Under Section 9 of the federal ESA, the *take* prohibition applies only to wildlife and fish species. However, Section 9 does prohibit the unlawful removal and reduction to possession, or malicious damage or destruction of, any endangered plant from federal land. Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in nonfederal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species that are proposed or under petition for listing receive no protection under Section 9 of the federal ESA.

Section 10 of the federal ESA requires the issuance of an *incidental take* permit before any public or private action may be taken that would potentially harm, harass, injure, kill, capture, collect, or otherwise hurt (i.e., "take") any individual of an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan, incidental to implementation of the project, which would offset the take of individuals that may occur, by providing for the overall preservation of the affected species through specific mitigation measures.

Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 U.S.C. 703-711) prohibits the take of any migratory bird, any part, nest or eggs of any such bird. *Take* under this act is defined as the action of or attempt to "pursue, hunt, shoot, capture, collect, or kill." The Migratory Bird Treaty Act applies to all persons in the U.S., including federal agencies. Executive Order 13186 for Conservation of Migratory Birds (January 11, 2001) requires that any project with federal involvement address impacts of federal actions on migratory birds.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act makes it illegal to import, export, take (which includes molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or eagle part.

California Endangered Species Act

California implemented its own ESA in 1984. The state ESA prohibits the take of endangered and threatened species; however, habitat destruction is not included in the state's definition of "take." Section 2090 of the California ESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. DFG administers the act and authorizes take through Section 2081 agreements (except for designated "fully protected species").

Regarding rare plant species, the California ESA defers to the California Native Plant Protection Act of 1977, which prohibits importing of rare and endangered plants into California, taking of rare and endangered plants, and selling of rare and endangered plants. State-listed plants are protected mainly in cases where state agencies are involved in projects under CEQA. In this case, plants listed as rare under the California Native Plant Protection Act are not protected under the California ESA but can be protected under CEQA.

California Department of Fish and Game Code

Section 3503.5 of the DFG Code prohibits the removal of raptor nests. Section 1603 of the DFG Code also requires issuance of a streambed alteration agreement for all projects that may disturb streams.

Native and Heritage Tree Ordinances

Some cities and counties have adopted native or heritage tree ordinances or policies to protect large or native trees. Most ordinances or policies require the project applicant to obtain a tree removal permit and compensate for the removal of protected trees. Local cities and counties will be contacted by IPN to determine if they have adopted policies or ordinances. The compensatory mitigation will be determined as part of the permit process for specific project routes and facilities.

Habitat Conservation Plans

Some cities, counties, or private entities may have adopted habitat conservation plans (HCPs) under Section 10 of the federal ESA. HCPs provide a mechanism

for conserving habitat for federally listed threatened, endangered, and proposed species while allowing specified levels of take as defined under a Section10(a) incidental take permit. A similar process under the California ESA, a natural communities conservation plan (NCCP), may also be applicable in some areas. The existence and applicability of HCPs and NCCPs along the project routes will be determined through contacts with local cities and counties, and state and federal resource agencies. Specifications or guidelines described in operational HCPs or NCCPs encountered by the proposed project would be applied to that project route and identified in the construction work plan (appendix B).

3.5 Cultural Resources

3.5.1 Project Study Area

The project study area are those portions of the proposed project where the fiber optic cable and associated facilities would be installed using ground-disturbing techniques, and where impacts on the setting or visual characteristics of historical resources could occur. The study area for those portions of the project within existing road rights-of-way includes both sides of the road right-of-way where unpaved, unlandscaped surfaces are present. The study area for buried components along railroads or electrical or pipeline corridors includes the entire width of railroad or utility rights-of-way. In locations along the proposed project where the cable would be placed inside an existing conduit or idle pipeline, the study area would be limited to those locations where assist points requiring ground disturbance would be necessary. The study areas include proposed locations for any new access roads, and any staging areas for equipment or bore pits located outside paved or graveled areas, where applicable.

Detailed information on the prehistory, ethnography, and history of the project area will be presented in the cultural resources inventory report that will be prepared when specific project routes are identified.

3.5.2 Regulatory Setting

Federal Regulations and Delineation of Areas of Potential Effects

It is unlikely that it will be necessary to comply with Section 106 of the National Historic Preservation Act (NHPA) because there is no known federal land in the project area and because federal permits may not be needed. If, however, it becomes necessary to comply with Section 106 of the NHPA, the proposed undertaking (defined as an activity or project under the direct or indirect jurisdiction of a federal agency) would include the entire area of potential effects (APE). The APE for the proposed project would be defined by the lead federal agency for the project and may include the entire project area or may be limited

to lands under an agency's jurisdiction (e.g., wetland areas are regulated by the USACE). The APE would likely include cultural resources (such as features of the built environment) that could be indirectly affected by installation of belowground and aboveground facilities (i.e., aerial installation and central offices), construction of new access roads, widening and grading of existing access roads, and use of any staging areas located outside paved or graveled areas.

Under federal regulations, a project has an effect on an historic property when the undertaking could alter the characteristics of the property, including alteration of location, setting, or use, that may qualify the property for inclusion in the National Register of Historic Places (NRHP). An undertaking may be considered to have an adverse effect on an historic property when the effect may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

- physical destruction or alteration of all or part of the property;
- isolation of the property from or alteration of the property's setting when that character contributes to the property's qualifications for listing in the NRHP;
- introduction of visual, audible, or atmospheric elements that are out of character with the property or that alter its setting;
- neglect of a property resulting in its deterioration or destruction; or
- transfer, lease, or sale of the property (36 CFR 800.9).

State Regulations

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historic, architectural, archaeological, cultural, or scientific importance. Under the State CEQA Guidelines, an impact on a cultural resource is considered significant if a project would result in an effect that may change the significance of the resource (PRC Section 21084.1). Demolition, replacement, substantial alteration, and relocation of historic properties are actions that would change the significance of an historic resource (CCR Title 14, 15064.5). Before the level of significance of impacts can be determined and appropriate mitigation measures developed, the significance of cultural resources must be determined. The following steps are normally taken in a cultural resources investigation to comply with CEQA:

- Identify cultural resources.
- Evaluate the significance of the cultural resources based on established thresholds of significance.
- Evaluate the effects of a project on all cultural resources.
- Develop and implement measures to mitigate the effects of the project on significant cultural resources.

Because the project is located on non-federal land in California, it is also necessary to comply with state laws pertaining to the inadvertent discovery of human remains of Native American origin. The procedures that must be followed if burials of Native American origin are discovered on non-federal land in California are described in the impacts and mitigation discussion in section 4.5 of this document.

Local Regulations

Local jurisdictions may have established definitions for what constitutes significant cultural resources and criteria for determining the significance of impacts on those significant cultural resources. Typically, these definitions and criteria have been incorporated into city or county general plans, local historic property registers, or local cultural resources management plans. Local definitions of what constitutes a cultural resource and local significance criteria may be different from those established in CEQA or in the NHPA.

3.6 Geology and Soils

3.6.1 Geology and Seismicity

The project routes pass through a wide range of slope conditions. The slope of the long axis (as opposed to the sideslope) of the routes along most of the routes is generally less than 10% because the routes tend to follow gently sloping road and railroad grades.

Geologic maps of the state and state Alquist-Priolo earthquake fault zone maps were used to describe existing geologic and seismic conditions along the project routes. Table 3.6-1 lists the geologic units and faults that occur along each route, by county. In a few areas, the sediments underlying the routes are subject to earthquake-induced liquefaction, which may cause differential ground settlement and lateral spreading. Conditions most favorable for liquefaction include a fault capable of causing ground-shaking, and the presence of clean, loose, saturated sandy soils or sediments within 50 feet of the ground surface.

3.6.2 Soils

The description of existing soil characteristics along the project routes was based on soil surveys for the various counties and the author's knowledge of typical soil conditions along roads, railroads, and utility rights-of-way. Soil characteristics vary widely throughout the areas crossed by the project routes. This variation is due in large part to a wide range of topography, parent material, climate, vegetation, and disturbances associated with past construction in the project route rights-of-way (e.g., roads, railroads, pipelines, utilities). Soils along the project routes vary from rocky and sandy textures to clayey textures. In some

Table 3.6-1. Potential Geologic Units and Faults along IPN's Project Routes by County

County	Geologic Unit	Fault
Alameda	Alluvium Older alluvium Ultramafic rock Rhyolite of uncertain age	Altamont Byron Hot Springs Calaveras Reservoir Cedar Mountain Dublin Eylar Mountain Hayward La Costa Valley Livermore Midway-Milpitas Newark Niles Oakland East Oakland - West Richmond San Leandro
Contra Costa	Alluvium Monterey formation (marine shale and sandstone) Contra Costa group (non-marine sedimentary rocks) Bald Peak basalt San Pablo group (marine sandstone) Plio-Pleistocene non-marine deposits Lawlor tuff Markley sandstone (marine)	Byron Hot Springs Clayton Diablo-Dublin Mare Island Richmond-Tassajara Vine Hill (formerly Port Chicago)-Walnut Creek
Marin	Intertidal deposits (Peary mud)	Bodega Head Bolinas-Double Point Drakes Bay-Inverness Point Reyes-Northeast Tomales Valley Ford
Sacramento	Levee and channel deposits Basin deposits (alluvium) Riverbank formation (alluvium) Turlock Lake formation (sand, silt, and gravel) Laguna formation (consolidated alluvial deposits) Modesto-Riverbank formations (arkosic alluvium)	None
San Francisco	Dune sand Franciscan complex Continental and marine deposits Alluvial fan deposits Ultramafic rock Artificial fill Alluvium	None

Table 3.6-1. Continued

County	Geologic Unit	Fault
San Mateo	Continental and marine deposits Franciscan complex Alluvium Merced formation (marine sandstone) Ultramafic rocks Older alluvium Unnamed Eocene marine rocks Terrace deposits Undivided tertiary marine sedimentary rocks	Ano Nuevo Franklin Point Half Moon Bay-Mindego Hill Montara Mountain Palo Alto-San Francisco South San Mateo Woodside
Santa Clara	Alluvium Older alluvium Landslide deposits Terrace deposits	Calaveras Reservoir Castle Rock Ridge Chittenden Cupertino Eylar Mountain-Gilroy Gilroy-Hot Springs Laurel Lick Observatory Los Gatos-Milpitas Mindego Hill Morgan Hill Mt. Day Mt. Sizer-San Felipe San Jose East Watsonville East
Yolo	Levee and channel deposits Basin deposits (alluvium)	Jericho Valley

areas, the soils have been compacted as a result of past construction in the rights-of-way. The soils also vary in terms of drainage characteristics, depth to rock, fertility, expansion potential, and other characteristics.

Soils along the project routes have variable susceptibility to erosion, ranging from slight to high erosion hazard ratings. Portions of some of the routes, such as along existing utility rights-of-way, have permanent erosion control measures, such as water bars, already in place.

Table 3.6-2 shows the soil associations along the project routes and their respective erosion hazards. It is noteworthy that the erosion hazards listed generally apply only to areas where the project routes pass through open country and not along right-of-ways aligned along a gentle slope.

Regulations, Approvals, and Permits Applicable to Geology, Seismicity, and Soils

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was signed into law December 22, 1972, and went into effect March 7, 1973. The Alquist-Priolo Act, codified in the PRC as Division 2, Chapter 7.5, has been amended 11 times. The purpose of this act is to prohibit the construction of most structures for human occupancy across the traces of active faults and to thereby mitigate the hazard of fault rupture (Section 2621.5).

All counties within the project area (see table 2.1-1) have some form of seismic safety element within their respective general plans that requires site-specific geotechnical work to determine potential impacts from seismic shaking, liquefaction, and landslides.

Non-point source pollution from sediment is regulated under National Pollutant Discharge Elimination System (NPDES) requirements. A project that will result in the disturbance of more than 5 acres of land must obtain coverage under the state's General Permit for Construction Activities. A storm water pollution prevention plan (SWPPP) (which includes erosion and sediment control measures) is required to obtain coverage under the general permit. A SWPPP for each project route that exceeds the 5-acre disturbance threshold will be prepared and implemented. The EPA has delegated authority to the State Water Resources Control Board (SWRCB) to administer the NPDES program. The General Permit is enforced by one of the nine Regional Water Quality Control Boards (RWQCBs). EPA will issue a new general permit in December 2002 for activities that disturb between 1 and 5 acres. The appropriate Regional Water Quality Control Board (RWQCB) enforces the general permit.

3.7 Hazards and Hazardous Materials

3.7.1 Background

A hazardous material is defined in Title 22 of the CCR as:

> a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

A hazardous waste is any hazardous material that is discarded, abandoned, or to be recycled. The criteria that render a material hazardous also makes a waste hazardous. A material is typically defined as hazardous by four characteristic properties. These characteristic properties include toxicity, ignitability, corrosivity, and reactivity.

Exposure to a toxic substance may cause short-term or long-term health effects, ranging from temporary effects such as disorientation or allergic reaction to permanent disability, cancer, or death. Acute and chronic are terms most often used to describe toxicity. Acute toxicity is an adverse effect expressed by harm, illness, or mortality of, an organism after the brief exposure to a chemical agent, where the brief exposure can either be a single dose or multiple dose exposure over a short period of time, and the acute toxic response occurs shortly after exposure (Hodgson and Levi 1987). Chronic toxicity is an expression of an adverse effect manifested over a long time period (often the life span of the exposed organism or individual) of uptake of small quantities of a chemical agent. The dose is small enough that acute effects are not expressed. Toxic responses associated with chronic toxicity range from carcinogenisis (cancer) to behavioral changes (Hodgson and Levi 1987).

An ignitable substance is hazardous due to flammable or explosive characteristics. Gasoline and methane gas are examples of ignitable substances. Corrosive substances are hazardous due to their ability to cause a chemical burn or corrode materials. Chlorine gas and strong bases or acids such as sodium hydroxide or hydrochloric acid are common examples of corrosive substances. Reactive substances are those that react violently when they come in contact with other incompatible substances. Reactivity can be expressed as intense heat generation, explosion, or release of toxic gases.

3.7.2 Hazard, Risk, and Exposure

Under the framework of hazardous materials and associated potential impacts on public health and safety, a hazardous material will have an inherent toxicological risk. A toxicological risk is a probabilistic measure that some adverse effect

Table 3.6-2. Potential Soil Associations and Erosion Hazards along IPN's Proposed Project Routes, by County

County	Soil Association/Landform	Erosion Hazard
Alameda	Reyes-Urban land	None
	Xeropsamments-Urban land-Baywood	Slight to moderate
	Tierra-Urban land	Slight
	Clear Lake-Omni-Urban land	Slight to moderate
	Danville-Botella	Slight to moderate
Contra Costa	Capay-Rincon	Slight to high
	Clear Lake-Cropley	Slight to moderate
	Sacramento-Omni	None to slight
	Joice-Reyes	None
	Tierra-Antioch-Perkins	Slight to high
	Altamont-Diablo-Fontana	Moderate to high
	Los Osos-Millsholm-Los Gatos	Moderate to high
Marin	Xerorthents-Urban land	None to slight
	Tocaloma-McMullin	Moderate to high
	Tocaloma-McMullin-Urban land	Moderate to high
Sacramento	Xerorthents	None to slight
	Sailboat-Scribner-Cosumnes	None to slight
	Columbia-Cosumnes	None to slight
	Urban land-Americanos-Natomas	None to slight
	San Joaquin	None to slight
	Urban land-Xerarents-Fiddyment	None to slight
	Orangevale-Fiddyment	None to slight
	Redding-Corning-Red Bluff	None to slight
	Gazwell-Rindge	Slight to moderate
	Egbert-Valpac	Slight to moderate
	Clear Lake	None to slight
	Dierssen	None to slight
	Vleck-Mokelumne	Slight to moderate
	Pentz-Hadselville	Slight to moderate
	Auburn-Whiterock-Argonaut	Slight to moderate
San Francisco/San Mateo	Urban land-Sirdak	Slight to moderate
	Urban land-Orthents, smoothed	Moderate to high
	Alambique-McGarvey	Moderate to high
	Scarper-Miramar	Moderate to high
	Barnabe-Candlestick-Buriburi	Moderate to high
	Fagan-Obispo	Slight to high
	Urban land-Orthents, cut and fill	Slight to high
	Accelerator-Fagan-Urban land	Slight to moderate
	Alambique-Zeni-Zeni variant	Moderate to high
	Novato-Reyes	None
	Urban land-Orthents, reclaimed	None
	Urban land-Orthents	None to slight
	Botella-Urban land	None to slight
	Francisquito-Urban land	Slight to moderate

County	Soil Association/Landform	Erosion Hazard
Santa Clara	Soils of recent alluvial fans and floodplains	None to slight
	Soils of the basins	None to slight
	Medium and fine-textured soils over basin clays or other soils	Slight to moderate
	Soils of the terraces	Moderate to high
	Deep, medium-textured soils	Moderate
Yolo	Sycamore-Tyndall	None to slight
	Sacramento	None to slight

Source: Soil Conservation Service 1968–1993

(chronic or acute) would result from a given exposure to a chemical agent (Amdur et. al. 1991). Toxicological risk is a probability or an estimated frequency of occurrence that an adverse effect will be experienced. For instance, a lifetime risk of cancer of 1.0×10^{-6} (or one in one million) should not be interpreted to mean one individual in one million people will contract cancer; it simply means that the probability for an exposed individual is one in a million.

The routes by which an individual is exposed to a chemical agent is classically defined through the four basic exposure pathways: inhalation, ingestion, bodily contact, and injection. Inhalation (breathing the hazardous agent) is the primary route of exposure for toxic fumes or vapors and is the primary exposure pathway at a distance. Ingestion (swallowing the hazardous agent) is the primary route of exposure for contaminated food or water. Direct bodily contact (exposure to a hazardous agent through a splash or touching) requires immediate proximity to the hazardous agent. Direct bodily contact with hazardous fumes or vapors can also occur over a distance. Injection (exposure to a hazardous agent through the skin via a puncture from a needle or contaminated object) requires immediate proximity to the hazardous agent and usually occurs from improper handling or improper packing of hazardous agents.

The pathway by which an individual is exposed to a specific chemical agent can have a major effect on risk. For instance, a chemical agent may be toxic when ingested, but not when touched.

3.7.3 Regulatory Background

Hazardous materials are subject to numerous laws and regulations at all levels of government. A summary of the most pertinent regulations and their administering agencies is provided below.

Federal Regulations

At the federal level, human exposure, and in some cases the exposure of environment and wildlife, to chemical agents, is regulated primarily by four regulatory agencies: The EPA, the Food and Drug Administration (FDA), the Occupational Safety and Health Administration (OSHA), and the Consumer Product Safety Commission (CPSC). The CPSC plays a limited role (primarily the labeling of consumer products) in regulating hazardous substances as they pertain to the proposed project and, therefore, will not be discussed further. The FDA primarily regulates food additives and contaminants, human drugs, medical devices, and cosmetics. Similarly, the FDA plays a limited role in regulating hazardous substances as they pertain to the proposed project and, therefore, will not be discussed further. In addition to these regulatory agencies, the U.S. Department of Transportation regulates the interstate transport of hazardous materials.

The EPA and OSHA administer several critical congressional statutes, with varied emphasis of each statute on the protection of human health and the subsequent economic costs of such protection. For instance, under separate statutes, the EPA and OSHA may be mandated to regulate exposure to an identical substance using different significance thresholds based on the exposed individuals the agency represents. The primary focus of OSHA is the health and safety of workers, while the general public and environment are the primary focus of the EPA. These differences often reflect the mandated objectives of the statutes, the ability of the administering agency to regulate the substance of concern (i.e., does the agency's enforcement authority over the action that leads to exposure), and the economic benefits of the subject regulation. A summary of the most pertinent federal statutes and their administering agencies proceeds below.

U.S. Environmental Protection Agency

The EPA, established in 1970 by a presidential Executive Order, administers numerous statutes pertaining to human health and the environment. The EPA regulates toxic air contaminants through its implementation of the Clean Air Act (CAA). Although the CAA covers the gamut of air pollutants, Section 112(r) specifically covers "extremely hazardous materials" which include acutely toxic, extremely flammable, and highly explosive substances. Although not strictly in the realm of air pollution, Section 112(r) (referred to as the EPA's Risk Management Program) requires facilities involved in the use or storage of extremely hazardous materials to implement a risk management plan (RMP). A RMP requires a detailed analysis of potential accident factors present at a facility and requires the implementation of mitigation measures designed to reduce the identified accident potential.

The EPA also regulates the land disposal of hazardous materials through the Resource Conservation and Recovery Act (RCRA). Under RCRA, the EPA regulates the activities of waste generators, transporters, and handlers (any individual who treats, stores, and/or disposes of a designated hazardous waste). RCRA further requires the tracking of hazardous waste from its generation to its final disposal through a process often referred to as "cradle-to-grave" regulation in order to assure proper accountability.

Occupational Safety and Health Administration

Through the enactment of the Occupational Safety and Health Act, OSHA was obligated to prepare and enforce occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations apply to the workplace and cover activities ranging from confined space entry to toxic chemical exposure. OSHA regulates workplace exposure to hazardous chemicals and activities through promulgating regulations specifying workplace procedures and equipment.

U.S. Department of Transportation

The U.S. Department of Transportation regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver training requirements, load-labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

State Regulations

At the state level, hazardous materials are regulated through a number of statutes and regulations. These laws, many similar to their federal counterparts, regulate the use, storage, disposal, and transport of hazardous chemicals. The primary state regulatory authorities, the California Environmental Protection Agency (CalEPA) and California Occupational Safety and Health Administration (CalOSHA), administer many of these laws. In addition to statutes specific to the State of California, state agencies are often obligated to administer and enforce federal statutes statewide. A summary of the primary state statutes and administering agencies proceeds below.

CalEPA Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the state Hazardous Waste Control Law. Both laws impose "cradle-to-grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

CalOSHA

The CalOSHA and the federal OSHA are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. Pursuant to the Occupational Safety and Health Act of 1970, the federal OSHA has adopted numerous regulations pertaining to worker safety, contained in the Code of Federal Regulations Title 29 (29 CFR). These regulations set standards for safe workplaces and work practices, including standards relating to hazardous-material handling. CalOSHA assumes primary responsibility for developing and enforcing state workplace safety regulations. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR. CalOSHA standards are generally more stringent than federal regulations.

CalOSHA regulations concerning the use of hazardous materials in the workplace, as detailed in Title 8 of the CCR, include requirements for safety training, availability of safety equipment, accident and illness prevention

programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. CalOSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous-waste sites. The hazard communication program requires that material safety data sheets (MSDSs) be available to employees and that employee information and training programs be documented.

California Hazardous Materials Release Response Plans and Inventory Law of 1985

The California Hazardous Materials Release Response Plans and Inventory Law of 1985, often referred to as the Business Plan Act, requires facility operators to prepare hazardous-materials business plans. Hazardous materials business plans are required to inventory hazardous materials stored and used on site, disclose the location of storage and use on site, maintain an emergency response plan, and contain provisions specifying employee training in safety and emergency response procedures. Hazardous materials business plans are collected by local regulatory authorities such as local environmental health departments.

California Accidental Release Program

The California Accidental Release Program (CalARP) requires certain facilities to prepare RMPs. The CalARP is similar to the CAA's Section 112(r). The CalARP formally replaced California's old Risk Management Prevention Program (RMPP) as of January 1997. Certain facilities prior to implementation of the CalARP were required to comply with the RMPP regulation administered by the state Office of Emergency Services (OES). The majority of these facilities and certain future new facilities will be required to comply with both the federal RMP and CalARP regulations. These similar regulations require facility operators that handle an amount of a listed acutely hazardous material, as well as explosive or flammable material, exceeding a threshold planning quantity, to conduct additional planning studies covering equipment and safety systems, operating procedures, preventative maintenance, off-site consequence and risk assessment analysis, and safety auditing. OES delegates its enforcement authority to local administering agencies such as county environmental health departments and fire departments.

Emergency Response to Hazardous Materials Incidents

California has developed an emergency response plan to coordinate emergency services provided by the federal, state, and local governments and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is administered by the OES, which coordinates the responses of other

agencies including CalEPA, the California Highway Patrol, DFG, RWQCBs, local certified unified program agencies or administering agencies such as local environmental health departments, and fire departments.

Hazardous Materials Transport

State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and Caltrans. Together, these agencies determine container types used and license hazardous-waste haulers for hazardous-waste transportation on public roads.

Local Regulations

On a local or regional scale, the certified unified program agencies or administering agencies, such as environmental health/management departments or fire departments, handle and manage many local hazardous materials concerns in an emergency responder capacity. Many of the programs previously mentioned are delegated to these local authorities.

3.8 Hydrology and Water Quality

For this analysis, information is provided for major mapped drainages found on U.S. Geological Service (USGS) 7.5-minute topographic quadrangle maps of the proposed project area. Table 3.8-1 identifies beneficial use of drainages potentially crossed by the project routes.

3.8.1 Regulations, Approvals, and Permits Applicable to Hydrology and Water Quality

Section 303(d) of the CWA established the total maximum daily load (TMDL) process to guide the application of state water-quality standards (see discussion of state water-quality standards below). In order to identify candidate waterbodies for TMDL analysis, a list of water quality limited streams was generated. These streams are impaired by the presence of pollutants, including sediment, and are more sensitive to disturbance. Waterbodies on the 303(d) list for sedimentation that are in the vicinity of the proposed project include Panoche Creek and San Francisquito Creek.

The 1972 amendments to the Federal Water Pollution Control Act established the NPDES permit program to control discharges of pollutants from point sources. The 1987 amendments to the CWA created a new section of the CWA devoted to storm water permitting (Section 402(p)). The EPA has delegated permitting

authority to the SWRCB. The SWRCB issues both general and individual permits. Fiber optic cable construction is regulated under the NPDES General Permit for Construction Activities, provided the total amount of ground disturbance during construction exceeds 5 acres. The appropriate RWQCB enforces the general permit. Coverage under a general permit requires the preparation of a SWPPP. The SWPPP includes pollution prevention measures (erosion and sediment control measures and measures to control non-storm water discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, a detailed construction timeline, and BMPs monitoring and maintenance schedule. EPA will issue a new general permit in December 2002 for activities that disturb between 1 and 5 acres. The appropriate RWQCB enforces the general permit.

Section 401 of the CWA requires that an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant obtain a water quality certification. In California, water quality certifications are issued by RWQCBs. For fiber optic cable installation projects, water quality certifications can be obtained from the RWQCB by meeting the terms and conditions in Section 404 Nationwide Permit No. 12 and any other conditions added by the RWQCB, as issued by the USACE.

Section 404 of the CWA requires issuance of an individual or nationwide permit (in this instance, Nationwide Permit No. 12 for discharges associated with excavation, backfilling, or bedding of utility lines) by USACE before discharge of fill into waters of the United States, including wetlands. For a detailed discussion of wetland regulations see section 3.4, "Biological Resources."

Section 1603 of the DFG Code regulates stream- and lakebed alterations, including release of materials into streams and lakes, (see "State Policies and Regulations on Streams and Wetlands" in the "Biological Resources" section of this chapter). A streambed alteration agreement, issued by DFG, could be necessary prior to work within jurisdictional streams and lakes.

Section 10 of the Rivers and Harbors Act requires permit authorization for activities occurring within designated navigable waterways to maintain navigability in the interest of interstate commerce.

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It requires:

1. avoidance of incompatible floodplain development,
2. consistency with the standards and criteria of the National Flood Insurance Program, and
3. restoration and preservation of the natural and beneficial floodplain values.

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), the SWRCB has the ultimate authority over state water rights and water quality

Table 3.8-1. Beneficial Uses of Major Natural Watersheds along the Project Routes

Waterbody	Beneficial Uses*																		
	Mun	Agr	Proc	Ind	Gwr	Frsh	Nav	Pow	Rec1	Rec2	Comm	Warm	Cold	Biol	Wild	Rare	Migr	Spwn	Aqua
San Francisco Bay			U	U			U		U	U	U			U	U	U	U	U	U
Sacramento River	U	U		U	--	--	U	U	U	U	--	U	U	--	U		U	U	--
Delta	U	U	U	U	--	--	U		U	U	--	U	U	--	U	--	U	U	--
South Bay Streams	--	U			U	U	--	--	U	U		U	U	--	U		U	U	--
Putah Creek	U	U			--	--			U	U	--	U	U	--	U	--		U	--
American River	U	U		U	--	--		U	U	U	--	U	U	--	U	--	U	U	--

Notes:
U = existing or potential beneficial use
= not specified as an existing or potential beneficial use
-- = unknown.

*Beneficial uses:

Mun	= municipal and domestic supply.	Comm	= ocean, commercial, and sport fishing.
Agr	= agricultural supply.	Warm	= warm freshwater habitat.
Proc	= industrial process supply.	Cold	= cold freshwater habitat.
Ind	= industrial service supply.	Biol	= preservation of biological habitats of special significance.
Gwr	= groundwater recharge.		
Frsh	= freshwater replenishment.	Wild	= wildlife habitat.
Nav	= navigation.	Rare	= preservation of rare, threatened, or endangered species.
Pow	= hydropower generation.	Migr	= fish migration.
Rec1	= water contact recreation.	Spwn	= fish spawning.
Rec2	= noncontact water recreation.	Aqua	= aquaculture.

policy. However, the Porter-Cologne Act also established nine RWQCBs to oversee water quality on a day-to-day basis at the local/regional level.

RWQCBs engage in a number of water quality functions in their respective regions. One of the most important functions is preparing and periodically updating basin plans (water quality control plans). Each basin plan establishes:

1. beneficial uses of water designated for each water body to be protected;
2. water quality standards, known as water quality objectives, for both surface water and groundwater; and
3. actions necessary to maintain these standards in order to control non-point and point sources of pollution to the state's waters.

Permits issued to control pollution (i.e. NPDES permits) must implement basin plan requirements (i.e., water quality standards) that take into consideration beneficial uses to be protected.

3.9 Land Use and Planning

3.9.1 Existing Conditions

The land-use setting of the project would be primarily urban metropolitan areas. Surrounding land uses would include primarily high density, mixed-use residential, commercial, and industrial. A list of the counties and cities served by the project is provided in chapter 2, "Project Description." The project would be located predominantly in existing, disturbed corridors for public and utility rights-of-way, including pipelines, utilities, and railroad and road rights-of-way.

3.9.2 Regulatory Setting

Land-use planning is the province of local governments in California. All cities and counties within California are required to adopt a general plan establishing goals and policies for long-term development, protection from environmental hazards, and conservation of identified natural resources. Typically, a general plan lays out the pattern of future residential, commercial, industrial, agricultural, open-space, and recreational land uses within a community.

A proposed project may have an impact on the local general plan by proposing actions that would conflict with planning goals, policies, or regulations adopted to avoid or minimize environmental impacts. A proposed project may disrupt land-use patterns by physically dividing a community (e.g., freeway construction).

To implement their general plans, local jurisdictions adopt zoning, subdivision, grading, and other ordinances. Zoning identifies the specific types of land uses

that may be allowed on a given site and establishes the standards that will be imposed on new development. Zoning regulations vary from jurisdiction to jurisdiction. In some jurisdictions, construction is permitted "by right" (i.e., without the need for hearing) as an allowable use under the zoning ordinance. In others, a conditional use permit or similar discretionary action would be needed. Typically, discretionary actions require a noticed public hearing on the proposal. At the hearing, the local zoning board or zoning administrator would consider the proposal, public testimony, and the findings of a CEQA review. If approved, the proposed project would be made subject to conditions relating to its design, appearance, and construction intended to comply with local ordinance and environmental quality requirements.

3.10 Mineral Resources

Based on a review of the Map of Principal Mineral-Producing Localities (California Department of Conservation, Division of Mines and Geology and U.S. Geological Survey 1999), a variety of mineral resources occur in the vicinity of the proposed project. Table 3.10-1 lists the principal mineral resources by county.

Table 3.10-1 Primary Mineral Resources along Proposed IPN Project Routes

County	Primary Minerals
Alameda	crushed stone, salt, common clay, magnesium compounds
Contra Costa	dimension stone, crushed stone, perlite
Marin	None
Sacramento	construction sand and gravel, common clay, industrial sand
San Francisco	none
San Mateo	cement manufacturing
Santa Clara	magnesium compounds, salt, common clay, crushed stone, construction sand and gravel
Yolo	construction sand and gravel

3.10.1 Regulations, Approvals, and Permits Applicable to Mineral Resources

Land-use documents, including general plans, specific plans, and the CEQA environmental checklist typically include policies that limit development of facilities in areas that contain mineral resources.

The California Surface Mining and Reclamation Act (PRC Section 2710 et seq.) establishes statewide mineral conservation policies that are implemented by counties and cities through local surface mining ordinances. The ordinances apply to surface mining operations and would not be applicable to the proposed project. Nonetheless, these policies discourage local governments from allowing new incompatible uses (essentially defined as permanent, urban uses) in areas identified by the state geologist as containing mineral resources that are either locally important or of statewide value.

3.11 Noise

The following provides explanations of the acoustical terminology, acronyms (including dBA, Ldn, and Leq), and background information on environmental acoustics and state and federal noise regulations used in this document.

- Sound – A vibratory disturbance created by a vibrating object which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism such as the human ear or a microphone.
- Noise – Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- Ambient noise – The composite of noise from all sources near and far in a given environment exclusive of particular noise sources to be measured.
- Decibel, dB – A unitless measure of sound on a logarithmic scale which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-Pascals.
- A-Weighted Decibel, dBA – An overall frequency-weighted sound level in decibels which approximates the frequency response of the human ear.
- Equivalent Sound Level, Leq – The equivalent steady state sound or vibration level which in a stated period of time would contain the same acoustical or vibration energy.
- Percentile Exceeded Sound Level, Lxx – The sound level exceeded a specified percentage of the measurement duration. For L10 is the sound level exceeded 10% of the time and L90 is the sound level exceeded 90% of the time.
- Day-Night Level, Ldn – The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10 p.m. to 7 a.m.

In general, human sound perception is such that a change in sound level of 3 dB is generally perceived as being just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as a doubling or halving of sound level.

Private homes, hospitals, and rest homes are typically considered to be sensitive to noise, as are libraries and educational facilities. Threatened and endangered

wildlife species are also considered to be noise sensitive in some cases. The number and type of noise-sensitive uses along the project routes varies depending upon the degree of development in the area. In some areas, residences or other sensitive uses could be located within 100 feet of the project routes. In other areas, the distance between the route and the nearest noise-sensitive uses may be several thousand feet. However, because the project routes are primarily located within existing rights-of-way, any sensitive receptors are often already exposed to noise sources that utilize those rights-of-way (i.e., trains and traffic).

Background noise levels along the project routes would also vary widely depending on the degree of development and general human activity in the area. For example, railroad and road rights-of-way would typically have greater background noise associated with trains and automobiles. Typical sources of noise include transportation (e.g., automobile traffic, aircraft, train, watercraft), mechanical equipment (e.g., air conditioners, manufacturing equipment), and natural sources (e.g., wind, birds, crickets, frogs). Background sound levels typically range from 35 to 45 dBA in rural areas, 45 to 55 dBA in suburban areas, and 55 to 65 dBA in urban areas.

3.11.1 Regulations, Approvals, and Permits Applicable to Noise

California Government Code Section 65302(f) requires that city and county general plans include a noise element. The general plan noise element is used as a planning guideline to ensure that long-term noise generated by a source is compatible with adjacent land uses.

The California Department of Health Services (DHS) has studied the correlation of noise levels and their effects on various land uses and has published land use compatibility guidelines for the noise elements of local general plans (Office of Planning and Research 1990). The guidelines are the basis for most noise element land use compatibility guidelines in California. The DHS noise element guidelines identify the normally acceptable noise level ranges for several different land uses. Recommended maximum acceptable noise levels for various land uses are shown in table 3.11-1.

As shown in table 3.11-1, low-density residential areas are most sensitive to noise intrusion with noise levels of 60 dBA Ldn and below considered acceptable. Acceptable noise levels are up to 70 Ldn for schools, libraries, churches, hospitals, and parks, and up to 70 and 75 Ldn respectively for commercial and industrial land uses.

Table 3.11-1. Maximum Allowable Ambient Noise Exposure for Various Land Uses

Land Use	Suggested Maximum Ldn
Residential – low density	60
Residential – high density	65
Transient lodging	65
Schools, libraries, churches, hospitals	70
Auditoriums	70
Playgrounds, parks	70
Commercial	70
Industrial	75

Source: Office of Planning and Research 1990.

Cities and counties can also adopt noise control requirements within their zoning ordinances or as separate ordinances. Noise ordinances serve as an enforcement mechanisms for controlling noise. The level of specificity in noise ordinances used in California cities and counties vary widely. Many are based on the model noise ordinance published by DHS, which recommends daytime and nighttime noise level limits of 40 and 50 dBA-L_{50} respectively for rural uses, 45 and 55 dBA-L_{50} respectively for suburban uses, and 50 and 60 dBA-L_{50} respectively for urban uses. Noise ordinances often contain exemptions for construction activities, provided the construction takes place during the hours specified by affected local jurisdictions.

Noise element compatibility standards are typically used to evaluate long-term noise-related land use compatibility for development of an area, whereas noise ordinances are used to regulate noise from specific noise sources such as music and parties, industrial activities, and construction. Because noise sources associated with the proposed project fall in the second category typically regulated by noise ordinances, noise element criteria would typically not apply to these sources.

Each city and county typically enacts its own noise ordinance standards; however, most noise ordinances are fairly similar. Noise ordinances generally set limits on acceptable noise levels at the property line of the affected land use based on the background noise level, the noise level from the source in question, the duration of the noise event, and the time of day. Noise ordinances often contain exemptions for construction activities, provided that the construction activity takes place during hours specified by affected local jurisdictions. There are no established noise thresholds for wildlife species; accordingly, noise impacts on wildlife are generally addressed qualitatively. For purposes of this analysis, noise environments considered to be acceptable for human use are

considered acceptable for wildlife species. Potential project-related impacts on wildlife are addressed in section 4.4, "Biological Resources."

3.12 Population and Housing

The proposed project will likely occur in urban settings. As described in chapter 2, "Project Description," installation of fiber optic cable would serve existing markets (i.e., businesses) and would occur in existing utility rights-of-way. No local, state, or federal regulations applicable to the proposed project have been identified at this point.

3.13 Public Services

Public services are typically provided to development projects by a variety of local purveyors (i.e., city, county, special district, water agency, and school district). The services available vary depending on the level of development in the area. The proposed project would be located predominantly in existing disturbed corridors for public and utility rights-of-way, including pipelines, utilities, railroad and road rights-of-way. Surrounding land uses would include primarily high-density, mixed-use residential, commercial, and industrial. Central offices would be constructed on utility or private property. No local, state, or federal regulations applicable to the proposed project have been identified at this point.

3.14 Recreation

Public recreation facilities are provided by cities, counties, and special districts. The types and uses of these recreation facilities vary greatly. In urban areas, typical recreation facilities include parks consisting of playgrounds, picnic areas, and bike and pedestrian pathways. These types of facilities may be located adjacent to project alignments. No local, state, or federal regulations applicable to the proposed project have been identified at this point.

3.15 Transportation and Traffic

The project site would occur throughout several urbanized areas in Northern California, including the San Francisco Bay Area and the greater Sacramento metropolitan area (see figure 2). The project would not use roadways as a means of transportation, but rather as a corridor for the placement of underground fiber optic cable. Generally, construction-related activities associated with implementation of the proposed project are expected to occur within existing rights-of-way (e.g., paved streets) for installation routes and locations. Construction staging could occur in adjacent areas.

As roadways traverse through different city and county jurisdictions, maintenance is undertaken by the appropriate city/county public works department. Requests for ingress into local roadway right-of-way generally require the completion of an application to encroach.

State roadways are maintained by Caltrans. The use of state roadways for other than normal transportation purposes (i.e., non-vehicular in nature) may require written authorization (e.g., an encroachment permit) from Caltrans. Some of these activities are construction of highway improvements, utility installation, commercial filming, and special events such as parades. Caltrans is responsible for overseeing statewide policy and procedure of encroachment permit activities within the state highway system.

3.16 Utilities and Service

Construction of the proposed project would occur rapidly and would not require use of outside utilities, including water, wastewater and storm water service systems. Utilities are typically provided to development projects by a variety of local purveyors (i.e., city, county, special district, water agency). The services available vary depending on the level of development in an area. Operation of the project would not involve use of these systems, either. No local, state, or federal regulations applicable to the proposed project have been identified at this point.

Chapter 4
Environmental Impacts and Mitigation Measures

This chapter provides a discussion of the potential impacts that could result from implementation of the proposed project. The subsections are organized by resource topic based on the Environmental Checklist Form presented in Appendix G of the State CEQA Guidelines.

For each resource topic, the relevant portion of the state environmental checklist form is provided, followed by the criteria for determining significance and the impact assessment.

The "Criteria for Determining Significance" describe the criteria used in the impact evaluation to determine the significance of the potential impact. These criteria include the checklist criteria and professional standards.

The "Impact Assessment" includes a discussion responding to the questions in the environmental checklist. Pursuant to the CEQA Guidelines, a project's physical effects on the environment can be characterized as follows:

- *No impact* – the proposed project would not result in an impact.
- A *less-than-significant impact* – the proposed project would result in an impact, but at a level that is not considered significant.
- A *less-than-significant impact with mitigation incorporated* – absent mitigation measures or project revisions, the impact of the proposed project would be considered significant. When potentially significant impacts are identified, an impact statement is followed by a description of the impact and appropriate mitigation to reduce the impact to a less-than-significant level.
- A *potentially significant impact* – there is substantial evidence that the impact of the proposed project may be significant and cannot be avoided or reduced to a less-than-significant level.

Implementation of the mitigation measures specified in this Last Mile IS/MND would either avoid the impacts completely or reduce all temporary and short-term construction impacts and any long-term operational impacts to less-than-significant levels. Because specific linear routes have not been identified, the mitigation is process-oriented and includes sufficient detail to enable the

applicant to implement appropriate mitigation measures to reduce all potentially significant impacts.

4.1 Aesthetics

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:				
a)	Have a substantial adverse effect on a scenic vista?		✓		
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?		✓		
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?		✓		
d)	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?		✓		

The term *aesthetics* typically refers to the perceived visual character of an area, such as of a scenic view, open space, or architectural facade. The aesthetic value of a given area depends on a combination of viewer response and the visual character and scenic quality of the area. This combination may be affected by the components of a project (e.g., buildings constructed at a height that obstructs views, hillsides cut and graded, open space changed to an urban setting), as well as changing elements, such as light, weather, and the length and frequency of viewer exposure to the setting.

4.1.1 Criteria for Determining Significance

The analysis of significance of impacts of the proposed project is based on criteria *a–d* in the CEQA environmental checklist above. In general, projects that result in substantial changes to land forms, remove or add significant structures, result in visual clutter or disorder, or substantially disrupt the visual context of their surroundings would be considered to have a significant visual impact.

4.1.2 Impact Assessment

Structures and changes in landforms have some impact on the visual environment. The extent of the impact is based on several factors, such as the existing visual character of the areas, the expectations of individuals viewing the areas, and the location of the impact (foreground, middle ground, and background). Potential visual impacts associated with the proposed project could

result from ground disturbance associated with installation of cable markers and manholes, aerial construction, and construction of the central offices.

Aesthetic values differ between areas. Tolerance for visual clutter, expectations for landscaping, and preferred types of architecture are common discriminators of aesthetic values. Context is also important. For example, large office structures that would have little visual impact in a large city might have a significant visual impact in a suburban community. Similarly, adding an above-ground utility service box would have a greater visual impact in a park or an area of undeveloped open space or near a historic building, than near other utility facilities.

To assess effects on visual resources, two factors were considered with the checklist questions:

- the sensitivity of the proposed project study area to disturbances, and
- the type and duration of the disturbance associated with the proposed project.

a. Have a substantial adverse effect on a scenic vista? Or

b. Substantially damage scenic resources along a scenic highway, including, but not limited to, trees, rock outcroppings, and historic buildings?

Impact AES-1: Adverse Effect on a Scenic Vista or Damage to a Scenic Resource

Scenic vistas and resources as described for aesthetics in chapter 3 are usually listed in local general plans; scenic highways are listed by Caltrans. Installation of fiber optic cable could affect scenic vistas or resources. See section 4.4, "Biological Resources," for a discussion of potential impacts on vegetation and other natural resources, and section 4.5, "Cultural Resources," for a discussion of potential impacts on historic buildings.

The use of existing access points in existing disturbed rights-of-way is not likely to affect scenic resources because only minimal surface disturbance would be required for a short period of time. Any damage to resources in existing rights-of-way is likely to have already occurred, and construction impacts would be temporary and short-lived. Construction of new access points in existing disturbed rights-of-way would likewise not affect scenic resources. Trenching, boring, and construction staging areas associated with installation of new cable in existing disturbed rights-of-way is not likely to affect scenic resources. Although directional boring would require use of entry and exit bore pits, the pits would be filled in and returned to existing grade following installation. If the cable were buried, visible aboveground structures would be limited to manholes (which would be constructed at grade) and cable markers. These new features would blend with existing utility marker posts and markers demarcating the roads, and would not constitute a change from existing conditions. Because the project

would be constructed within existing, disturbed rights-of-way in urban areas, the belowground components would be consistent with the existing visual character.

Aboveground cable installation includes installation on existing utility poles, transmission towers, or bridges. Aerial installation would include attaching fiber optic cable to existing or new brackets, and construction of an aerial building entrance. Visible new features would be limited to new cable. This is not likely to result in significant impacts. However, central offices would be constructed on private property alongside existing utility facilities. Because the central office sites could consist of three to eight buildings of 10–12 feet in height, these offices may not be consistent with the existing visual setting. Central offices could also obstruct viewsheds or change the character of existing resources. Implementation of mitigation measure AES-MM-1 would reduce potential impacts to less-than-significant levels.

Mitigation Measure AES-MM-1: Identify scenic resources within 1,500 feet of the proposed alignment and locate all permanent substantial aboveground features 1,000 feet away from scenic resources.

Section 320 of the CPUC requires new or relocated electric and communication distribution facilities to be buried underground when located within 1,000 feet of an official designated scenic highway and visible from that highway.

Because the proposed routes are not yet known, a preliminary list of potential affected resources must be developed. The project applicant will be required to consult the city and county general plans and the Caltrans list of scenic highways in order to determine if scenic resources are located within 1,000 feet of the project route. The project proponent will review the appropriate county and city planning documents (e.g., land use and open-space elements) to identify scenic resources and to ensure compliance with local ordinances regarding scenic resources.

c. Substantially degrade the existing visual character or quality of the site and its surroundings?

As described above, most methods of installing cable will not result in changes to the visual environment. Cable markers and marker posts represent the majority of anticipated changes. Aerial installation would involve attaching cable to existing structures and is not likely to result in a noticeable change to the visual setting.

Impact AES-2: Possible Visual Effect Resulting from Construction of Central Offices

Placement of central offices at existing utility stations would be consistent with the existing visual character of the sites. However, some local jurisdictions may require that construction of aboveground facilities and structures undergo local design review processes. The project would be required to comply with applicable design review guidelines for construction of the central offices.

Mitigation Measure AES-MM-2: Review and comply with local planning documents, zoning, and other ordinances regarding utility lines and buildings.
The applicant will coordinate with the planning staff of relevant local jurisdictions to determine required permits, to assess the project's consistency with relevant local land use plans, policies, zoning, and other relevant ordinances.

d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Construction of the project could occur at night. This would require sufficient lighting for construction crews. However, this would not result in a significant impact because the construction duration would be short and temporary.

Impact AES-3: Possible Light and Glare Effect Resulting from Construction of Central Offices

The security lights and exterior door lights at central offices would introduce a new low-level source of light. Depending on the existing adjacent land uses, these new light-sources could affect surrounding sensitive land uses (e.g., residents). In addition, building materials used for central offices could result in glare impacts to residents or drivers.

Mitigation Measure AES-MM-3: Use non-reflective material and directed lighting fixtures for all central offices.
The project applicant will use non-reflective materials for building construction. Lighting fixtures on the central offices will be minimized and will include features that focus lighting and minimize spill effects.

4.2 Agricultural Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
II.	**AGRICULTURAL RESOURCES.** In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:				
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				✓
b)	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?			✓	
c)	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use?				✓

4.2.1 Criteria for Determining Significance

The analysis of significance of impacts on agricultural resources is based on criteria *a–c* in the CEQA Environmental Checklist. Projects that have a significant effect on agricultural resources are those that result in a long-term or permanent loss of agricultural land. Conversion of agricultural land also may result in a significant impact. Conversion may be direct, through construction over the land or removal of land from a Williamson Act contract in anticipation of development, or indirect, through the incremental loss of agricultural land or restriction of agricultural use.

4.2.2 Impact Assessment

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

By design, the proposed project would not result in the permanent conversion of significant amounts of prime or unique farmland or farmland of statewide importance to nonagricultural use. Once installed, the project components would have no long-term impact on agricultural operations beyond that already inherent in the existing right-of-way. Additionally, because the project would be installed within existing disturbed rights-of-way, disruption of agricultural activities is unlikely because these disturbed rights-of-way are typically not in agricultural production.

b. Conflict with existing zoning for agricultural use or with a Williamson Act contract?

Communications facilities are considered a "compatible" (i.e., allowable) use in agricultural preserves under Government Code Section 51238. Construction of all project components would be consistent with the government code and would not have an impact on Williamson Act land by requiring or resulting in its conversion to other non-agricultural uses.

c. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to non-agricultural use?

The proposed project would not create demand for any agricultural land and would not exert pressure for conversion of agricultural land to another use. The fiber optic cable system simply transmits data across areas with agricultural land. The proposed project would not result in an impact on agricultural resources or change the existing environment by causing a conversion of farmland to non-agricultural use.

4.3 Air Quality

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
III.	**AIR QUALITY.** When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a)	Conflict with or obstruct implementation of the applicable air quality plan?				✓
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		✓		
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?			✓	
d)	Expose sensitive receptors to substantial pollutant concentrations?		✓		
e)	Create objectionable odors affecting a substantial number of people?			✓	

4.3.1 Criteria for Determining Significance

The analysis of significance of impacts of the proposed project is based on criteria *a-d* in the CEQA Environmental Checklist.

Many individual air districts have developed air quality thresholds of significance used to determine whether project-related air quality impacts need to be mitigated. Those thresholds vary by air district and are summarized in table 4.3-1. Some thresholds shown in table 4.3-1 are based on CEQA air quality guidelines published by individual air districts; others are inferred from existing air district rules and regulations. Construction-related significance thresholds include pounds-per-day (lbs/day) and tons-per-quarter year (tons/quarter) values. The Bay Area AQMD has opted not to set significance thresholds for construction. Instead, the district has identified mitigation measures that would reduce impacts to less-than-significant levels.

Table 4.3-1. Emission Offset Significance Thresholds[a]

Local Air Districts[b]	ROG	NO_x	PM10	CO	Basis
Bay Area AQMD	N/A[c]	N/A[c]	N/A[c]	N/A[c]	BAAQMD's CEQA handbook
Sacramento Metropolitan AQMD[a]	85 lbs/day	85 lbs/day	275 lbs/day	N/A	CEQA Manual

Notes:

[a] Thresholds are for construction and operation.
[b] Thresholds for the Yolo-Solano AQMD are the same as for the Sacramento Metropolitan AQMD.
[c] Emission estimates are not required for construction. Instead, application of mitigation measures is required. Operational thresholds in the Bay Area AQMD equal 80 pounds per day and 15 tons per year for ROG, NOx, and PM10.

Sources: Bay Area Air Quality Management District 1996; Sacramento Metropolitan Air Quality Management District.

Methodology for Determining Construction Emissions

Construction equipment, including backhoes, excavators, tractors, and other vehicles, would be used during construction. The heavy equipment would produce temporary air pollutants during the proposed project's construction phase.

Table 4.3-2 summarizes estimated emissions associated with typical construction activities for fiber optic cable installation projects (e.g., installation of new access points and new conduits). The emissions include exhaust emissions from construction equipment and fugitive PM10 dust from vehicle activity on exposed earth. The estimates of daily emissions assume one wheeled loader, one motor grader, and one water truck, each operating 8 hours per day, with a total disturbance of no more than 1 acre per day. Installation of cable in existing pipelines or conduit, through the use of boring techniques, or by attaching cable aerially would result in emission levels lower than those shown in table 4.3-2 because of less intensive use of construction equipment and lessened soil disturbance. Construction of central offices would similarly result in lower emission levels than those shown in table 4.3-2 because the central offices would be prefabricated buildings placed atop a concrete slab.

Construction activities would generate temporary diesel exhaust emissions. In this analysis, odor impacts are evaluated qualitatively

Table 4.3-2. Construction Emissions Associated with Worst-Case Fiber Optic Cable Installation Projects

Emissions	ROG	NO_x	PM10
Pounds per day	3.4	29.2	53.0
Tons per quarter	0.1	1.0	1.7

Notes:
Quarterly emissions assume pounds per day at 66 days per quarter. Emission estimates assume disturbance of 5 acres per day, estimated by multiplying an installation rate of 1 mile per day by a construction corridor of 40 feet. Installation rates for most cable installation projects are expected to be much less than one mile per day, to disturb less than 5 acres per day, and to require a construction corridor of less than 40 feet. Construction emissions assume equipment typically used for construction. The URBEMIS7G model was used to estimate construction-related emissions. Typical construction-related mitigation measures can be used to reduce PM10 emissions shown above by 50% and ROG and NO_x emissions by 5%.

Methodology for Determining Operational Emissions

The proposed project would include one or more diesel-powered backup generators located at each central office to provide emergency electric power. A 255-horsepower (hp) engine represents the largest diesel engine expected to be used for backup generators. Smaller engines may be used in some areas. Air pollutants would be produced intermittently by use of the backup generators during power interruptions. Table 4.3-3 summarizes emissions associated with a typical backup generator operated for 24 hours. Even if backup generators were limited to 3 hours per day maximum, and emissions were 1/8 of those shown in Table 4.3-3, the applicant would have to take a permit condition limiting operation of the backup diesel generators to no more than 3 hours per day and shut down those generators after 3 hours of operation.

Table 4.3-3. Operational Emissions Associated with a 255-hp Diesel Generator (in pounds per day)

ROG	NO_x	SO_x	CO	PM10
9.4	88.1	6.2	18.5	3.8

Note: SO_x was estimated using AP-42 emission factors (U.S. Environmental Protection Agency 1998). All other emissions rates are based on Generac engine model emissions data (Generac Corporation, P.O. Box B, Waukesha, WI).

Operational activities would not normally generate odors, although some diesel exhaust would be released during emergency electrical outages by the operation of diesel backup generators at central offices. In this analysis, odor impacts are evaluated qualitatively.

4.3.2 Impact Assessment

The primary air emissions generated by the proposed project would be temporary, resulting from construction activities associated with installation. Emissions would also be produced by the infrequent operation of emergency backup generators at central offices. The emergency backup generators would operate only during electrical outages.

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The primary air emissions generated by the proposed project would be temporary, resulting from construction activities associated with installation. Emissions would also be produced by the operation of emergency backup generators at the central offices.

The emissions would be generated in air basins that are classified as nonattainment for one or more of the state and federal ambient air quality standards (i.e., ozone and PM10). Areas classified as nonattainment are required to prepare air quality plans describing the steps that will be taken to reach attainment. For the proposed project, none of the activities would conflict with existing air quality plans or programs and, consequently, no impacts would occur (El Dorado County Air Pollution Control District, et. al. 2000; Bay Area Air Quality Management District et. al. 2001).

b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation? and/or

Impact AIR-1: Temporarily Increased Levels of Air Pollutants during Construction Exceeding Air District Thresholds

Heavy equipment would produce temporarily increased levels of air pollutants during construction. The project would result in the generation of air pollutants in areas classified as nonattainment areas and could contribute to project air quality violations and expose sensitive receptors to substantial pollutant concentrations. This is considered a significant impact. Although the expected emissions would fall below the thresholds established by all air districts, specific mitigation measures are identified to minimize the generation of dust and exhaust emissions associated with construction activities. With the implementation of the following mitigation measures, construction impacts would be reduced to a less-than-significant level.

Mitigation Measure AIR-MM-1: Implement construction BMPs to reduce dust and air emissions.

The project applicant will use Best Management Practices (BMPs), as required in the respective air pollution control district or air quality management district, for construction activities, and will train work crews in those measures before beginning work. The available BMPs will, at a minimum, include the practices

listed below in combination with any additional practices required by the presiding air district.

- Water construction areas to minimize visible dust emissions.
- Apply approved nontoxic chemical soil stabilizers according to manufacturer specifications to all inactive construction areas (previously graded areas that remain inactive for 96 hours).
- Re-establish ground cover on the construction site through seeding, as required for erosion control.
- Maintain truck and equipment engines in good running condition.
- Clean equipment daily or as needed to reduce tracking of soil onto adjacent roads.
- Clean adjacent roads daily or as needed to remove accumulated soil.
- Limit maximum speed to 15 miles per hour (mph) on unpaved roads.
- Suspend all grading operations when wind gusts exceed 25 mph.

Mitigation Measure AIR-MM-2: Obtain air permit.
For construction activities requiring a drill rig, an air permit may be required prior to the start of construction. For boring operations, contact the respective air district(s) to determine whether a stationary-source air permit is required. If required, obtain that permit prior to initiating any boring activities.

Impact AIR-2: Temporary Emissions Exceeding Limits from Operating Emergency Backup Generators

The diesel-powered engines running the emergency backup generators at the central offices would emit air pollutants during the periods they are in use. This is considered a significant impact because the daily NO_x emissions from such generators would exceed the significance thresholds established by the Bay Area AQMD and the Sacramento Metropolitan AQMD. This impact is considered significant. Implementation of the following mitigation measure will reduce this impact to a less than significant level.

Mitigation Measure AIR-MM-3: Obtain authority to construct and permit to operate emergency backup generators, where required.
Before construction and operation of any emergency backup generators in districts requiring permits for such facilities, the project applicant will obtain an authority-to-construct permit and a permit to operate from the appropriate air pollution control or air quality management district. The permit will specify that generators will be in use in 3-hour increments. In addition, vendor-guaranteed emission rates and/or NO_x emission control measures must be identified that will reduce NO_x emissions to levels less than the significance thresholds.

c. Would the project result in a cumulatively considerable net increase in any criteria pollutant for which the project region is a nonattainment area for an

applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

With implementation of the identified mitigation measures described above, the proposed project would comply with all air quality standards. Therefore, construction and operation of the proposed fiber optic cable projects would not conflict with or obstruct implementation of any applicable air quality plan, nor violate any air quality standard or contribute substantially to an air quality violation. It would not result in a cumulatively considerable net increase of a criteria pollutant in a nonattainment area for which the project regions are a nonattainment area for applicable ambient air quality standards and, with mitigation, would not expose sensitive receptors to substantial pollutant concentrations. No additional mitigation is required.

d. Expose sensitive receptors to substantial pollutant concentrations?

See discussion under Environmental Checklist question *b.*for a description of potential impacts and mitigation measures.

e. Would the project create objectionable odors affecting a substantial number of people?

The proposed project would temporarily generate odors from diesel exhaust during construction activities. The project's odor impacts are considered less than significant because construction odors would be temporary and would not be severe nor affect a substantial number of people.

4.4 Biological Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IV.	**BIOLOGICAL RESOURCES.** Would the project:				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		✓		
b)	Have 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?		✓		
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?		✓		
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		✓		
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?		✓		
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?		✓		

4.4.1 Criteria for Determining Significance

The analysis of significance of impacts of the proposed project is based on the criteria described in the environmental checklist above. Additionally, the following criteria were considered in determining whether an impact on biological resources would be significant:

- federal or state legal protection of the resource or species,

- federal or state agency regulations and policies,
- local regulations and policies,
- documented resource scarcity and sensitivity both locally and regionally, and
- local and regional distribution and extent of biological resources.

Based on the State CEQA Guidelines and the general criteria identified above, impacts on biological resources were considered significant if the proposed projects would result in any of the following:

- long-term degradation of a sensitive plant community because of substantial alteration of land form or site conditions (e.g., alteration of wetland hydrology);
- substantial loss of a plant community and associated wildlife habitat;
- fragmentation or isolation of wildlife habitats, especially riparian and wetland communities;
- substantial disturbance of wildlife resulting from human activities;
- avoidance by fish of biologically important habitat for substantial periods, which may increase mortality or reduce reproductive success;
- disruption of natural wildlife movement corridors;
- substantial reduction in local population size attributable to direct mortality or habitat loss, lowered reproductive success, or habitat fragmentation of:
  - species qualifying as rare and endangered under CEQA,
  - species that are state-listed or federally listed as threatened or endangered, or
  - portions of local populations that are candidates for state or federal listing and federal and state species of concern;
- substantial reduction or elimination of species diversity or abundance.

4.4.2 Impact Mechanisms

Biological resources could be directly affected by construction activities during conduit and/or cable installation, by construction of central offices, and by ongoing operational and maintenance activities along the fiber optic cable routes. Although most of the projects would occur in urban areas, biological resources could be disturbed during the following ground-disturbing activities:

- use of existing manholes and utility structures;
- plowing or trenching during conduit and cable installation;
- temporary stockpiling of soil or construction materials and sidecasting of soil and other construction wastes;

- excavation for assist points;
- use of equipment staging areas and access roads;
- soil compaction, dust, and water runoff;
- vehicle traffic and equipment and materials transport along the right-of-way;
- temporary parking of vehicles outside the construction zone on sites that support sensitive resources (sites not designated as equipment staging areas); and
- noise disturbance to wildlife species from construction activities and increased human presence.

4.4.3 Impact Assessment

a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The proposed project could potentially have significant effects, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species (herein referred to as special-status species). To ensure that impacts are reduced to a less-than-significant level, site-specific surveys are required to determine the occurrence or potential occurrence of species. If it is found that these species or their habitat would be affected by project activities, the mitigation measures described below would have to be implemented.

The mitigation measures described for potential impacts on special-status species have not been developed through formal consultation or coordination with resource agencies (e.g., DFG and USFWS). The mitigation measures may be modified during future project-specific coordination with the resource agencies. Additional mitigation measures that may be identified as part of project permits (e.g., Section 404, 1603 Streambed Alteration Agreement, if needed) will be implemented as part of each project and monitored during construction to ensure compliance. In cases where mitigation measures identified in project permits conflict with those identified in this Last Mile IS/MND, the more stringent measure will apply.

Impact BIO-1: Potential Disturbance of Special-Status Plant Populations

Although most of the project alignments will be located within urban areas, undeveloped lands within these urban areas could support special-status plant species. Construction activities could result in the disturbance of special-status plants located within and adjacent to project alignments (including manholes). This disturbance is a potentially significant impact because it could reduce local population size, lower reproductive success, or fragment habitat. To ensure that this potential impact is reduced to a less-than-significant level, IPN would

implement the following mitigation measures as part of the project to avoid and minimize impacts on special-status plants that may occur in the project region.

Mitigation Measure BIO-MM-1: Retain a qualified botanist to conduct botanical surveys and document special-status plant populations. IPN will retain a qualified botanist to evaluate existing habitat conditions for each project and determine what level of botanical surveys may be required. The type of botanical survey will depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on these factors and the proposed construction activity, one or a combination of the following levels of survey may be required:

1. **Habitat Assessment.** A habitat assessment may be conducted to determine if suitable habitat is present. This type of assessment can be conducted at any time of year and is used to assess and characterize habitat conditions and determine if return surveys are necessary. If no suitable habitat is present, no additional surveys would be required.
2. **Species-Focused Surveys.** Species-focused surveys (or target-species surveys) may be conducted if suitable habitat is present for special-status plants. The surveys would focus on special-status plants that have the potential to occur in the region and would be conducted during a period when the target species are evident and identifiable.
3. **Floristic Protocol-Level Surveys.** Floristic surveys that follow the CNPS Botanical Survey Guidelines (approved by the CNPS Board on June 2, 2001) may be conducted in areas that are relatively undisturbed and/or have a moderate to high potential to support special-status plants. The CNPS Botanical Survey Guidelines require that all species be identified to the level necessary to determine whether they qualify as special-status plants, or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be conducted when special-status plants that could occur in the area are evident and identifiable. To account for different special-status plant identification periods, one or more series of field surveys may be required in spring and summer months.

Special-status plant populations identified during the field surveys will be mapped on topographic maps, flagged, photographed, and documented on CNPS field forms. The survey methods and results will be documented in the construction work plan (appendix B).

If special-status plants are located during the field surveys, IPN will implement a combination of the following mitigation measures as part of the project:

Mitigation Measure BIO-MM-2: Avoid impacts on state- and federally listed and CNPS 1b special-status plant populations by establishing and observing exclusion zones.

This mitigation measure focuses on avoiding all direct and indirect effects on threatened, endangered, and candidate and other special-status plants (CNPS List 1B). Before construction activities begin, IPN will retain a qualified biologist to establish exclusion zones around special-status plant populations. Exclusion zones will have a minimum 20-foot radius and will be marked in the field with stakes and flagging and will be located on the construction drawings. All construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be prohibited within the exclusion zones. Fiber optic cable installation and construction of central offices near these resources will be accomplished by rerouting around the exclusion zone. If rerouting is not feasible, the fiber optic conduit will be bored beneath the exclusion zone. Central offices would have to be relocated. All stakes and flagging demarcating exclusion zones will be removed within 60 days after construction and site restoration have been completed in the area.

Mitigation Measure BIO-MM-3: Avoid impacts on CNPS Lists 2 and 4 special-status plant populations by implementing specific measures.

Complete avoidance of some nonlisted special-status plant populations may not be necessary (e.g., certain locally common CNPS List 2 species). For some species, impacts of the proposed project would not be significant based on the distribution of the species, the narrow corridor of the cable route, and other factors (e.g., timing of installation may avoid the plants' critical reproductive period). For other species, the impact of construction activities could result in an impact on the local plant population. To avoid significant impacts on CNPS Lists 2 and 4 special-status plants, the following measures will be implemented:

- Identify plant populations and areas identified as suitable habitat in the construction corridor and staging areas using staking and flagging.
- Conduct construction activities during the period when the plant is not flowering or fruiting.
- Minimize disturbance in areas that support special-status plants by limiting ground disturbance and other activities to the smallest possible corridor.
- Identify CNPS List 2 plant populations that may be impacted at least 2 weeks prior to disturbance to allow time for coordination with the appropriate land management and resource agencies. The appropriate agencies will be contacted to discuss the most appropriate measures to use for minimizing impacts on CNPS List 2 species. In general, the measures will include excavating the appropriate topsoil depth (approximately 2 to 6 inches, depending on the species,) from the population site and stockpiling with intact roots, rhizomes, and seed bank in areas that will be trenched.

  The topsoil material will be replaced immediately during postremoval revegetation activities with little compaction to encourage water filtration

and soil oxygenation. This revegetation activity will be monitored by a qualified botanist familiar with the local flora.

- Provide documentation to the CPUC on the success of the transplantation.

Mitigation Measure BIO-MM-4: Confine construction equipment and associated activities to the designated work area.
Construction equipment will be confined to a designated work area in areas that support sensitive resources (e.g., in areas that support riparian and wetland communities and special-status species adjacent to the work area).

During the environmental training program, construction personnel will be informed about the importance of avoiding ground-disturbing activities outside of the designated work area. The contract compliance inspectors and environmental resource coordinator, with support from qualified biologists, if necessary, will ensure that construction equipment and associated activities avoid any disturbance of sensitive resources outside the work area.

Mitigation Measure BIO-MM-5: Retain qualified biologists and resource specialists to monitor construction activities near specified sensitive biological areas.
IPN will retain qualified biologists and other qualified resource specialists, as necessary, to monitor fiber optic cable installation activities along each project alignment where sensitive resources have been identified. Monitors will be hired and trained prior to construction and will be responsible for preconstruction surveys, resource staking, onsite monitoring, documentation of violations and compliance, coordination with construction inspectors, and postconstruction documentation.

Biological monitors will locate and stake previously identified sensitive resources before construction activities begin in specified segments. Resource monitors/contract construction inspectors will patrol areas and work with contract compliance inspectors to ensure that barrier fencing, stakes, and required setback buffers are maintained. They will also be responsible for monitoring construction activities in areas that support sensitive biological resources.

Monitors will also be responsible for completing variance forms and obtaining clearance from the resource agencies for deviations from the mitigation measures (e.g., decreases in exclusion zones).

Mitigation Measure BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction.
IPN will conduct a brief biological-resource education program for construction crews (primarily crew and construction foremen) before construction activities begin. The education program will include a brief review of the special-status species and other sensitive resources that could exist in the proposed project study area (including their life history and habitat requirements and what portions of the proposed project study area they may be found in) and their legal status

and protection. The program will also cover the mitigation measures, environmental permits, and proposed project plans, such as a SWPPP, reclamation plan, and any other required plans. The program will also cover interpretation of the construction drawings because sensitive resources will be located on the drawings. The crew foreman will be responsible for ensuring that construction personnel adhere to the guidelines and restrictions. Multiple education programs will be conducted as needed to inform appropriate new personnel brought on the job during the construction period.

Impact BIO-2: Potential Introduction of New Noxious Weeds or Spread of Existing Noxious Weed

Construction activities could introduce or spread noxious weeds into currently uninfested areas, possibly resulting in the displacement of special-status plant species and degradation of habitat for special-status wildlife. Plants or seeds could be dispersed by construction equipment travelling along the project corridor. This is a potentially significant impact. To ensure that this potential impact is reduced to a less-than-significant level, IPN would implement the following mitigation measures as part of the project.

Mitigation Measure BIO-MM-7: Conduct a noxious-weed survey and document noxious-weed infestation.

IPN will retain a qualified botanist to determine if the topic of noxious weeds need to be addressed for the project and if noxious weeds have the potential to displace native plants and natural habitats, affect the quality of forage on rangelands, or affect cropland productivity. If the biologist determines that noxious weeds are an issue, IPN's consultant will review the county agricultural commission noxious-weed list, California Department of Food and Agriculture's A-, B-, and C-lists of noxious weeds, and California Exotic Pest Plant Council list of pest plants of ecological concern. Surveys should focus on target weed species that are considered locally important for documentation and control purposes. Noxious weed infestations and recommended treatments will be documented in the construction work plan (appendix B). If noxious weed infestations are located during the field surveys, IPN will implement the following mitigation measures as part of the project.

Mitigation Measure BIO-MM-8: Avoid the dispersal of noxious weeds into uninfested areas.

To avoid the introduction or spread of noxious weeds into previously uninfested areas, IPN will implement the following measures as part of the proposed project:

- Use certified weed-free imported materials (or rice straw in upland areas).
- Coordinate with the county agricultural commissioners and land management agencies to ensure that the appropriate BMPs are implemented.
- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious-weed infestations.

- Clean equipment at designated wash stations after leaving noxious-weed infestation areas (these wash stations will be identified by the resource specialists before construction activities in a particular segment).

The contract compliance inspectors, with support from resource personnel, will routinely inspect installation activities to verify that construction equipment is being cleaned of soil and plant matter at designated wash stations.

Impact BIO-3: Potential Disturbance of Special-Status Wildlife Species

Although construction for most of the project alignments will be located within urban areas, undeveloped lands within these urban areas could support special-status wildlife species. Construction activities could result in the disturbance of special-status wildlife species located within and adjacent to project routes, potentially reducing local populations of these species, and thus resulting in a potentially significant impact. To ensure that this potential impact is reduced to a less-than-significant level, IPN would implement the following mitigation measures as part of the project.

Mitigation Measure BIO-MM-9: Retain a qualified wildlife biologist to conduct a habitat assessment for special- status wildlife species.
IPN will retain a qualified wildlife biologist to evaluate existing habitat conditions for each project and determine if habitat capable of supporting special-status wildlife species is present on or adjacent to the project site and could be affected during construction or maintenance activities. Habitat potentially capable of supporting special-status wildlife species identified during the habitat assessment will be mapped on topographic maps, flagged, photographed, and documented. The survey methods and results will be documented in the construction work plan (appendix B).

If special-status wildlife or habitat(s) for these species are located during the habitat assessment, IPN will implement one or more of the following mitigation measures as part of the project:

Mitigation Measure BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources.
This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas.
This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction.

This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-10: Avoid impacts on vernal pool habitats by establishing and observing exclusion zones around vernal pools and hydrologically connected areas.

Vernal pools could occur in undeveloped portions of the project region. These pools provide potential habitat for special-status species, including several federally listed invertebrate species (vernal pool fairy shrimp, vernal pool tadpole shrimp, and longhorn fairy shrimp). Potential construction-related effects on special-status species would include direct mortality if construction activities were to occur in vernal pool habitat; habitat degradation (e.g., dust deposition) resulting from construction activities in uplands adjacent to vernal pool habitat; degradation or permanent loss of vernal pool habitat from construction in sites that are hydrologically connected to vernal pools (e.g., from sediment deposition or runoff of gasoline, oil, or other fluids); and degradation or permanent loss of vernal pool habitat from construction activities conducted in the habitat.

To avoid impacts on vernal pools and associated special-status species, before construction, qualified biologists will establish exclusion zones around vernal pools and hydrologically connected areas within or near proposed project work areas. Exclusion zones will be marked in the field with staking and flagging or barrier fencing. A 50-foot exclusion zone will be established around all vernal pools to avoid direct impacts. A 250-foot exclusion zone will be established around vernal pools if construction activities would occur in areas that are hydrologically connected to vernal pools.

Construction-related activities will be prohibited within the exclusion zones. Essential vehicle operation on existing roads and foot travel will be permitted. All other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be prohibited within the zones. Construction activities within an exclusion zone will be accomplished by rerouting around the exclusion zone.

IPN will remove all stakes, flagging, and barrier fencing demarcating exclusion zones within 60 days after construction and site restoration have been completed in the area.

Mitigation Measure BIO-MM-11: Avoid disturbance to elderberry shrubs by establishing and observing exclusion zones.

The Valley elderberry longhorn beetle (VELB), a federally listed threatened species, is associated with elderberry shrubs that occur in the Sacramento Valley and coastal valleys of the inner Coast Ranges. Disturbance of an elderberry shrub within the range of VELB could result in a take of the species, as defined under the federal ESA, which would require consultation with USFWS under Section 7 of the ESA or preparation of an HCP under Section 10 of the ESA.

To avoid impacts on VELB habitat, qualified biologists will identify and mark with flagging all elderberry shrubs within 100 feet of the affected construction areas. Orange barrier fencing will be installed around all shrubs to further avoid inadvertent effects. No ground-disturbing activities will be permitted within a 100-foot exclusion zone around the elderberry shrubs. Ground-disturbing activities may be permitted within the 25–100-foot zone through informal consultation with USFWS and concurrence that activitites within this zone will not affect shrubs. All shrubs within these exclusion zones will be avoided by rerouting around the exclusion zone or boring under the affected elderberry shrub from a site outside the exlusion zone.

Mitigation Measure BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones.

Non-listed special-status species that are associated with riparian and wetland areas that could occur in the project region include foothill yellow-legged frog, northern red-legged frog, western spadefoot, California tiger salamander, and western pond turtle. These species are California state species of special concern and federal species of concern that potentially occur in stream and wetland habitats in the project areas. In addition, numerous species of bird identified a species of concern make use of these habitats at some point in their life cycle, including the western least bittern, double-crested cormorant, white pelican, and common loon, among others.

The foothill yellow-legged frog is found in perennial and some ephemeral streams from the valley floor to about 6,000 feet elevation in the Sierra Nevada and the Coast Ranges. The California tiger salamander occurs in vernal pools and seasonal wetlands, or adjacent upland habitat, throughout the Coast Ranges and the Central Valley floor. The northern red-legged frog is found in coastal streams north of the San Francisco Bay. The western pond turtle is found in ponds, streams, and marshes on the western slope of the Sierra Nevada and throughout the Central Valley and Coast Ranges (table 3.4-2). Potential construction-related effects on these species could include damage to or destruction of aquatic habitats and upland estivation and burrow sites, direct mortality from construction vehicles or heavy equipment, temporary disturbance from noise and human presence associated with construction activities, direct mortality from burrow collapse and subsequent suffocation, harassment by construction crews, temporary losses of wetland and associated upland habitat, degradation or permanent loss of wetland habitat, and temporary losses of riparian and associated upland habitat.

IPN will retain a qualified biologist to stake and flag exclusion zones around all riparian and wetland areas that support non-listed special-status species prior to construction. Exclusion zones will have a minimum 20-foot radius beyond the limits of riparian or wetland vegetation that support habitat for special-status species. Construction-related activities will be prohibited within these zones. Essential vehicle operation on existing roads and foot travel will be permitted. All other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be prohibited within the

exclusion zone. Construction activities within an exclusion zone will be accomplished by rerouting around the exclusion zone or by boring from outside the zone. In seasonal streams that potentially support non-listed special-status species and where boring is infeasible, a qualified, biologist will survey the right-of-way and adjacent work areas prior to construction to determine the potential for animals to occur within the affected construction areas. If special-status species continue to occupy habitats within the work area, they will be captured by qualified, permitted wildlife biologists and relocated to the nearest suitable habitat upstream or downstream of the right-of-way. If necessary, barrier fencing will be constructed along each side of the work area to prohibit animals from re-entering the work area during construction activities. Once the conduit or fiber is installed, the site will be immediately restored, and the barrier fencing will be removed. Qualified biological monitors and wildlife biologists will be on-site to identify and relocate any animals that move into the work area during construction activities.

Mitigation Measure BIO-MM-13: Avoid disturbing active special-status raptor nests by establishing exclusion zones during the breeding season or constructing during the non-breeding season. Potential nesting habitat for one or more non-listed special-status raptor species, including golden eagle, prairie falcon, Cooper's hawk, white-tailed kite, northern harrier, short-eared owl, and long-eared owl could occur near project routes. Golden eagle habitat is found in rock outcrop and oak woodlands throughout the Coast Ranges. Prairie falcon habitat is also found in rock outcrops and cliffs in the Coast Ranges. Northern harrier and short-eared owl habitat is found in annual grassland, seasonal wetlands, and agricultural habitats of the Central Valley and coastal valleys. Cooper's hawk and long-eared owl habitat is found in woodlands of the Coast Ranges and some urban settings. White-tailed kite habitat occurs in planted windbreaks, riparian woodlands, and other trees and large shrubs adjacent to annual grassland, agricultural, and wetland habitats.

Ground disturbing activities could directly modify nesting habitat for ground-nesting species (northern harrier, short-eared owl). Human disturbances from construction activities could cause nest abandonment and death of young or loss of reproductive potential at active nests located near the construction site for both tree- and ground-nesting species.

To avoid potential adverse effects on nesting special-status raptors, IPN will establish no-disturbance buffer zones around active nests during the breeding season. If construction activities are scheduled to occur during the breeding season, preconstruction surveys of all potentially active nest sites within 0.5 mile of the affected project routes will be conducted. If construction activities are scheduled to occur during the non-nesting season, then no surveys would be required. If surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation would be required. If active nests are found, IPN will establish a no-disturbance buffer around the active nest, as follows:

- for the golden eagle and prairie falcon, the buffer would include a 0.5-mile radius around the nest; and
- for the northern harrier, white-tailed kite, long-eared and short-eared owls, and the Cooper's hawk, the buffer would include a 500-foot radius around the nest.

The size of individual buffers can be adjusted based on an evaluation of the site by a qualified raptor biologist. The evaluation will be based on the presence of topographical features that obstruct the line of site from the construction activities to the nest or observations of the nesting pair during construction based on the level of ongoing disturbance (e.g., farming activities, road traffic, etc.) and the observed sensitivity of the birds. Evaluations and buffer adjustments will be conducted in consultation with the local DFG representative. The portion of the project route that is within the designated buffer would be identified in the field by staking and flagging. If construction activities occurred only during the nonbreeding season between August 1 and February 1, no surveys would be conducted and no buffers would be required.

The preconstruction surveys will be conducted during spring and summer of the construction year. To avoid effects on active nest sites, no installation activities will occur within the specified buffer zone during the breeding season, between February 1 and August 1, or until it is determined that young have fledged or the nesting attempt has failed. Surveys will not be conducted in areas where proposed project activities would occur only during the nonbreeding season between August 1 and February 1.

Mitigation Measure BIO-MM-14: Avoid disturbing active Swainson's hawk nests by establishing and observing buffer zones.

The Swainson's hawk, a state-listed threatened species, nests in trees on the Central Valley floor. This species could be potentially directly affected if any active nest trees are removed during construction. The species could be indirectly affected by human disturbances near active nest sites. The disturbances can cause the abandonment of active nests and death of young or loss of reproductive potential.

To avoid disturbing active Swainson's hawk nests, IPN will establish a 0.5-mile radius no-disturbance buffer zone around each active nest during the breeding season. All buffer zones will be based on line-of-sight. If topographical features obstruct the line-of-site of an active nest within the buffer zone, or if other factors reduce the likelihood of disturbance, then the buffer may be reduced based on consultation with DFG. The portion of the right-of-way that is within the designated buffer zone will be identified on the construction drawings and in the field by staking and flagging. If construction activities occur only during the non-breeding season (from August 1 to February 28), no buffers or further mitigation is required.

If construction activities continue into the breeding season, surveys will be conducted again to determine activity at all potential nest sites. Qualified raptor biologists will conduct construction-year surveys of all potentially active nest

sites within 0.5 mile of the project site. Surveys will be conducted by searching all suitable nest trees with binoculars to find active nests. If surveys indicate that nests are inactive or potential habitat is unoccupied during the construction year, no further mitigation measures will be required. If active nests are found, a 0.5-mile-wide no-disturbance buffer will be established around the active nest as described above.

To avoid effects on active nest sites, no construction activities will occur within the specified buffer zone during the breeding season, between March 1 and August 1, or until it is determined that young have fledged or the nesting attempt has failed. Surveys will not be conducted in areas where proposed project activities will occur only during the non-breeding season.

Mitigation Measure BIO-MM-15: Avoid disturbing active burrowing owl nests and implement standard DFG guidelines during the non-breeding season.

The burrowing owl, a species of special concern that occurs in the Central Valley and coastal valleys, is a ground-nesting raptor that typically uses the burrows of other species, such as ground squirrels. Active burrowing owl burrows could potentially occur within the proposed fiber optic cable routes, where installation activities could destroy active nest sites.

To avoid impacts on burrowing owls, a qualified biologist will survey all work areas in habitat capable of supporting burrowing owls. A no-disturbance buffer zone will be established around all active nesting burrows during the breeding season, and the DFG burrowing owl guidelines (California Department of Fish and Game 1995) will be implemented during the non-breeding season. If no burrowing owls are found, no further mitigation measures will be required.

Breeding Season. If active burrowing owl nests are found, biologists will establish a 250-foot buffer zone around the active burrow. Construction-related activities will be prohibited within these zones. Essential vehicle operation on existing roads and foot travel will be permitted. All other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be prohibited within the exclusion zone. Construction activities within an exclusion zone will be accomplished by rerouting around the exclusion zone or by boring from outside the zone. Buffer-zone restrictions will be in effect during the breeding season, between February 1 and August 31, or until it is determined that young have fledged or the nesting attempt has failed.

Wintering Season. Because adult burrowing owls can occupy burrows year round, before construction activities in areas occupied by burrowing owls (and following the breeding season), DFG mitigation guidelines for burrowing owls will be implemented. The guidelines require that one-way doors be installed at least 48 hours before construction at all active burrows that exist within the excavation area so that the burrows are not occupied during ground disturbing activities. The guidelines also require the installation of two artificial burrows for each occupied burrow that is removed. Qualified wildlife biologists will conduct preconstruction surveys for burrowing owls within 1 to 2 weeks of

installation activities. The one-way doors will be installed at that time to ensure that the owls can get out of the burrows but cannot get back in. Artificial burrows will be constructed within the right-of-way prior to installation of one-way doors.

Habitat disturbance from construction activities will be minor, linear, and temporary. No permanent habitat loss will occur. Therefore, no habitat compensation is included as part of this mitigation measure.

Mitigation Measure BIO-MM-16: Avoid San Joaquin kit fox dens by conducting preconstruction searches and rerouting around occupied habitat.

The San Joaquin kit fox is a state-listed and federally listed endangered species known to exist in the project region and occurs in annual grasslands of Alameda and Santa Clara Counties. The San Joaquin kit fox could be adversely affected by construction activities associated with proposed fiber optic cable installation if these ground-disturbing activities occur in suitable habitat for the species. Potential construction effects include damage to or destruction of dens, direct mortality from construction vehicles or heavy equipment, direct mortality from den collapse and subsequent suffocation, temporary disturbance from noise and human presence associated with construction activities, harassment by construction crews, and temporary and permanent losses of habitat. Construction activities could also adversely affect kit foxes by reducing prey populations through temporary and permanent habitat losses and habitat disturbance.

To adequately identify San Joaquin kit fox dens, a qualified wildlife biologists (as defined by USFWS [U.S. Fish and Wildlife Service 1997b]) will conduct systematic San Joaquin kit fox den searches in all habitat capable of supporting San Joaquin kit fox subject to ground-disturbing activities in the project area and a 200-foot-wide buffer around this area. Surveys will be conducted within 30 days prior to construction. Biologists will conduct den searches by systematically walking 30- to 100-foot-wide transects throughout the survey area. Transect width will be adjusted based on vegetation height and topography (California Department of Fish and Game 1990). If a den is found, biologists will measure the size; evaluate the shape of the den entrances; and note tracks, scat, prey remains, or recent excavations at the site.

Dens will be classified in one of three den status categories, consistent with those defined by USFWS (U.S. Fish and Wildlife Service 1997b):

- *Potential den* – any burrow or artificial structure (e.g., a pipe or culvert) that has an entrance of at least 4 inches in diameter for its entire visible length; a collapsed den will not be considered a potential den site.
- *Known den* – any natural den or artificial structure that is being used or has been used at any time in the past by a San Joaquin kit fox for any activity other than whelping or rearing pups. Fresh excavation alone will not be considered an adequate sign to classify a den as "known."

- *Natal* or *pupping den* – any den or artificial structure that is being used or has been used at any time in the past by a kit fox to whelp or rear pups.

All dens will be assigned a number and mapped on topographic maps. Den sites will be flagged in the field with pin flags marked with the den number. Potential, known, and natal or pupping dens will be distinguished from each other in the field by the pin flag color. Information on the size and number of openings, signs of activity, surrounding terrain and habitat type, and distance to concentrations of small mammal prey and other den sites will be recorded.

IPN will initiate informal consultation with USFWS and DFG if any potential San Joaquin kit fox dens are located during preconstruction surveys. If USFWS or DFG require incidental-take authorization, IPN will avoid the area by rerouting.

Mitigation Measure BIO-MM-17: Avoid disturbance to nesting cliff swallows by implementing timing restrictions and removing unoccupied nests.

Although swallows are not special-status species, cliff swallows, barn swallows, and rough-winged swallows (and their occupied nests and eggs) are protected by federal and state laws, including the Migratory Bird Treaty Act (50 CFR 10 and 21). USFWS is responsible for overseeing compliance with the Migratory Bird Treaty Act, and the U.S. Department of Animal Control officer makes recommendations on animal protection issues. Active swallow nesting colonies could be located underneath bridge structures where the fiber optic cable could be attached. Cliff swallows and barn swallows construct mud nests, often concentrated into large breeding colonies, underneath concrete bridges. Rough-winged swallows often construct nests within a bridge structure, gaining access to the interior through existing drainage holes in the structure. Installation of fiber optic cables or conduit on these bridges if constructed during the breeding season (between March 1 and September 1) could result in destruction or abandonment of swallow nests and potentially of entire breeding colonies. If activities to attach fiber optic cable to bridges occur outside the cliff swallow nesting season, between March 1 and August 31, activities can proceed with no further mitigation.

If construction activities are planned to occur during the breeding season, a qualified wildlife biologist will inspect known nest sites during the cliff swallows' nonbreeding season between September 1 and February 28. If all swallow nests are abandoned, the nests may be removed.

If the proposed bridge attachments are to occur during the cliff swallows' breeding season, the nests will be removed before March 1. Following March 1, the site will be surveyed regularly to ensure that nests are not constructed by swallows prior to construction. Partially constructed mud nests may be removed by qualified personnel. However, if swallows subsequently colonize the bridge (i.e., construct complete nests) prior to construction, attachments to the bridge will not begin before September 1, unless IPN obtains permits from USFWS.

Mitigation Measure BIO-MM-18: Avoid roosting bats by postponing bridge attachments on bridges that support roosting sites.
The greater western mastiff-bat, pallid bat, Townsend's big-eared bat, fringed myotis, long-eared myotis, small-footed myotis, long-legged myotis, and Yuma myotis could potentially occur in the project region. Potential roosting habitat for bats within or near the project region includes large abandoned buildings, bridges, and trees. If present, these species could be affected by construction activities associated with proposed fiber optic cable installation. Potential effects could include temporary disturbance from noise and human presence associated with construction activities.

In conjunction with mitigation for nesting swallows (see Mitigation Measure BIO-MM-17: Avoid disturbance to nesting cliff swallows by implementing timing restrictions and removing nests) and before construction, a qualified wildlife biologist will conduct a survey of all bridge attachment sites to determine occupancy by roosting special-status bats. If it is determined that special-status bats are roosting beneath bridge attachment sites, to avoid construction-related disturbance, construction will be postponed until the qualified wildlife biologist determines that the site is unoccupied; or, through consultation with local DFG staff, determine the most appropriate construction time and method.

Mitigation Measure BIO-MM-19: Avoid impacts on state and federally listed wildlife species by rerouting around habitat areas.
IPN will completely avoid all direct and indirect potential impacts on state and federally listed wildlife species, including California freshwater shrimp; Mission blue, Bay checkerspot, and San Bruno elfin butterflies; California red-legged frog; Alameda whipsnake; giant garter snake and San Franciso garter snake; Aleutian Canada goose, bald eagle, American peregrine falcon, California black rail, California clapper rail, greater sandhill crane, western snowy plover, western yellow-billed cuckoo, bank swallow; salt marsh harvest mouse; and listed aquatic invertebrates (see mitigation measure BIO-MM-10: "Avoid impacts on vernal pool habitats by establishing and observing exclusion zones around vernal pools and hydrologically connected areas").

California freshwater shrimp inhabit freshwater streams in Marin County. Mission blue butterflies inhabit ridetops and southern exposures with *lupinus* species present in the vicinity of San Bruno Mountain and Twin Peaks. The Bay checkerspot butterfly is restricted to serpentine soils in native grasslands with California plantain and owl's clover plants present. The San Bruno elfin butterfly occurs on rocky outcrops and cliffs in coastal scrub on the San Francisco peninsula where stonecrop plants are present. The California red-legged frog potentially occurs in the Coast Ranges in permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation and riparian species along the edges. It may estivate in rodent burrows or cracks during dry periods. The Alameda whipsnake occurs in chaparral and scrub habitats in Alameda County. The San Francisco garter snake potentially occurs in ponds, lakes, and marshy areas that contain abundant vegetation from northern San Mateo County southward along

the coast and the eastern slope of the Santa Cruz Mountains to the Santa Clara County line. The giant garter snake potentially occurs in emergent marsh habitats in the Central Valley. The species occurs primarily along flowing drainages, including agricultural canals that support emergent marsh vegetation. Crevices and rodent burrows are used in adjacent uplands habitats as hibernaculae. Aleutian Canada geese roost in marshes, flooded fields, stock ponds, and reservoirs, and bald eagles nest in large trees or cliffs overlooking large bodies of water. American peregrine falcons nest on bridges, large buildings, or cliffs overlooking large water bodies. The California black and clapper rails potentially occur in salt marshes and tidal sloughs associated with heavy growth of pickleweed, and may also be found in brackish marshes or freshwater marshes at low elevations in the vicinity of San Francisco Bay. The greater sandhill crane roosts and forages in the Central Valley near freshwater marshes and in open grasslands near water. The western snowy plover nests along Coastal beaches above the normal high tide limit and along the shores of salt ponds and alkali or brackish inland lakes. The western yellow-billed cuckoo nests in wide bands of dense riparian forest along the Sacramento River. The bank swallow potentially occurs in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam to allow digging along the Sacramento, Feather, and American Rivers, and near the coast from San Francisco County to Monterey County. The salt marsh harvest mouse potentially occurs in salt marshes adjacent to an upland site with a dense plant cover of pickleweed and fat hen in the vicinity of San Francisco, San Pablo, and Suisun Bays. Habitats for the majority of these species are rare and unique, and thus unlikely to be encountered in the predominantly urban settings of the proposed project region.

To avoid impacts on these listed species, IPN will initiate informal consultation with USFWS and DFG if any habitat capable of supporting these species is located during the initial habitat assessment. If USFWS or DFG require incidental-take authorization, IPN will reroute or relocate the fiber optic cable line or facility outside habitat areas to avoid impacts on the listed species.

Mitigation Measure BIO-MM-20: Fill or cover open trenches daily. Any open trenches will be filled with earth material imported from an existing borrow site or covered with plywood or other material to prevent entrapment at the end of each work day. Both ends of any open trench will be sloped to form escape ramps before they are covered. If wildlife are found in the trench, they will be removed by a qualified permitted biological monitor before resumption of work in that trench segment. IPN will specify this requirement in the agreements with all construction contractors.

Impact BIO-4: Potential Construction-Related Impacts on Threatened, Endangered, and Other Special-Status Fish Species

Threatened, endangered, or special-status fish occupy drainages in the project region. Potential impacts on threatened, endangered, and special-status fish include potential temporary increases in sedimentation and turbidity, short-term

loss of habitat, accidental seeps of bentonite from boring activities, and accidental spills of hazardous materials.

Excessive amounts of fine sediments and turbidity in stream environments have been linked to declines in abundance, distribution, and production of fish and other aquatic organisms. High concentrations of suspended sediment can reduce photosynthesis and primary production, force fish to abandon preferred feeding sites, impair the feeding ability of sight-feeding predators, and clog or damage the gills and food-gathering structures of fish and invertebrates. Excessive deposition of fine sediment on the streambed can cause mortality of embryos and fry of trout and other species by smothering them, impeding water flow through gravel nests, or preventing the emergence of fry. Excessive deposition of fine sediments can also reduce the quantity and quality of habitat for fish and bottom-dwelling invertebrates by reducing the amount of living space and cover. Because stream communities are adapted to natural seasonal variation in suspended sediments and turbidity associated with runoff, the magnitude of potential impacts depends on the timing, extent, and duration of increased suspended sediments and turbidity relative to naturally occurring levels. In addition, riparian vegetation provides food input (i.e., terrestrial invertebrates), cover for juvenile rearing, and shade to reduce temperatures. The removal of woody riparian vegetation may affect salmonid species.

Spills of hazardous materials into the stream environment can harm aquatic organisms and communities through a number of direct and indirect mechanisms. Potential impacts may include immediate mortality from exposure to lethal levels or delayed or indirect effects on survival, growth, or reproductive success from sublethal effects. The magnitude of potential impacts depends on the species, the life stages present, and the exposure concentration and duration. Another source of hazardous materials may be accidental seepage from directional boring. Although uncommon, directional boring can result in bentonite seeps to surface water. Non-toxic seepage of bentonite into streams can result in temporary increases in turbidity and sedimentation that could affect fish and their habitat.

To reduce these potential impacts to a less-than-significant level, IPN will implement the following mitigation measures as part of the project.

Mitigation Measure BIO-MM-21: Retain a qualified fisheries biologist to identify streams and assess habitat for threatened, endangered, and other special-status fish species.

IPN will retain a qualified fisheries biologist to locate and identify streams that have the potential to support threatened, endangered, and other special-status fish species for each project. Habitat will be mapped on topographic maps, flagged, photographed, and documented. The survey methods and results will be documented in the construction work plan (appendix B). If streams are located in the project area and could be affected by the project, IPN will implement one or more of the following mitigation measures as part of the project.

Mitigation Measure BIO-MM-22: Prepare and implement a storm water pollution prevention plan outlining BMPs for construction activities.

IPN will develop and implement BMPs and, if construction-related activities associated with the proposed project lead to 5 acres or more of soil disturbance, a SWPPP to minimize the potential for increased soil erosion and impacts on fish and their habitat. The SWPPP will include measures to control the transport of sediment to streams, measures to promote the recovery of construction areas to preconstruction condition, and avoid the potential for spills of hazardous substances and bentonite seeps. The SWPPP also includes pollution prevention measures (erosion and sediment control measures and measures to control non-storm water discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, a detailed construction timeline, and BMPs monitoring and maintenance schedule. The spill prevention and contingency plan (SPCP) included in the SWPPP will address the potential for bentonite seeps including requiring boring crews to strictly monitor drilling fluid pressures, retaining containment equipment onsite, monitoring waters downstream of the crossing sites to identify any seeps quickly, immediately stopping work if a seep into a stream is detected, immediately implementing containment measures, adhering to agency reporting and notification requirements, and identifying responsible parties.

The SWPPP, or other BMPs documentation as required by governing entities, would include methods to protect water quality in association with temporary storage of hazardous materials as well as emergency response to spills. Methods to protect water quality from hazardous materials principally start with proper use and storage. Hazardous materials would not be used for purposes other than those intended and would be stored in original containers or containers manufactured of compatible materials with appropriate and clearly marked labels. Response to small spills would first start with containment of the spill to prevent spreading. Contained spills may then be cleaned using appropriate materials and/or cleaning agents. Waste from spill containment and cleanup would be properly handled and disposed as hazardous waste in accordance with hazardous waste regulations.

Spill prevention and contingency protocols would be included in the SWPPP, or other documentation required, and strictly implemented as part of the construction mitigation strategy for the proposed project. The contractor would follow these protocols and perform measures to ensure that petroleum products are not discharged into drainages or bodies of water. The protocols would include material safety data sheets (MSDS); description of potentially hazardous and non-hazardous materials that could be spilled accidentally during construction (fuels, equipment lubricant, human waste and chemical toilets, and directional drilling slurries); potential spill sources, potential spill causes, proper storage and transport methods, spill containment, spill recovery, agency notification, and responsible parties.

Mitigation Measure BIO-MM-23: Avoid in-water construction in all flowing streams that have the potential to support threatened, endangered, and other special-status fish species.
To avoid potential impacts on special-status fish and their habitat, IPN will avoid all in-water construction methods (plowing or trenching) to cross streams that flow at the time of construction and that support sensitive fish species at or downstream of the crossing location. At flowing sensitive-stream crossings, IPN will install the cable by boring under the stream, attach the cable to an existing bridge, or install the cable under or over an existing culvert to avoid potential impacts on special-status fish species.

Mitigation Measure BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources.
This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas.
This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction.
This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-24: Avoid and minimize disturbance of woody riparian vegetation along drainages.
To the extent possible, IPN should avoid impacts on woody riparian vegetation by boring underneath drainages that support this sensitive habitat type. A minimum 20-foot-wide setback will be established and staked by a resource specialist before construction activities. This buffer will extend between the edge of the woody riparian vegetation and construction equipment.

Woody riparian vegetation close to the project routes that could be indirectly or inadvertently affected by installation activities will be protected by installation of temporary fencing or staking and flagging of a minimum 20-foot-wide setback. Depending on site-specific conditions, this buffer may be narrower or wider than 20 feet, and will be determined by the field resource specialist and through the formal variance process. Identification and protection of woody riparian vegetation close to the work zone will include either flagging or fencing, depending on site-specific conditions.

Before construction activities are initiated on a route, the limits of the work area will be identified by a qualified biologist. The environmental coordinator or contractor compliance inspector will routinely inspect construction activities to

ensure that protective measures are working and that they remain in place during installation. The contract compliance inspector also will confirm that protective measures are in place before construction activities begin on the route. Protective fencing will remain in place until all construction activities in the area are complete.

In areas where boring is determined to be infeasible, IPN will coordinate the CPUC and appropriate resource agencies (e.g. DFG) to obtain clearance for cutting of woody riparian vegetation. These areas will be identified at least one week in advance of vegetation removal. The appropriate land management and resource agencies will be submitted a letter describing existing conditions on the site and photographs of the site. Verbal approval will be obtained prior to removal of any woody riparian vegetation.

Shrub vegetation will be cut at least 1 foot above ground level to leave the root systems intact and allow for more rapid regeneration of the species. Cutting will be limited to a minimum area necessary within the 20-foot-wide cable right-of-way. This type of removal will be allowed only for shrub species (all trees will be avoided) and in areas that do not provide habitat for sensitive species (i.e., willow flycatcher). To protect migratory birds, no woody riparian vegetation will be allowed beginning March 15 and ending September 15, as required under the Migratory Bird Treaty Act.

Mitigation Measure BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are substantially disturbed during construction activities.
If woody riparian vegetation and wetlands are substantially disturbed during construction, site conditions will be restored and revegetated to ensure a no-net-loss of habitat functions and values.

Areas that will require revegetation will be determined by a qualified restoration ecologist in conjunction with the appropriate land management and resource agency specialists. A general revegetation plan for wetland and woody riparian communities will be developed and will include design specifications, an implementation plan, maintenance requirements, and a monitoring program. Revegetation will be implemented immediately in substantially disturbed areas. Monitoring for a specified time period (determined through agency coordination) will be conducted to document the degree of success in achieving the success criteria and to identify remedial actions that may be needed. Annual monitoring reports will be submitted to the appropriate resource agencies. The report will summarize the data collected during monitoring periods, describe how the habitats are progressing in terms of the success criteria (described below), and discuss any remedial actions performed.

Monitoring will be required in all substantially disturbed riparian and wetland communities. Resource specialists will document baseline conditions prior to construction in wetland and riparian areas. Data that may be gathered on each site to document baseline conditions and during the subsequent monitoring visits would include:

- relative cover and types of plant species,
- percentage of absolute vegetation cover,
- general assessment of the wetland or riparian habitat in relation to the surrounding undisturbed area, and
- noxious-weed or erosion problems.

Success criteria will be determined through coordination with CPUC and other resource agencies. A brief letter report summarizing the results of monitoring and recommending additional needed actions will be submitted to CPUC and appropriate resource agencies.

This revegetation plan for riparian and wetland habitats will be considered successful when the following criteria are met:

- The riparian and wetland habitats established are composed of a mix of species similar to that removed during cable installation.
- At least 75% absolute cover of native riparian and wetland vegetation is developed on each site.
- Growth is achieved of riparian species that rate good or excellent vigor and growth based on a qualitative comparison of leaf turgor, stem caliber, leaf color, and foliage density in the planted sites with individuals of the same species in the adjacent riparian areas.
- Less than 5% of absolute cover on each site will be composed of weedy annual or perennial species.
- Plantings at each site (if needed) are self-sustaining without human support (e.g., weed control, rodent control, or irrigation).

b. *Would the project have 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?*

The proposed project could have a substantial adverse effect on any riparian habitat or other sensitive natural community if these resources are not accurately identified during preconstruction surveys and if adequate protection and avoidance measures are not implemented as part of construction and future maintenance activities.

The mitigation measures described for potential impacts on riparian habitat or other sensitive natural communities have not been developed through coordination with resource agencies. The mitigation measures may be modified during future project-specific coordination with the resource agencies. Additional mitigation measures that may be identified as part of project permits (e.g., Section 401 and 404, 1603 Streambed Alteration Agreement, or BO, if needed) will be implemented as part of each project and monitored during construction to ensure compliance.

Impact BIO-5: Potential Removal or Disturbance of Woody Riparian Vegetation

Fiber optic cable installation activities could result in the removal or disturbance of woody riparian vegetation during the installation of the cable or equipment access through drainages that support riparian habitat. Riparian habitats provide important habitat for local and migratory wildlife and fish, are considered sensitive resources, and are of concern to federal and state agencies. Riparian communities also provide important habitat functions for special-status wildlife and fish species. To reduce this impact to a less-than-significant level, IPN will implement the following mitigation measures as part of the project.

Mitigation Measure BIO-MM-26: Identify and document woody riparian habitat.

IPN will retain a qualified biologist to identify woody riparian habitat that occurs along project specific routes and associated facilities. The location, type of riparian habitat, extent, and habitat functions and values should be assessed by the biologist. This information would be documented in the construction work plan (appendix B).

If riparian habitat is documented in the project area, IPN will implement a combination of the following mitigation measures as part of the project.

Mitigation Measure BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources.

This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas.

This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction.

This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones.

This mitigation measure is described in detail under Impact Bio-3, "Potential Disturbance of Special-Status Wildlife Species," above.

Mitigation Measure BIO-MM-24: Avoid and minimize disturbance of woody riparian vegetation along drainages.

This mitigation measure is described in detail under Impact Bio-4, "Potential Construction-Related Impacts on Threatened, Endangered, and Other Special-Status Fish Species," above.

Mitigation Measure BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are disturbed during construction activities.
This mitigation measure is described in detail under Impact Bio-4, "Potential Construction-Related Impacts on Threatened, Endangered, and Other Special-Status Fish Species," above.

c. *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?*

The proposed project could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means, if wetlands are not accurately identified during preconstruction surveys, and if adequate protection and avoidance measures are not implemented as part of construction and future maintenance activities.

The mitigation measures described for potential impacts on wetlands have not been developed through coordination with resource agencies. The mitigation measures may be modified during future project-specific coordination with the resource agencies. Additional mitigation measures that may be identified as part of project permits (e.g., Section 401 and 404, 1603 Streambed Alteration Agreement, or BO) will be implemented as part of each project and monitored during construction to ensure compliance.

Impact BIO-6: Potential Short-Term Disturbance of Waters of the United States (Including Wetland Communities)

Fiber optic cable installation activities could potentially result in direct disturbance of waters of the United States, including wetland communities. Many of the wetland communities and associated wildlife habitat that occur along roads and railroads have been previously disturbed but still maintain important habitat functions. Impacts on jurisdictional wetlands are considered short-term and minimal because the disturbances are relatively short in duration and will not substantially alter wetland hydrologic functions. Additionally, native soils and plant material will be replaced immediately after installation activities at the site, and natural landscape contours will be restored to pre-project conditions.

To reduce this impact to a less-than-significant level, IPN will implement the following mitigation measures as part of the project. These measures focus on protecting wetland communities, re-establishing pre-project site conditions to

encourage a return of self-sustaining wetland communities, and ensuring no-net-loss of wetland acreage and habitat value.

Additional compensatory, restoration, or avoidance mitigation measures may be identified by regulatory agencies (e.g., USACE, RWQCB, and DFG) as part of the permitting process.

Mitigation Measure BIO-MM-27: Identify and delineate waters of the United States (including wetlands).
IPN will retain a qualified resource specialists to identify areas that could qualify as waters of the United States, including wetlands. If these wetlands would be affected by the project, they will be delineated using the methods outlined in the USACE's 1987 manual (Environmental Laboratory 1987). The jurisdictional boundary for other waters of the United States will be identified based on the "shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area" (33 CFR 328.3[e]).

An adequate amount of information will be gathered by a qualified resource specialist and provided in a separate technical report to the USACE (if a notifying nationwide permit is used) to support the Section 404 permit. Additionally, the wetland delineation information would be documented in the construction work plan (appendix B).

If waters of the United States are documented in the project study area, IPN will implement a combination of the following mitigation measures as part of the project.

Mitigation Measure BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources.
This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas.
This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction.
This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are disturbed during construction activities.
This mitigation measure is described in detail under Impact Bio-4, "Potential Construction-Related Impacts on Threatened, Endangered, and Other Special-Status Fish Species," above.

Mitigation Measure BIO-MM-28: Minimize disturbance and restore other waters of the United States to pre-project conditions.
Consistent with the USACE's Nationwide Permit No. 12 for utility line discharges, the area of waters of the United States that will be disturbed will be limited to the minimum area necessary to successfully install the fiber optic conduit and cable. The following measures will be implemented to minimize effects on and restore other waters of the United States and associated plant communities:

- Stabilize exposed slopes and streambanks immediately on completion of installation activities. Other waters of the United States will be restored in a manner that encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system.
- In highly erodible stream systems, stabilize banks using a nonvegetative material that will bind the soil initially and break down within a few years. If the proposed project engineers determine that more aggressive erosion control treatments are needed, geotextile mats, excelsior blankets, or other soil stabilization products will be used.
- Remove trees, shrubs, debris, or soils during construction that are inadvertently deposited below the ordinary high-water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank.
- Implement additional measures that may be required as part of the DFG, USACE, and RWQCB permits that will be obtained for each project.

These measures will be incorporated into contract specifications and implemented by the construction contractor. Additionally, IPN will incorporate all permit conditions into construction specifications. The contract compliance inspectors and biologists will routinely inspect construction activities to verify that the above protective measures and permit conditions have been implemented.

Mitigation Measure BIO-MM-29: Minimize disturbance and restore jurisdictional wetlands to preproject conditions.
IPN will implement the following guidelines for re-establishing conditions conducive to natural-site regeneration:

- Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as use of padding or vehicles with balloon tires, will be used.

- Where determined necessary by the resource specialists, geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) will be used in saturated conditions to minimize damage to the substrate and vegetation.
- In wetlands that are trenched, the top 12 inches of topsoil from the excavated site with intact roots, rhizomes, and seed bank will be stockpiled (USACE Nationwide Permit No.12 requires that topsoil be stockpiled and replaced). The topsoil and subsoil will be replaced immediately after construction activities are complete.
- The ground surface will be recontoured to maintain preproject wetland hydrology.

Mitigation Measure BIO-MM-30: Avoid and protect specified jurisdictional wetlands adjacent to construction areas.
In wetland areas, fiber optic cable installation activities will be limited to the existing rights-of-way, where possible. Protective barrier fencing or staking and flagging will be used in specified wetland areas to protect wetlands near the work zone. Wetlands will also be identified on the construction drawings. Resource personnel will assist in placing protective barriers around wetlands prior to any ground-disturbing activities.

Resource personnel will identify the specific location of protective barriers before cable installation and other construction activities are initiated near specified jurisdictional wetlands. The contract inspectors and resource specialists will routinely inspect protected areas to ensure that barriers remain in place and are effective. Protective barriers will remain in place until all construction activities are complete in areas near sensitive resources.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The proposed projects have a low potential to interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

Proposed project activities could temporarily disturb habitat for many common wildlife species that exist in the project region. Animals within these habitats could be temporarily displaced during cable installation, and animals in habitats adjacent to the project routes would be subjected to noise and other human disturbances. However, the following four factors minimize the potential for effects on common wildlife species to a less-than- significant level:

- The major habitat types the proposed project would affect (i.e., ruderal annual grassland) are abundant in the project region.
- The rights-of-way are linear and narrow.

- Activities related to the proposed project are temporary, and vegetation is expected to recover quickly particularly within disturbed rights-of-way, such as roadsides, railroads, and maintained utility corridors.
- Much of the proposed project region is already disturbed, relative to the surrounding landscape, from the original construction activity and ongoing maintenance in the rights-of-way.

Because of the reasons stated above, the proposed project would result in a less-than-significant impact on common wildlife species. Therefore, no mitigation is required.

Impact BIO-7: Potential Temporary Disturbances to Wildlife Movements

Because the project routes would be are linear and could cross large areas of wildlife habitat, construction activities could disrupt wildlife movements by temporarily fragmenting habitats and dissecting movement corridors. However, the following factors would ensure that the proposed project would result in a less-than-significant impact on wildlife movement:

- Because construction crews are expected to move quickly, cable installation activities will not occur in any one location for typically more than a day.
- Only several work sites (based on the number of contractors) will be affected at any one time throughout the proposed project study area.
- Reclamation efforts within the disturbance corridor will begin immediately and will involve reestablishing site conditions. This will involve grading to reestablish preconstruction contours, replacing topsoil in specified areas, and seeding with a sterile grass or native vegetation (as dictated by the individual project reclamation plans).

The following mitigation measures will be implemented as part of the project to further ensure that impacts to wildlife movements are less-than-significant.

Mitigation Measure BIO-MM-12 – Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones.

This mitigation measure is described in detail under Impact Bio-3, "Potential Disturbance of Special-Status Wildlife Species," above.

Impact BIO-8: Potential Temporary Increases in Sedimentation and Turbidity Resulting in the Interference of Migratory Fish Habitat

Impacts on fish or their habitat attributable to increased sedimentation and turbidity associated with construction activities are expected to be minimal. However, increased sediment-loading to streams from construction could affect fish health and feeding ability by increasing turbidity and could reduce the quality of spawning and rearing habitat through sedimentation. To reduce this impact to a less-than-significant level, IPN will implement the following mitigation measures as part of the project.

Mitigation Measure BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources.
This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas.
This mitigation measure is described in detail under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction.
This mitigation measure is described under Impact Bio-1, "Potential Disturbance of Special-Status Plant Populations," above.

Mitigation Measure BIO-MM-21: Retain a qualified fisheries biologist to identify streams and assess habitat for threatened, endangered, and other special-status fish species.
This mitigation measure is described under Impact Bio-4, "Potential Construction-Related Impacts on Threatened, Endangered, and Other Special-Status Fish Species," above.

Mitigation Measure BIO-MM-22: Prepare and implement a stormwater pollution prevention plan outlining BMPs for construction activities.
This mitigation measure is described under Impact Bio-4, "Potential Construction-Related Impacts on Threatened, Endangered, and Other Special-Status Fish Species," above.

Mitigation Measure BIO-MM-24: Avoid and minimize disturbance of woody riparian vegetation along drainages.
This mitigation measure is described under Impact Bio-4, "Potential Construction-Related Impacts on Threatened, Endangered, and Other Special-Status Fish Species," above.

Mitigation Measure BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are substantially disturbed during construction activities.
This mitigation measure is described under Impact Bio-4, "Potential Construction-Related Impacts on Threatened, Endangered, and Other Special-Status Fish Species" above.

Mitigation Measure BIO-MM-28: Minimize disturbance and restore other waters of the United States to preproject conditions.

This mitigation measure is described under Impact Bio-6, "Potential Short-Term Disturbance of Waters of the United States (Including Wetland Communities)," above.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

IPN's proposed projects could conflict with local policies or ordinances protecting biological resources if city and county general plans and policies are not reviewed to determine what policies may apply to the project.

Impact BIO-9: Potential Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction activities could result in potential conflicts with local policies or ordinances that protect locally significant biological resources. Heritage or native trees protected under local ordinances are the primary resource issue that could be affected by surface and subsurface construction activities. To reduce this impact to a less-than-significant level, IPN will implement the following mitigation measure as part of the project.

Mitigation Measure BIO-MM-31: Review local city and county policies, ordinances and conservation plans, and comply with requirements.

IPN will review review local general plans, policies, ordinances, and conservation plans (including HCPs, Natural Community Conservation Plans [NCCPs], and other local, regional and state plans) to determine if they apply to each specific project and the resource issues documented as part of mitigation measures BIO-MM-1, BIO-MM-9, and BIO-MM-26. IPN will demonstrate compliance with local policies and ordinances in the construction work plan (appendix B).

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Impact BIO-10: Potential conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan

Construction activities could result in potential conflicts with the provisions of an adopted HCP, NCCP, or other approved local, regional or state habitat conservation plans. To reduce this impact to a less- than-significant level, IPN will implement the following mitigation measure as part of the project:

Mitigation Measure BIO-MM-31: Review local city and county policies, ordinances and conservation plans, and comply with requirements.

This mitigation measure is described under Impact BIO-IMP-9, "Potential Conflict with Local Policies or Ordinances Protecting Biological Resources," above.

4.5 Cultural Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?		✓		
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		✓		
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			✓	
d)	Disturb any human remains, including those interred outside of formal cemeteries?		✓		

4.5.1 Criteria for Determining Significance

The State CEQA Guidelines define a significant historic resource as "a resource listed or eligible for listing on the California Register of Historical Resources" (CRHR) (PRC Section 5024.1; CCR, Title 14, 15064.5). A historic resource may be eligible for inclusion in the CRHR if it:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- is associated with the lives of persons important in our past;
- embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history.

According to CEQA Guidelines (CCR, Title 14, 15064.5), a project with an effect that may cause a substantial adverse change in the significance of an historic resource is a project that may have a significant effect on the environment (CCR, Title 14, 15064.5(b)). CEQA further states that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historic resource would be materially impaired. Actions that would materially impair the significance of an historic resource are

any actions that would demolish or adversely alter those physical characteristics of an historic resource that convey its historic significance and qualify it for inclusion in the CRHR or in a local register or survey that meet the requirements of Sections 5020.1(k) and 5024.1(g) of the PRC.

Properties that are listed in or eligible for listing in the National Register of Historic Places (NRHP) are considered eligible for listing in the CRHR (PRC Section 5024.1(d)(1)), and thus are significant historical resources for the purpose of CEQA.

4.5.2 Impact Assessments

The following analysis for cultural resources identifies potential impacts on cultural resources that could occur as a result of implementation of the proposed project and describes mitigation measures that would reduce or eliminate potential impacts. The cultural resources inventory of the project areas has not been completed; therefore, specific mitigation measures cannot be identified for individual cultural resource sites. Mitigation for cultural resources includes completion of the cultural resources inventory and the selection of ways to avoid impacts on potentially significant cultural resources in compliance with the CEQA Guidelines.

a. *Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5; or*

b. *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?*

Impact CUL-1: Potential Disturbance of Cultural Resource Sites

Ground-disturbing activities such as surface clearing, grading, excavation of access points and bore pits, and trench excavation could result in significant impacts on cultural resources. These activities could affect both surface and underground portions of cultural resource sites. To avoid this potential effect, the following mitigation measures would be implemented:

Mitigation Measure CUL-MM-1: Complete a cultural resource inventory of the proposed project study area and determine methods to avoid impacts on potentially significant cultural resource sites.

A cultural resource inventory, including a records search, contacts with Native Americans, and a field survey of the study area will be completed. The methods and results of this inventory, including recommendations for avoidance of impacts on identified sites and sites important to Native Americans will be described in a cultural resources inventory report that will be sent to the CPUC. The methods to avoid impacts on potentially significant cultural resource sites identified in the project study area will be recommended in the inventory report.

Depending on the characteristics of individual sites, impacts could be avoided by routing the conduit around identified cultural resource sites, by boring underneath sites, and by locating assist points outside of cultural resource sites. These methods would be designed to result in no disturbance to known cultural resource sites.

When applicable, methods of avoiding impacts may also be determined in consultation between a lead federal agency and the California State Historic Preservation Officer (SHPO) in compliance with Section 106 of the NHPA.

The cultural resources inventory report will incorporate a cultural resource monitoring plan. The monitoring plan will identify locations for archaeological monitoring of selected areas considered to be particularly sensitive for the presence of buried cultural resources and for sites important to Native Americans. The results of the research and surveys will be documented in the construction work plan (appendix B).

Mitigation Measure CUL-MM-2: Conduct test excavation to determine resource significance, and if significant, conduct data recovery excavation.
If avoidance of potentially significant resources is determined to be infeasible, then a controlled archaeological test excavation shall be conducted to determine the significance of any resources that can not be avoided. If a resource is determined to be significant and can not be avoided, then a data recovery excavation will be conducted. The data recovery will be directed by a data recovery plan approved by the CPUC, and will be implemented by a qualified archaeologist.

Impact CUL-2: Potential for Ground-Disturbing Activities to Damage Unidentified Buried Cultural Resource Sites

Buried cultural resources that were not identified during field surveys and other inventory procedures could be inadvertently unearthed during ground-disturbing activities, which could result in the demolition or substantial damage to significant cultural resources. To avoid or reduce this potential impact on buried cultural resources, the following mitigation measure would be implemented.

Mitigation Measure CUL-MM-3: Stop work if cultural resources are discovered during ground-disturbing activities.
If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or human bone, are inadvertently discovered during ground-disturbing activities, work should stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the CPUC and other appropriate agencies. Treatment measures typically include development of avoidance strategies or mitigation of impacts through data recovery programs such as excavation or detailed documentation.

The construction contractor and environmental coordinator will instruct workers to halt work until appropriate treatment measures are implemented if new cultural resources are discovered during removal activities. The environmental coordinator will obtain concurrence from the CPUC and other appropriate agencies on measures to be implemented before resuming installation activities in the area of a find.

Impact CUL-3: Potential for Indirect Impacts on Historic Structures Associated with Placing Central Office Buildings

Placing central offices in proximity to historic resources could cause an impact on significant or potentially significant historic resources because the building may be architecturally incompatible with the setting of the historic resource. This impact will be reduced to a less-than-significant level by implementing the following mitigation measure:

Mitigation Measure CUL-MM-4: Place central office buildings to avoid impacts on the setting of significant and potentially significant historic resources.
Central office buildings will not be placed in proximity to significant or potentially significant historic resources where the setting of those resources may contribute to the significance of the resource. Significant and potentially significant historic resources will be identified during implementation of Mitigation Measure CUL-MM-1, "Complete a cultural resource inventory of the proposed project study area and determine methods to avoid impacts on potentially significant cultural resource sites."

c. *Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Unique geologic features would not be encountered in disturbed existing road, railroad, and utility rights-of-way. Paleontological resources are primarily deeply buried resources. These resources could be encountered near to the ground surface as part of uplifted geologic formations. Because excavation related to the proposed project would be shallow (i.e., less than 1,000 feet deep) and because most construction would occur in existing rights-of-way, potential impacts related to paleontological resources would be less than significant.

d. *Would the Project disturb any human remains, including those interred outside of formal cemeteries?*

Impact CUL-4: Potential for Proposed Project Activities to Damage Previously Unidentified Human Remains on Non-Federal Land.

Buried human remains that were not identified during field surveys could be inadvertently unearthed during excavation activities, which could result in damage to these human remains. To avoid or reduce this potential impact on human remains on non-federal land, the following mitigation measure would be implemented.

Mitigation Measure CUL-MM-5: Comply with state laws pertaining to the discovery of human remains.

If human remains of Native American origin are discovered during ground-disturbing activities on non-federal lands, it is necessary to comply with state laws relating to the disposition of Native American burials, which falls within the jurisdiction of the Native American Heritage Commission (NAHC) (PRC Section 97). If human remains are discovered or recognized in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- the coroner of the county has been informed and has determined that no investigation of the cause of death is required; and
- if the remains are of Native American origin,
  - the descendants of the deceased Native American(s) have made a recommendation to the land owner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98, or
  - the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.

According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the California NAHC.

4.6 Geology, Seismicity, and Soils

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VI.	**GEOLOGY AND SOILS.** Would the project:				
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			✓	
	1. 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? Refer to Division of Mines and Geology Special Publication 42.			✓	
	2. Strong seismic ground-shaking?			✓	
	3. Seismic-related ground failure, including liquefaction?			✓	
	4. Landslides?			✓	
b)	Result in substantial soil erosion or the loss of topsoil?		✓		
c)	Be 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 onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?			✓	
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			✓	
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?				✓

4.6.1 Criteria for Determining Significance

The analysis of significance of impacts relating to geology, seismicity, and soils is based on criteria *a–e* in the Environmental Checklist, professional judgment, and review of geologic maps (California Department of Conservation, Soil Conservation Service 1962–1991.)

4.6.2 Impact Assessment

This section describes impacts and mitigation measures pertaining to geologic, seismic, and soil conditions along the project routes. Potential water quality impacts caused by erosion and resulting sedimentation are described in section 4.9, "Hydrology and Water Quality." Resources used to identify the environmental effects in this section are listed in chapter 5, "References Cited."

The following paragraphs describe the impacts and mitigation measures for the projects.

a. *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

1. *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? Refer to Division of Mines and Geology Special Publication 42.*
2. *Strong seismic ground-shaking?*
3. *Seismic-related ground failure, including liquefaction?*
4. *Landslides?*

The project routes pass through areas that are subject to strong earthquake-induced ground-shaking and there could be possible temporary damage to the cable system in the event of an earthquake. Strong ground-shaking from one of these faults would not expose people to potential adverse effects, but could damage the facilities located along some of the project routes. The impact is considered less than significant because the prefabricated structures would not be inhabited and the structures are certified by the manufacturer to meet necessary seismic design standards. No additional mitigation is required.

Additionally, ground surface displacement of earthquake fault traces could damage the fiber optic cable system where the cable passes through faults. Although the fault movement could disrupt the operation of the cable system, there would be no physical impact on humans or the environment. This impact is considered less than significant because the cable system would be designed to allow the cable to accommodate earthquake fault offsets near the soil surface. No mitigation is required.

b. *Result in substantial soil erosion or the loss of topsoil?*

Impact GEO-1: Possible Temporary Accelerated Erosion and Sedimentation from Soil Disturbance and Vegetation Removal

Erosion is a natural process; however, accelerated erosion generally occurs as a result of human activities. Soils along the project routes, many of which are already disturbed, vary widely with respect to their erosion hazard. Ground-

disturbing activities, including removal of vegetation, can cause increased water runoff rates and concentrated flows and may cause accelerated erosion, with a consequent loss of soil productivity. The eroded material (i.e., sediment) could degrade the quality of receiving waters.

IPN is required to prepare and implement SWPPPs for all of the project routes that disturb more than 5 acres during construction, which will include mitigation measures to control accelerated erosion and sedimentation. Because the area of soil disturbance would be small within a given area, there would not be a significant opportunity for erosion to occur, except for those segments of routes that are aligned on steep slopes. The erosion and sediment control measures, if properly prescribed, implemented, and maintained, are expected to reduce erosion rates during and after construction to near preconstruction rates. By implementing these measures, this impact is considered less than significant.

Mitigation Measure BIO-MM-22: Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities. This mitigation measure is described in detail in section 4.4, "Biological Resources."

c. *Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?*

The project routes pass through a few areas that are subject to earthquake-induced liquefaction. Liquefaction and resulting differential ground settlement and lateral spreading could damage the cable system. The impact is considered less than significant because damage to the system would not have an adverse physical effect on humans or the environment.

d. *Be located on expansive soil, as defined in Table 18-1 of the Uniform Building Code (1994), creating substantial risks to life or property?*

Some of the project routes pass through areas of soils that are considered expansive by the Uniform Building Code (UBC). If not properly engineered, seasonal soil expansion and contraction could damage the cable system. This impact is considered less than significant because UBC-required engineering and construction techniques would mitigate this hazard and any damage would not have an adverse physical effect on humans or the environment. No mitigation is required.

e. *Leave soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?*

No septic tanks or alternative wastewater disposal systems would be installed as part of the proposed project. No impacts would occur.

4.7 Hazards and Hazardous Materials

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VII.	**HAZARDS AND HAZARDOUS MATERIALS.** Would the project:				
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				✓
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		✓		
c)	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?		✓		
d)	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?		✓		
e)	Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?		✓		
f)	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?		✓		
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?		✓		
h)	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?		✓		

4.7.1 Criteria for Determining Significance

The analysis of significance of impacts related to hazards and hazardous materials is based on criteria *a–h* in the environmental checklist and on the following factors:

- potential hazards and/or hazardous materials encountered during trenching or any subsurface excavation and
- proper disposal of hazardous materials encountered during trenching or any subsurface excavation.

4.7.2 Impact Assessment

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The proposed project would not require long-term storage, treatment, disposal, or transport of hazardous materials. No impact would occur.

b. Would the proposed project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials?

Impact HAZ-1: Possible Release of Hazardous Materials during Construction.

Small quantities of hazardous materials will be stored, used, and handled during construction. The hazardous materials anticipated to be used are small volumes of petroleum hydrocarbons and their derivatives (e.g., gasoline, hydraulic fluids) required to operate the construction equipment. These materials may be released in accidental spills. Although the types and quantities of hazardous materials used during construction are not considered acutely hazardous and would not pose a substantial risk to human health and/or safety, release of hazardous materials without subsequent containment and cleanup could result in harm to the environment, principally water quality and associated aquatic life. This impact is considered potentially significant.

Mitigation Measure BIO-MM-22: Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities.
This mitigation measure is described in detail in section 4.4, "Biological Resources."

Mitigation Measure HAZ-MM-1: Ensure proper labeling, storage, handling, and use of hazardous materials.
The construction contractor will ensure proper labeling, storage, handling, and use of hazardous materials in accordance with BMPs and OSHA's HAZWOPER requirements. The construction contractor will ensure that employees are properly trained in the use and handling of these materials and that each material is accompanied by MSDS. Additionally, any small quantities of hazardous materials stored temporarily in staging areas will be stored on pallets within fenced and secured areas and protected from exposure to weather. Incompatible materials will be stored separately, as appropriate.

Mitigation Measure HAZ-MM-2: Report all significant releases or threatened releases of hazardous materials.

All hazardous material spills or threatened releases, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of quantity spilled must be immediately reported if the spill has entered or threatens to enter a water of the State, including stream, lake, wetland, or storm drain, or has caused injury to a person or threatens injury to public health. Immediate notification must be made to the local emergency response agency (fire department or Certified Unified Program Agency [CUPA]/Administering Agency [AA]), or 911 and the Governor's Office of Emergency Services (OES) Warning Center at 1-800-852-7550. Prior to construction, the local emergency response agency, be it a local fire district or CUPA/AA (typically the county environmental health or management agency) shall be identified and appropriate notification procedures documented (phone numbers, contacts, etc.).

For non-petroleum products (i.e., ethylene glycol [coolant], xylene solvent, etc), additional reporting may be required if the release exceeds federal reportable quantity thresholds over a release period of 24 hours as detailed in Section 25359.4 of the California Health and Safety Code and Title 40, Section 302.4 of the CFR.

All construction personnel, including environmental monitors, shall be aware of state and federal emergency response reporting guidelines. In California, spill notification guidance is summarized in the OES Hazardous Materials Unit's *California Hazardous Material Spill/Release Notification Guidance* (OES 1999). Reportable quantities for federal hazardous substances can be found in Table 302.4 of 40CFR 302.4. Guidance for federal notification is also provided in the *California Hazardous Material Spill/Release Notification Guidance* manual.

Impact HAZ-2: Possible Discovery and Accidental Release of Buried and Unknown Hazardous Waste.

Construction activities requiring excavation and trenching may encounter buried and unknown hazardous waste. Disturbance of these wastes could lead to hazardous exposures to construction personnel, the public, and/or the environment. This impact is considered significant.

Mitigation Measure HAZ-MM-3: Avoid known hazardous waste and contamination sites.

IPN shall conduct preliminary hazardous waste investigations of project routes prior to any land disturbance. Preliminary hazardous waste investigations should include standard Phase I Environmental Site Assessment or transaction screen review following standard procedures as outlined in American Society for Testing and Materials (ASTM) Standards E1527 and E1528. Sites identified as hazardous waste sites or sites with known contamination shall be avoided through rerouting of proposed alignments.

If avoidance is not possible, additional environmental review will be necessary.

Mitigation Measure HAZ-MM-4: Report all discovery of hazardous waste, including soil and groundwater contamination, to the local hazardous materials response agency.

Discovery of unknown hazardous waste or soil and groundwater contamination is a possibility. Similar to mitigation measure HAZ-MM-3, prior to construction the local emergency response agency, be it a local fire district or CUPA/AA (typically the county environmental health or management agency) shall be identified and appropriate notification procedures documented (phone numbers, contacts, etc.). If hazardous waste is encountered, including but not limited to stained or odiferous soils and sludges, sheens or floating free product on groundwater, or foreign matter associated with buried pipes, storage tanks, or drums, work shall stop immediately and the local hazardous materials response agency shall be contacted. Non-essential personnel shall leave the immediate area. Appropriate further action will be directed by the responding agency. Ground disturbance in the area shall not be continued until authorized by the responding agency.

c. *Would the proposed project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

Construction may take place within 1/4 mile of an existing or proposed school; however, aside from petroleum-based fuels and lubricants which are not formally recognized as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, otherwise known as Superfund) hazardous substances, project applicants would not handle acutely hazardous materials or emit hazardous or acutely hazardous emissions. However, construction equipment will emit criteria air pollutants such as carbon monoxide and particulate matter as well as ozone precursors. Emission of criteria air pollutants is addressed in section 4.3, "Air Quality." Criteria air pollutants are not defined as hazardous or acutely hazardous air emissions.

Handling of petroleum-based fuels and lubricants would occur in relatively small quantities. Use of such materials within one-quarter mile of an existing or proposed school does not pose a substantial risk to human heath or welfare.

See discussion under Environmental Checklist question *b.*for descriptions of potential impacts and mitigation measures.

d. *Would the proposed project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would create a significant hazard to the public or the environment?*

Impact HAZ-3: Possible Exposure of the Public or Environment to Hazardous Materials Sites

The exact project alignments are presently not known. It is possible that project alignment may traverse Government Code Section 65962.5 hazardous materials

sites and/or discover buried and unknown hazardous waste that is not listed on government databases of known hazardous materials sites (Section 65962.5 sites). This impact is considered potentially significant.

Mitigation Measure HAZ-MM-3: Avoid known hazardous waste and contamination sites.
This mitigation measure is described above under the discussion of checklist question *b*.

Mitigation Measure HAZ-MM-4: Report all discovery of hazardous waste, including soil and groundwater contamination, to the local hazardous materials response agency.
This mitigation measure is described above under the discussion of checklist question *b*.

e. For a proposed project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the proposed project result in a safety hazard for people residing or working in the proposed project area?

f. For a proposed project in the vicinity of a private airstrip, would the proposed project result in a safety hazard for people residing or working in the proposed project area?

Impact HAZ-4: Possible Safety Hazard Due to Helicopter or Other Aircraft in the Vicinity of Public or Public-Use Airport.

It is possible that project construction could occur within an airport land use plan or within 2 miles of an airport, but the project would not result in people being permanently located in such areas or affect people already located in such areas. Therefore, this impact is considered less than significant with implementation of the following mitigation.

Mitigation Measure HAZ-MM-5: Undertake all flight operations in accordance with federal air administration safety and flight regulations.
Any helicopter or other aircraft operation used for project construction would be undertaken in accordance with the Federal Air Administration safety and flight regulations.

g. Would the proposed project impair implementation of or physically interfere with an adopted emergency response or evacuation plan?

Impact HAZ-5: Possible Temporary Limited Emergency Access

The proposed project would involve the operation of heavy machinery. Emergency response times may be affected in areas where the proposed routes are adjacent to or within road rights-of-way. Unregulated construction within

roadways could affect primary routes of emergency transit. In addition, construction could occur within or adjacent to hospital, police, and fire protection land uses. This impact is considered potentially significant.

Mitigation Measure HAZ-MM-6: Prepare and implement a traffic safety plan, and coordinate with local transportation and emergency response agencies.

Project applicants shall, in obtaining normal road encroachment permits from local agencies, prepare and implement a traffic safety plan (TSP) cognizant of emergency transit and emergency response land uses. In preparation of traffic control plans, and if construction poses a hazard or obstacle to timely emergency response, project applicants shall coordinate TSP preparation with those emergency response agencies interfered.

The TSP will address appropriate vehicle size and speed, travel routes, detour or lane-closure plans, flagperson requirements, location of turnouts to be constructed, coordination with law enforcement and fire control agencies, coordination with Caltrans personnel (for work affecting state road rights-of-way), emergency access to ensure public safety, and need for traffic and speed limit signs. Additionally, measures will be identified to avoid blocking or limiting access to residences, businesses, and recreation areas located along the construction route. Residents and business owners will be contacted concerning any potential access or parking impacts prior to the commencement of construction-related activities. The applicant or contracted traffic engineer should coordinate with local public works (traffic engineers) during preparation of the TSP, or the TSP should be approved by a local agency traffic engineer.

h. Would the proposed project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Impact HAZ-6: Possible Temporary Exposure of People or Structures to Wildland Fires

If construction occurs on or immediately adjacent to wildlands, structures and people could be at risk if wildland fires are started by construction of the proposed project. This impact is considered potentially significant.

Mitigation Measure HAZ-MM-7: Prepare a fire prevention and management plan.

A fire prevention and management plan will be prepared and implemented for construction in project areas with fire danger potential, such as areas covered in fire fuels like tall, dry grasses. The intent of this plan may be incorporated in requirements of local governing entities such as city or county planning departments.

4.8 Hydrology and Water Quality

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
VIII.	**HYDROLOGY AND WATER QUALITY** - Would the proposed project:				
a)	Violate any water quality standards or waste discharge requirements?		✓		
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?				✓
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?				✓
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?				✓
e)	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				✓
f)	Otherwise substantially degrade water quality?		✓		
g)	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				✓

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
h)	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?		✓		
i)	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?				✓
j)	Contribute to inundation by seiche, tsunami, or mudflow?				✓

4.8.1 Criteria for Determining Significance

The analysis of significance of impacts of the proposed project is based on criteria *a–j* in the Environmental Checklist. Additionally, the potential for significant impacts on hydrologic conditions and water quality from construction activities was evaluated based on the expected intensity, duration, and timing of various disturbances of aquatic and riparian resources. State and federal agencies implement policies aimed at managing these three factors and keeping the risk of water quality degradation within safe levels to protect human and aquatic life.

The intensity of an impact relates not only to its location and aerial extent but also its relationship to natural background levels observed in the ecosystem. RWQCBs set water quality standards within basin plans in order to preserve beneficial uses. In addition to water quality standards, aquatic and riparian habitat parameters, such as spawning area and recruitment of woody debris, have baseline conditions that need to be maintained. In all cases, the location and magnitude of an impact influence whether a parameter will be significantly affected.

The timing of water quality impacts is important because it can affect whether reproductive and migratory cycles of aquatic biota or other seasonal beneficial uses are affected. State resource agencies have established preferred construction windows (if in-water work is needed) to minimize the potential impacts of in-water construction on the reproductive and migratory cycles of aquatic organisms, particularly anadromous salmonids.

4.8.2 Impact Assessment

a. Would the proposed project violate any water quality standards or waste-discharge requirements?

Impact HYD-1: Possible Increase in Sediment-Loading into Waterbodies as a Result of Project Construction

There is potential for surface runoff to transport unstabilized trench spoils into streams, which could result in temporary increases in turbidity and sedimentation in watercourses adjacent to and/or downstream the project routes. Temporary increases in turbidity or sedimentation could be significant if the rate of sediment-loading exceeds the rate of sediment transport in a stream, a frequent occurrence during wet weather. Excessive sediment in the water column (increased turbidity) can result in impacts on aquatic habitat.

Trenching across drainages to install conduit and cable could cause disruption of the bed- and bank-sediments. This sediment disruption could result in some suspension of sediment in the water column and a corresponding increase in turbidity and sedimentation downstream during subsequent precipitation events that contribute flow to the channel.

Removing riparian vegetation along drainages could weaken streambank structure and increase susceptibility to erosion. Disturbing the geomorphic characteristics and stability of the channel bed and banks may initiate long-term readjustments (chronic erosion) in self-formed, alluvial channels.

A significant impact could occur if large amounts of riparian vegetation were removed, if the channel bed and banks on several crossings of one channel or within one watershed were disturbed, or if sensitive crossing sites that have been disturbed mechanically were further disturbed by high-flow events before they are stabilized. The following mitigation measures would reduce sediment-loading to a less-than-significant level.

Mitigation Measure BIO-MM-5: Retain qualified biologists and resource specialists to monitor construction activities near specified sensitive biological areas.

This mitigation measure is described in section 4.4, "Biological Resources."

Mitigation Measure BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction.

This mitigation measure is described in section 4.4, "Biological Resources."

Mitigation Measure BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones.

This mitigation measure is described in section 4.4, "Biological Resources."

Mitigation Measure BIO-MM-22: Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities.
This mitigation measure is described in detail in section 4.4, "Biological Resources."

Mitigation Measure BIO-MM-1: Ensure proper labeling, storage, handling, and use of hazardous materials.
This mitigation measure is described under the discussion of checklist question *b.* in section 4.7, "Hazards and Hazardous Materials."

Mitigation Measure HYD-MM-1: Employ non-invasive construction methods at stream crossings.
IPN would use construction methods that mitigate significant impacts on water quality at all stream crossings. Conduit and cable installation at these crossings would be limited to boring under sensitive streams, installation of conduit and cable over or under existing culverts, or attaching the conduit to an existing bridge. IPN would use construction BMPs or, if construction activities would result in 5 or more acres of soil disturbance, prepare and implement a SWPPP, which would include the regrading and compacting of backfill in trenches and drilling pits to match natural, adjacent site conditions as part of the construction mitigation strategy of the proposed project.

Impact HYD-2: Possible Temporary Degraded Water Quality from Accidental Spills of Hazardous Materials during Construction in Exceedance of Reportable Quantities

Small quantities of hazardous materials would be stored, used, and handled during construction. The hazardous materials anticipated to be used are small volumes of petroleum hydrocarbons and their derivatives (e.g., gasoline, hydraulic fluids) required for operation of construction equipment. Accidental spills of these substances could contaminate drainages, soils, wetlands, and other environmentally sensitive areas and water bodies (i.e., areas supporting critical habitat or listed or proposed species). This impact can be reduced to a less-than-significant level by implementation of the following mitigation measures.

Mitigation Measure BIO-MM-22: Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities.
This mitigation measure is described in detail in section 4.4, "Biological Resources."

Mitigation Measure HAZ-MM-1: Ensure proper labeling, storage, handling, and use of hazardous materials.
This mitigation measure is described under the discussion of checklist question *b.* in section 4.7, "Hazards and Hazardous Materials."

Impact HYD-3: Possible Temporary Water Quality Degradation from Discharge of Directional Drilling Slurry into Waterbodies

Directional drilling often requires lubricating slurry to help lubricate the drill bit, prevent the bore tunnel from collapsing, and carry drill cuttings to the surface. The types of slurry used vary depending upon the contractor and the existing subsurface conditions. The slurry mixture could seep to the surface within a stream channel. Seepage can happen if the drilling encounters fractures in the underlying rock and slurry pressures are great enough to allow the material to surface. This impact can be reduced to a less-than-significant level by implementation of the following mitigation measures.

Mitigation Measure HYD-MM-2: Integrate directional drilling slurry containment protocol into SWPPP or BMPs documentation as initially described in mitigation measure BIO-MM-22.
Protocols prepared to minimize the potential for directional drilling slurry seeps will include the following requirements: require boring crews to strictly monitor drilling fluid pressures; retain containment equipment on-site; monitoring waters downstream of the crossing sites to identify any seeps quickly; immediately stop work if a seep into a stream is detected; immediately implement containment measures; adhere to agency reporting and notification requirements; and identify responsible parties.

Mitigation Measure HYD-MM-3: Inform governing agencies of the selected directional-drilling slurry to be used for directional drills.
Any agencies restricting actions through the issuance of a permit or other authorization must be informed of the type of directional-drilling slurry to be used during directional drilling operations. This would allow the agencies to express concerns over specific slurries and allow the selection of the most appropriate slurry to protect the environment and still allow the work to be performed.

Mitigation Measure BIO-MM-5: Retain qualified biologists and resource specialists to monitor construction activities near specified sensitive biological areas.
This mitigation measure is described in section 4.4, “Biological Resources.”

Mitigation Measure BIO-MM-6: Conduct a biological resource education program for construction crews and enforce construction restrictions before construction.
This mitigation measure is described in section 4.4, “Biological Resources.”

Mitigation Measure BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones.
This mitigation measure is described in section 4.4, “Biological Resources.”

Mitigation Measure BIO-MM-22: Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities.

This mitigation measure is described in detail in section 4.4, "Biological Resources."

Mitigation Measure HAZ-MM-1: Ensure proper labeling, storage, handling, and use of hazardous materials.
This mitigation measure is described under the discussion of checklist question *b.* in section 4.7, "Hazards and Hazardous Materials."

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

The proposed project consists of the installation of fiber optic cable and conduit through a variety of means. Depth of the cable typically would not exceed 48 inches, except under special circumstances such as boring under rivers or under existing utilities, or when the cable and conduit are inserted in an idle pipeline and the pipeline is greater than 48 inches deep. The project would have no impact on groundwater supplies because the cable installation depth is sufficiently above the typical existing water table elevation. The cable and associated facilities would be installed in disturbed urban and suburban areas and are not expected to interfere with existing groundwater recharge rates. Consequently, no impact is expected to occur.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?

The proposed project would not alter existing drainage patterns through the alteration of a stream or river course. In all cases, the conduit would either be installed on a bridge or other existing river or stream crossing, or would be bored under flowing water courses. Consequently, no impact is expected to occur.

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site?

The proposed project would not alter existing drainage patterns through the alteration of a stream, river course, or other area. Consequently, no on- or off-site flooding is expected to occur.

e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The proposed project would create only a small temporary amount of runoff water to drainage systems. All grades would be restored to existing conditions and runoff would drain as sheet flow and be allowed either to percolate or to flow into existing stormwater management structures. Consequently, no impact is expected to occur.

f. Otherwise substantially degrade water quality?

See discussion under Environmental Checklist question *a.*for a description of potential impacts and mitigation measures.

g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The proposed project does not include the construction or placement of housing within floodplains. Consequently, no impact is expected to occur.

h. Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

Conduit and cable installation would not affect floodplain capacity because the fiber optic cable would be installed below the ground surface. Areas that would be disturbed during construction would be restored to existing grades. No flood flows would be redirected and, therefore, no impact would occur from installation of cable.

Impact HYD-4: Possible Increased Flood Hazards from Possible Placement of Central Offices within the Floodplain

If project routes cross land indicated on the Federal Emergency Management Agency's (FEMA's) flood insurance rate maps as 100-year floodplains, and permanent structures such as central offices are proposed in these areas, an increase in flood hazard due to increased runnoff and impermeable surfaces could occur. Potential floodplain-related impacts would be considered less than significant with the implementation of the following mitigation measure.

Mitigation Measure HYD-MM-4: Design central offices to comply with floodplain ordinances

Uses within floodplains are locally regulated on the basis of the FEMA flood insurance maps. All efforts would be made to avoid placing central offices in floodplains. However, if avoidance is not possible, prior to placing any central office within a mapped 100-year floodplain, IPN would obtain all necessary land use permits from the applicable governing entities and would comply with all conditions of approval for construction within the floodplain.

i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The proposed project would not increase the risk of flooding in any area and does not include levees or dams. People or structures would not be exposed to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. Consequently, no impact is expected to occur.

j. Contribute to inundation by seiche, tsunami, or mudflow?

By design, the proposed project would not increase the potential for inundation by seiche, tsunami, or mudflow. Consequently, no impact is expected to occur.

4.9 Land Use and Planning

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IX.	**LAND USE AND PLANNING.** Would the proposed project:				
a)	Physically divide an established community?			✓	
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?		✓		
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?		✓		

4.9.1 Criteria for Determining Significance

The analysis of significance of impacts of the proposed project is based on criteria *a–c* in the CEQA environmental checklist and on the following factors:

- substantial changes to land uses along the rights-of-way,
- incompatibility with long-term uses on adjacent properties, or
- conflict with applicable land use plans.

4.9.2 Impact Assessment

a. Would the proposed project physically divide an established community?

The proposed project consists of the installation of fiber optic cable within existing and disturbed rights-of-way. The project would limit construction to existing disturbed rights-of-way. The construction of new features (i.e., belowground fiber optic cable, aerial cable installations) are not likely to be noticeable and would not disrupt or divide an established community.

Construction of central offices may be subject to conditional use permits or similar discretionary action. Once the project has been determined, the relevant regulatory authorities must be consulted.

b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Impact LAN-1: Potential Inconsistency with County, City, or Local Land Use Plans and Policies

The proposed project may be inconsistent with goals and policies set forth in local or county land use plans and with local regulations adopted for the purpose of avoiding and mitigating environmental effects. Although most plans allow the installation of utilities, conditional use permits or similar discretionary action by local agencies may be required. Additionally, there may be relevant policies and land use issues associated with certain areas, and consistency can only be determined once the specific route is identified. This impact is considered potentially significant pursuant to Section 15064(h) of the State CEQA Guidelines, but can be reduced to a less-than-significant level by implementing the following mitigation measure.

Mitigation Measure AES-MM-2: Review and comply with local land use plans, policies, zoning, and other ordinances.
This mitigation measure is described under environmental checklist question *c.* in section 4.1, "Aesthetics"

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

Impact LAN-2: Potential Inconsistency with Conservation Plan

The proposed project could be inconsistent with an adopted HCP or NCCP because the specific route of the proposed project is not yet known. The likelihood of this impact, however, is low because the proposed project would be located in densely populated and developed metropolitan areas and would not likely occur in areas covered by a conservation plan. In addition, the following mitigation is required to ensure that this potential impact would be less than significant.

Mitigation Measure BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones.
This mitigation measure is described in section 4.4, "Biological Resources."

4.10 Mineral Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
X.	**MINERAL RESOURCES.** Would the proposed project:				
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				✓
b)	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				✓

4.10.1 Criteria for Determining Significance

The analysis of significance of impacts of the proposed project is based on professional judgment, a review of the map of principal mineral-producing localities (California Department of Conservation, Division of Mines and Geology and the U.S. Geological Survey 1999), and criteria *a* and *b* in the Environmental Checklist.

4.10.2 Impact Assessment

a. *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? and*

b. *Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

Fiber optic cable and central offices would be installed in developed urban areas and only where allowed by the landowner or owner of the rights-of-way. Therefore, the proposed project would not result in the loss of availability of known mineral resources or of any locally important mineral resource to a greater extent than exists under the current restrictions affecting the rights-of-way within which the cable would be placed.

Locating central offices within areas of known mineral deposits could limit future access to those sites. However, because these structures are relatively small, are located infrequently along the project routes, and would be located with permission of the landowner, this impact is considered less than significant. No mitigation required.

4.11 Noise

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XI.	**NOISE.** Would the project:				
a)	Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?		✓		
b)	Expose persons to or generate excessive groundborne vibration or groundborne noise levels?			✓	
c)	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		✓		
d)	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		✓		
e)	Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?			✓	
f)	Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?			✓	

4.11.1 Criteria for Determining Significance

The analysis of significance of impacts of the proposed project is based on criteria *a–f* in the environmental checklist. Additionally, city and county governments typically use noise elements and noise ordinances. *Noise elements* are part of the general plan and are used to evaluate long-term noise-related land use compatibility for development of an area. *Noise ordinances* regulate noise from specific noise sources such as music and parties, industrial activities, and construction. Noise sources associated with the proposed project would typically fall in the second category, which is regulated by noise ordinances; noise element criteria do usually not apply to these sources.

Each city and county typically enacts its own noise ordinance standards; however, most noise ordinances are fairly similar. Noise ordinances generally set limits on acceptable noise levels at the property line of the affected land use based on the background noise level, the noise level from the source in question, the duration of the noise event, and the time of day. Noise ordinances often

contain exemptions for construction activities, provided that the construction activity takes place during hours specified by affected local jurisdictions.

There are no noise-generating activities associated with operation of the fiber optic line. Noise sources associated with the central offices include heating, ventilation and air conditioning (HVAC) equipment, and backup generators. The HVAC equipment would run intermittently depending on the exterior temperature. Backup generators would only run if there is a power outage and shut off after a maximum of 3 hours (George pers. comm). Generators would also be tested and exercised for a short period every few weeks. The effect of increased noise levels from construction activities would be somewhat diminished because most construction activity would likely take place during daylight hours when background noise levels and people's tolerance are generally at their highest levels. Because construction crews are expected to move quickly, construction noise would typically be audible for only one day or part of one day.

For purposes of this analysis, a noise impact is considered significant if project-related noise at a noise-sensitive land use or receptor has the potential to exceed typical noise ordinance standards. To keep this analysis reasonably conservative, it does not presume that construction activity is exempt from regulations.

4.11.2 Impact Assessment

a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?

Noise-generating activities associated with the proposed project are related primarily to construction activities. Construction of the central offices and potential access road improvements would also involve the use of noise-generating equipment. Grading is expected to be the noisiest activity associated with the construction of these facilities and improvements.

The noisiest construction equipment could include jackhammers, pavement breakers, rubber-tired backhoes, tracked vehicles, tractors, and directional-boring equipment. All construction activity would occur primarily during daylight hours. Table 4.11-1 summarizes typical noise levels produced by construction equipment that is expected to be used for the proposed project.

Table 4.11-1. Summary of Construction Noise Sources

Equipment	Sound Level at 50 Feet (dBA-Leq)
Backhoe	80
Grader	85
Bulldozer	85
Jackhammer	88

Source: Federal Transit Administration 1995.

Noise associated with the proposed project is expected to come primarily from fiber optic cable installation and installation of central offices.

Noise may also be associated with operation of emergency backup generators and other support equipment such as HVAC equipment at the central offices. In California, noise from these types of operations is regulated at the local level; there is no regulation at the state or federal level.

Impact NOI-1: Temporary Exposure of Residences and Other Sensitive Receptors to Construction Noise in Excess of Local Standards

Jackhammers, bulldozers, and trucks are expected to be the noisiest pieces of equipment used at any construction site. It is not likely that more than one piece of equipment would be used at the same time. Therefore, the assessment of potential noise impacts associated with in-ground conduit and cable installation or other construction activity is based on a worst-case source level of 88 dBA at 50 feet. Noise levels that could potentially occur in the vicinity of cable installation or other construction sites based on this source level are summarized in table 4.11-2. This table includes attenuation factors from distance, molecular absorption, and anomalous excess attenuation (Hoover 1996). Locations within about 2,000 feet of an active construction site have the potential to be exposed to noise in excess of 50 dBA. Many local noise ordinances use sound levels in the range of 50 to 55 dBA as thresholds for violation at residential uses during daylight hours. The results in table 4.11-2 indicate that residences or other sensitive receptors within about 2,500 feet of cable routes could be exposed to noise in excess of local standards. Construction noise may substantially increase noise above background sound levels. However, construction within existing railroad or road rights-of-way would typically not be expected to generate noise that would be significantly greater than noise generated by trains or automobiles.

Table 4.11-2. Estimated Noise in the Vicinity of an Active Construction Site

Distance to Receptor (feet)	Sound Level at Receptor (dBA)
50	88
100	82
200	76
500	69
600	65
800	63
1,000	60
1,500	56
2,000	53
2,500	50
3,000	47
4,000	43
5,280	39
7,500	32

Notes: The following assumptions were used:

Basic sound level drop-off rate:	6.0 dB per doubling of distance
Molecular absorption coefficient:	0.7 dB per 1,000 feet
Anomalous excess attenuation:	1.0 dB per 1,000 feet
Reference sound level:	85 dBA
Distance for reference sound level:	50 feet

This calculation does not include the effects, if any, of local shielding that may reduce sound levels further.

Because of the potential for construction noise to be in excess of local standards or to cause noise that is substantially above background sound levels, this impact is considered to be significant. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure NOI-MM-1: Employ noise-reducing construction practices.

When installing and constructing fiber optic cable system, IPN would employ the following noise-reducing measures:

- Restrict construction activity along routes and at staging areas within 1,000 feet of residences to daytime hours (7 a.m. to 7 p.m.). No construction would be performed within 3,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 7 p.m. and 7 a.m. on other days. These restrictions may be modified according to local jurisdiction policies and requirements.
- All equipment would have sound-control devices no less effective than those provided on the original equipment. No equipment would have an unmuffled exhaust.
- As directed by the local jurisdiction, IPN would implement appropriate additional noise mitigation measures to comply with the applicable local

noise ordinance including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, or installing acoustic barriers around stationary construction noise sources.

- If traffic control devices requiring electrical power are employed within 500 feet of sensitive receptors, the devices would be battery/solar-powered instead of powered by electrical generators.
- All of the above measures may be modified to conform to local jurisdiction standards and requirements.

b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Directional drilling and operation of heavy equipment may generate localized groundborne vibration and noise that could be perceptible at residences or other sensitive uses close to the activity. Groundborne noise is noise radiated by vibrating ground and structures supported on vibrating ground. Construction within active railroad rights-of-way would not create significantly more ground vibration than passing trains. Because potential groundborne vibration and noise would be temporary and would occur predominantly during daylight hours, groundborne vibration and noise impacts are considered less than significant. No mitigation is required.

c. Result in a substantial permanent increase in ambient noise levels in the proposed project vicinity above levels existing without the proposed project?

Impact NOI-3: Exposure of Nearby Sensitive Receptors to Excessive Noise Levels from Use of Emergency Backup Generators and Other Support Equipment at Central Offices

A permanent source of noise associated with ongoing operation of the proposed project is an emergency backup generator to power each central office in case of a power outage. Other support equipment, such as HVAC equipment, may also generate noise. The generator would be located outside the concrete precast structure that houses the regeneration equipment and would be operated only temporarily during a power outage or when the generator is being tested or serviced. Generators used at these facilities are typically powered by a 255-hp diesel-driven reciprocating engine. An engine of this type and size would produce a sound level of about 84 dBA at 50 feet (Hoover 1996). HVAC equipment would be used to control the equipment in the facility to protect electronics. The size, type, and degree of use of this equipment would vary depending on the climate the facility is located in.

The backup generators would typically be installed with a standard sound-attenuating enclosure. A standard enclosure would be expected to provide approximately 15 dB of sound reduction. With an enclosure in place the 84-dBA source level would be reduced to approximately 69 dBA. The noise level

produced by HVAC equipment would vary depending on climate. Noise produced by this equipment could potentially be at about the same level as noise for the generator. Based on this source level, noise-sensitive uses within about 500 feet of a central office could be exposed to noise in excess of 50 dBA. Noise-sensitive uses within about 1,400 feet of a facility could be exposed to noise in excess of 40 dBA. An emergency power outage could require extended use of the generator and result in exposure of nearby sensitive receptors to noise in excess of local day and night noise ordinance standards or to excessive noise increases. Noise from HVAC equipment could have similar results. This impact is considered because of the potential for noise from emergency generators and HVAC equipment to exceed local standards.

Mitigation Measure NOI-MM-2: Design and locate emergency backup generators and other support equipment to limit noise from the engine generator.

IPN would design and locate the emergency backup generators and other support equipment at central offices such that the noise produced does not exceed local noise ordinance criteria. Where there is no local ordinance, equipment would be designed to not exceed daytime and nighttime noise level limits of 45 and 55 dBA-L50 respectively. Potential methods for achieving this include locating the facility away from noise-sensitive uses and using local shielding from the building structure, topography, or sound walls to reduce noise transmission to sensitive receptors. IPN would retain a qualified acoustical consultant to evaluate potential noise impact and to design treatments to reduce noise to the required levels. A report documenting the required treatments shall be submitted to the local agency and approved by the local agency before a building permit is issued.

d. Result in a substantial temporary or periodic increase in ambient noise levels in the proposed project vicinity above levels existing without the proposed project?

Construction activity would result in a temporary increase in noise. Refer to the response to question *a* above.

e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the proposed project area to excessive noise levels?

f. Be located in the vicinity of a private airstrip and expose people residing or working in the proposed project area to excessive noise levels?

Project implementation could occur near an airport; however, construction noise would be temporary and would not be in excess of existing airport noise.

4.12 Population and Housing

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XII.	**POPULATION AND HOUSING.** Would the proposed project:				
a)	Induce substantial 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)?				✓
b)	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?				✓
c)	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?				✓

4.12.1 Criteria for Determining Significance

The analysis of significance of impacts of the proposed project is based on criteria *a–c* in the CEQA Environmental Checklist.

Proposed projects that would introduce substantial population growth or make it possible for such growth to occur (i.e., new sewer line or new road) would significantly affect population and housing. In addition, proposed projects that would displace substantial housing or necessitate the construction of replacement housing would also have a significant impact.

4.12.2 Impact Assessment

a. Would the proposed project induce substantial population growth in an area, either directly (e.g., by proposing new homes and business) or indirectly (e.g., through extension of roads or other infrastructure)?

The proposed project is not a form of infrastructure, such as roads, water lines, or sewer lines, that could induce population growth within specific areas. The purpose of the proposed project is to serve existing demand. It is unlikely that fiber optic cable would be installed in locations that did not exhibit demand for such service.

Implementation of the proposed project would serve existing telecommunications demands and would not result in the construction of new housing. Therefore, the

proposed project would not induce substantial population growth in any particular area or make a cumulatively considerable contribution to population growth. No impacts would result from construction of the proposed project.

b. *Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere? or*

c. *Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?*

Because construction would occur in existing, disturbed rights-of-way, no housing or people would be displaced as a result of the proposed project. There would be no impact on population or housing as a result of the proposed project.

4.13 Public Services

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIII.	**PUBLIC SERVICES.** Would the project:				
a)	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
	Fire protection?				✓
	Police protection?				✓
	Schools?				✓
	Parks?				✓
	Other public facilities?				✓

4.13.1 Criteria for Determining Significance

The assessment of significance of impacts of the proposed project is based on criterion *a* in the CEQA Environmental Checklist. Projects that create a demand for public services may result in the construction of public facilities. This construction may result in a significant impact when associated with significant adverse physical changes.

4.13.2 Impact Assessment

a. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: Fire protection? Police protection? Schools? Parks? Other public facilities?*

By design, the project would create no new demand for governmental services or facilities and would not require construction, alteration, or expansion of any such facilities to provide acceptable service levels. Construction of the proposed project would be temporary, of relatively short duration, and self-sufficient (not requiring additional public services).

4.14 Recreation

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIV.	**RECREATION.** Would the project:				
a)	Increase 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?		✓		
b)	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				✓

4.14.1 Criteria for Determining Significance

The analysis of significance of impacts of the proposed project is based on criteria *a* and *b* in the environmental checklist. An impact on recreation would be considered significant if it would include altering an existing recreational facility, creating a new demand for recreational facilities, or require the construction or expansion of recreational facilities that could result in an adverse physical effect on the environment.

4.14.2 Impact Assessment

a. Increase 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?

Impact REC-1: Use of Recreational Facilities as Staging or Other Work Area

The use of recreational facilities such as park parking lots or open-space areas as staging or other work areas could cause an increase in the deterioration of the facility. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure REC-MM-1: Avoid impacts on recreational facilities.

Avoid impacts on recreational facilities caused by their use as staging or other work areas by maintaining all work areas within existing utility or road rights-of-way, unless required or authorized by the local city or county parks department, or the equivalent governing entity, to do otherwise. If work within a recreational facility is authorized, cleanup and repair of the facility will follow the requirements of the governing agency, in addition to the requirements of this document.

b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

The proposed project does not include recreational facilities, would not result in any increased use of parks or recreation facilities, would not increase demand on existing recreational facilities, or lead to the construction or expansion of any recreational facilities that might have an adverse physical effect on the environment.

4.15 Transportation/Traffic

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XV.	**TRANSPORTATION/TRAFFIC.** Would the proposed project:				
a)	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?			✓	
B)	Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?			✓	
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				✓
d)	Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		✓		
e)	Result in inadequate emergency access?		✓		
f)	Result in inadequate parking capacity?		✓		
g)	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				✓

4.15.1 Criteria for Determining Significance

The analysis to determine the significance of traffic and circulation impacts associated with the project is based on criteria *a–g* as shown in the environmental checklist.

In addition, Level of Service (LOS) is a method used to describe how well a roadway is operating. Based on a roadway's volume to capacity (V/C) ratio, a letter designation is assigned that represents traffic flow conditions. The letter designations A through F represent progressively declining operating conditions, with A indicating excellent maneuverability and stable speeds and F indicating a breakdown of flow and unstable, erratic conditions (see table 4.15-1).

Table 4.15-1. Level of Service Definitions

Level of Service Rating	Definition
LOS A	Free flow; insignificant delays.
LOS B	Stable operations; minimal delays.
LOS C	Stable operations; acceptable delays.
LOS D	Approaching unstable; queues develop rapidly but no excessive delays.
LOS E	Unstable flow; significant delays.
LOS F	Forced flow; low operating speeds.

Source: Transportation Research Board 1994.

4.15.2 Impact Assessment

a. *Would the proposed project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)? or*

b. *Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?*

Multiple crews may be working a single project route or at various locations at any given time, depending on the length of the project route and the level of need. Trucks and other vehicles would typically access the construction sites from different sets of roadways and intersections. Employee trips by construction workers traveling to and from the sites are not anticipated to exceed 20 per day per crew. Truck trips would be considerably less because the construction equipment would remain at the site during work hours, arriving and leaving once daily from designated staging areas. Construction traffic generated by the project is expected to be minimal.

The project would have only temporary effects on traffic. LOS standards for roads established by the appropriate county congestion management agency (CMA) are intended to regulate long-term traffic increases that result from the construction of traffic generators such as offices, stores, and residential developments, or projects that result in permanent changes to existing traffic patterns. Because the project does not involve construction of offices, stores, or residences, the project would not generate traffic and would not result in congestion that exceeds LOS standards established by the applicable county CMA for designated roads.

The project, with its associated construction vehicles, would temporarily increase traffic and disrupt traffic flow as installation crews move along road rights-of-way. These effects would be less than the study threshold (e.g., 50 or more trucks, 100 passenger vehicles, or an equivalent combination of vehicles per hour in the peak direction during the peak hour at any roadway intersection)

established by the Institute of Transportation Engineers (1989). Because construction-related traffic is expected to be below the significance threshold of 100 peak-hour trips per day and because the proposed project would not generate a substantial amount of traffic on local roadways, this impact is considered less than significant.

c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The project would mostly involve the below-ground installation of conduit and cable. Use of existing aerial towers and below-ground installation would not result in the construction of any new towers or other impediments to air traffic. There will be no impact as a result of the project. Construction of central offices at a height of 8–12 feet would not represent an obstruction of impediment to air traffic.

d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Impact TRA-1: Potential for Roadway Safety Hazards

Project-related activities involving construction equipment, vehicles, or workers within existing roadway rights-of-way would create roadway operation safety hazards. Additionally, underground fiber optic cable installation would involve open trenching along local roadways. Because slow-moving construction vehicles and open trenching activities would create safety hazards for roadway motorists or bicyclists, this impact is considered significant. Construction of central offices could result in the same impact. Implementation of mitigation measure HAZ-MM-6 would avoid or reduce this potential traffic and circulation impact to a less-than-significant level.

Mitigation Measure HAZ-MM-6: Prepare and implement a traffic safety plan and coordinate with local transportation and emergency response agencies.
This mitigation measure is described in under the discussion of checklist question *g* in section 4.7, "Hazards and Hazardous Materials."

e. Result in inadequate emergency access?

Impact TRA-2: Temporary Inadequate Access to Areas along the Project Alignment Resulting from Construction-Related and Operation Maintenance Activities

Construction-related activities (e.g., open trenching for cable installation) occurring along local roadways would result in temporary changes to existing circulation patterns and periodic disruptions in access to homes, businesses, and recreational areas located adjacent to roadways affected by the project. Circulation and access would also be affected at any roadway intersection located along the project's construction corridor. Construction-related activities would

also block existing travel routes used by emergency response providers. Because slow-moving construction vehicles and construction-related activities would result in temporary changes to existing circulation patterns and disrupt existing access routes, this impact is considered significant. Construction of central offices could result in same impact. To avoid or reduce this potential traffic and circulation impact, implement mitigation measure HAZ-MM-6.

Mitigation Measure HAZ-MM-6: Prepare and implement a traffic safety plan and coordinate with local transportation and emergency response agencies.
This mitigation measure is described in under the discussion of checklist question *g* in section 4.7, "Hazards and Hazardous Materials."

f. Result in inadequate parking capacity?

Impact TRA-3: Increased Parking Demand Created by Construction Activities

The project would create limited new temporary parking demand as crews move along the project route. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure TRA-MM-1: Limit all parking to right-of-way and pre-approved staging areas.
Vehicle parking during construction would be limited to the right-of-way or, if necessary, to areas identified in local regulations or permits. Local regulations and permits may supersede this mitigation (e.g., due to safety restrictions). Construction equipment would be kept in designated staging areas when not in use and would not result in new parking demand. Additionally, no permanent facilities would be developed as part of the project that would require the use of, or generate the need for additional parking facilities. Because adequate vehicle and construction equipment staging/parking areas would be provided as part of the proposed project, this impact is considered less than significant.

g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

The project consists of the installation of conduit and cable and related facilities within or adjacent to existing rights-of-way. After construction, all affected areas would be returned to their preconstruction state. Using alternative transportation modes for temporary construction crews, such as bicycles or buses, would not be consistent with the project objective of rapid construction or with construction methods. The project would have no lasting impact on demand for alternative transportation or on alternative transportation facilities (e.g., bus stop, park-and-ride lot). After construction, no evidence of fiber optic cable would exist within the roadway rights-of-way except for marker posts and manholes/handholes. There would be no impact as a result of the project.

4.16 Utilities and Service Systems

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI.	**UTILITIES AND SERVICE SYSTEMS.** Would the proposed project:				
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				✓
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		✓		
c)	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			✓	
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?				✓
e)	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				✓
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				✓
g)	Comply with federal, state, and local statutes and regulations related to solid waste?		✓		

4.16.1 Criteria for Determining Significance

The analysis of significance of impacts of the proposed project is based on criteria *a–g* in the CEQA Environmental Checklist.

Proposed projects that create a demand for public utilities and service systems may result in the construction or expansion of public facilities such as storm drainage systems and wastewater treatment facilities. This construction may result in a significant impact when associated with significant adverse physical changes.

4.16.2 Impact Assessment

a. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

The proposed project, installation of fiber optic cable, would not generate any wastewater during operation. Construction or installation of cable would not require use of water for drilling or trenching. These activities would use other materials (see section 4.7, "Hazards and Hazardous Materials"). Therefore, no wastewater would be generated and no wastewater treatment requirements would be exceeded.

b. Would the project require, or result in the construction of, new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The proposed project, installation of fiber optic cable, would not require use of water or result in wastewater during operation. Construction or installation of cable would not require use of water or result in wastewater for installation of cable or for drilling or trenching. These activities would use other materials (see section 4.7, "Hazards and Hazardous Materials"). Therefore, no effects on water or wastewater facilities would result from implementation of the project. The proposed project would not result in the need for construction or expansion of new water or wastewater treatment facilities. There is a potential for construction facilities to affect or damage existing utilities.

Impact UTI-1: Potential Damage to Subsurface Utilities during Trenching

Construction activities would occur in existing, disturbed rights-of-way. In urban areas, these rights-of-way typically contain subsurface utilities, including water mains or electrical and telephone lines. Trenching could potentially damage these utilities by inadvertently puncturing or cutting lines. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure UTI-MM-1: Determine the location of subsurface utilities and avoid during construction activities.
Before construction activities begin, an underground utility contractor, such as Dig Alert, One-Call, or a similar contractor, would be contacted to determine the locations of subsurface utilities. On identification, these subsurface utilities would be avoided during trenching.

c. Would the project require, or result in the construction of, new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Installation of fiber optic cable would occur in existing rights-of-way. Any subsurface excavation areas would be covered and returned to pre-project

conditions after installation is complete. Therefore, installation of the cable would not create new impermeable surfaces and would not substantially increase drainage runoff beyond existing conditions. Accordingly, the proposed project would not require or result in the construction of stormwater drainage facilities.

The proposed project would also include construction of central offices, which could create approximately 300–2,400 square feet of impermeable surface per central office location (eight buildings multiplied by 300 square feet per building). This surface area would not substantially increase drainage runoff beyond that existing without the proposed project and would not require the construction of new facilities. Accordingly, the proposed project would not result in impacts associated with expansion or construction of stormwater drainage facilities.

d. Would the project have sufficient water supplies available to serve the proposed project from existing entitlements and resources, or would new or expanded entitlements be needed?

The proposed project, including construction and operation of central offices, would require no external water supply; therefore, sufficient water supplies exist without requiring new or expanded entitlements. No impact on water supply is anticipated.

e. Would the project result in a determination by the wastewater treatment provider that serves or may serve the proposed project that it has adequate capacity to serve the proposed project's proposed projected demand in addition to the provider's existing commitments?

The proposed project would not generate wastewater and would not affect the provision of wastewater treatment services. Thus, no impact on wastewater treatment capacity is anticipated.

f. Would the project be served by a landfill with sufficient permitted capacity to accommodate the proposed project's solid waste disposal needs?

Operation of the proposed project would not result in solid waste. Construction-related solid waste is addressed below. No impact on solid-waste disposal capacity is anticipated.

g. Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Impact UTI-2: Generation of Solid Waste Resulting from Construction Activities

During construction activities, solid wastes associated with the proposed project would include spools and other packaging material associated with the conduit and cable. Once installation is complete, the proposed project would produce no

solid wastes. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure UTI-MM-2: Recycle and dispose of construction materials.

Spools and other packaging for conduit and cable would be taken away for reuse, recycling, or disposal at a landfill. The construction contractor would be responsible for ensuring that construction-related waste is disposed of properly and will coordinate with local landfills to ensure adequate capacity is available. Furthermore, the proposed project would comply with all federal, state, and local statutes and regulations related to solid waste.

4.17 Cumulative Impacts

4.17.1 Aesthetics

Any visible aboveground project components would include manholes, cable markers, central offices, as well as any cable and conduit attached to bridges or installed on utility poles and towers. However, all components would be sited within existing rights-of-way containing roads, railroads, pipelines, utility lines, or other facilities and would generally be consistent with the existing road/railroad and utility markers and facilities already located within these disturbed rights-of-way. Although the project has the potential to affect scenic resources, the project would not result in a cumulatively considerable impact on aesthetics.

4.17.2 Agricultural Resources

Any agricultural activities allowed within the right-of-way before the installation of fiber optic cable or the construction of central offices would be allowed to continue after its installation. However, it is unlikely that agricultural activities currently occur within these public and utility rights-of-way. The proposed project would be consistent with surrounding land uses, which are primarily high-density, mixed-use residential, commercial, and industrial, and would not contribute to the loss of agricultural land in California.

4.17.3 Air Quality

With implementation of the identified mitigation measures, the proposed project would comply with all air quality standards. Therefore, construction and operation of the proposed fiber optic cable projects would not conflict with or obstruct implementation of any applicable air quality plan, nor violate any air quality standard or contribute substantially to an air quality violation. It would not result in a cumulatively considerable net increase of a criteria pollutant in a nonattainment area for which the project regions are a non-attainment area for applicable ambient air quality standards and, with mitigation, would not expose sensitive receptors to substantial pollutant concentrations.

4.17.4 Biological Resources

Cumulative impacts of the proposed project on biological resources are considered less than significant for the following reasons:

- Most of the habitat types located along roads and railroad rights-of-way in the project region are abundant.
- The project routes would be linear and narrow and construction would disturb a small amount of habitat relative to the amount of these habitats available locally and regionally (especially projects that involve the use of existing manholes and handholes).
- Activities related to the proposed project would be temporary and vegetation is expected to recover quickly, particularly within disturbed rights-of-way such as roadsides, railroads, and maintained utility corridors.
- Proposed project rights-of-way are already disturbed from original construction and ongoing maintenance activities of other utilities, roads, or railroads.
- Regeneration facilities (central offices), while resulting in a small amount of permanent habitat loss, are sited in areas that either do not support habitat (i.e., developed sites), support only ruderal vegetation, or support a common vegetation type, such as annual grassland.
- Much of the project routes will be located primarily within already disturbed or developed rights-of-way.

Impacts on sensitive biological resources (e.g., special-status species, wetlands, and riparian habitats) would be avoided by implementing the mitigation measures into the project. Therefore, no cumulative impacts on sensitive biological resources are anticipated.

4.17.5 Cultural Resources

Cultural resources are generally not considered subject to cumulative impacts, but are either individually impacted in a way that changes the significance of the property or are not impacted in a way that changes the significance of the property.

4.17.6 Geology, Seismicity, and Soils

Development in California has the cumulative impact of bringing additional people into potential contact with geologic hazards. In some instances, such as where mass grading occurs, a project may directly contribute to increased landslide hazard or accelerated soil erosion.

The proposed project consists of the installation of fiber optic conduit and cable through plowing and trenching, subsurface boring, and within existing ducts and idle pipelines whenever possible. As described above, the proposed project would not expose persons to substantial risk of loss, injury, or death relative to geologic hazards; result in accelerated soil erosion; potentially result in landslides or other mass movement; create substantial risks due to expansive soils; or produce wastewater requiring septic tanks, sewers, or other disposal facilities. The contribution of the proposed project to the cumulative impact would be less than significant.

4.17.7 Hazards and Hazardous Materials

The effects of the proposed project are rendered less than cumulatively considerable due to mitigation requiring proper storage, use and disposal of hazardous materials and wastes, as well as proper reporting and response in the case of a hazardous materials spill or hazardous waste discovery. The applicant's implementation of mitigation measures described in section 4.7, "Hazards and Hazardous Materials" render the project's contribution less than cumulatively considerable.

4.17.8 Hydrology and Water Quality

Incidental discharges of sediment during construction are possible. However, the cumulative effect of a temporary, small increase in sediment loading would be minimal. Pollution prevention measures that would be contained in the project SWPPPs would reduce any impacts to a less-than-significant level.

If construction is necessary within a 100-year floodplain, the proposed project would be required to obtain applicable local permits. This would result in no contribution to a cumulative impact because the local permit system, in accordance with flood insurance rates set by the FEMA, is designed to discourage development that would cumulatively result in flood hazard. Consequently, an increase in flood hazard is not expected.

4.17.9 Land Use and Planning

The proposed project would not result in the physical division of a community nor would it leave evidence of its existence other than marker posts, manholes/handholes. Any resulting facilities would be consistent with existing land uses in a high-density, mixed use urban and surburban setting. The limited number of central offices stations that would be installed and the project proponent's preference to build them at existing substations greatly limits the potential that any such station would interfere with an existing land use. The

proposed project would not constitute a considerable contribution to any cumulative effect.

4.17.10 Mineral Resources

The proposed project would make an insignificant contribution to any cumulative impact on mineral resources. The installation of conduit and fiber optic cable in existing rights-of-way would not affect the prior ability to access mineral resources within the rights-of-way. The limited number of central offices stations that would be installed and the project proponent's preference to build them at existing substations greatly limits the potential that any such station would interfere with an existing or future mineral resource recovery operation.

4.17.11 Noise

There are no cumulative noise impacts associated with the proposed project because noise impacts are anticipated to be temporary and highly localized.

4.17.12 Population and Housing

The proposed project would not create or displace housing or induce substantial population growth. It would have no impact on population or housing and would not contribute to cumulative effects.

4.17.13 Public Services

The proposed project would create no new demand for public services and would therefore not contribute to a cumulative effect.

4.17.14 Recreation

The proposed project would not result in increased use of existing recreational facilities or in the need for additional recreational services. Therefore, it would not contribute to cumulative impacts.

4.17.15 Traffic/Transportation

Implementation of the proposed project would have only temporary construction-related impacts on traffic and transportation-related issues. Consequently, there

are no cumulative traffic or transportation impacts associated with the proposed project as traffic impacts are anticipated to be temporary and highly localized.

4.17.16 Utilities and Service

The proposed project would not require utilities or service systems. Therefore, it would not contribute to cumulative impacts.

4.18 Mandatory Findings of Significance

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVIII.	**MANDATORY FINDINGS OF SIGNIFICANCE:** Based on the findings of the initial study and implementation of the mitigation measures identified therein, would the project:				
a)	Degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of California history or prehistory?		✓		
b)	Achieve short-term, to the disadvantage of long-term, environmental goals?		✓		
c)	Have impacts that are individually limited, but cumulatively considerable?			✓	
d)	Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		✓		

a. *Would the project degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of California history or prehistory?*

The proposed project would not create long-term adverse impacts on the quality of the environment; wildlife or plant species, including special-status plant and wildlife species; or prehistoric or cultural resources, because of mitigation measures proposed as part of the project. As identified in appropriate sections of this environmental review, the proposed project would have a less-than-significant impact, conditional upon the incorporation of mitigation on aesthetics, air quality, biological resources, cultural resources, geology/soils, hazards and hazardous materials, hydrology/water quality, land use/planning, noise, recreation, transportation/traffic, and utilities/service systems. Mitigation measures have been identified that would be incorporated into the project to reduce these impacts to less-than-significant levels.

b. Would the project achieve short-term, to the disadvantage of long-term environmental goals?

The proposed project would meet the long-term telecommunications goal of providing a connection between customers and a national network of fiber optic cable. As described above, potential impacts have been reduced or eliminated with the incorporation of identified mitigation measures into the project design.

c. Would the project have impacts that are individually limited, but cumulatively considerable?

The proposed project would not have individually limited but cumulatively significant impacts on resources because all possible construction-related effects have been reduced or eliminated by mitigation measures that have been incorporated into the project design. Although constructing new fiber optic cable facilities and ancillary equipment is considered extension of infrastructure, this type of infrastructure would not measurably induce growth because it is an enhancement of existing infrastructure rather than the extension of basic infrastructure (i.e., roads and sewers), which allow and encourage growth. The proposed project's contribution to cumulative impacts is considered less than significant.

d. Would the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project would not have any direct or indirect adverse impacts on humans because project impacts would be temporary and they would be reduced or eliminated by mitigation measures incorporated into the project design.

Chapter 5
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Appendix A

Mitigation Monitoring, Compliance and Reporting Plan

Appendix A

Mitigation Monitoring, Compliance, and Reporting Plan

Section 1.0 Introduction

1.1 Project Overview

IP Networks, Inc., (IPN) proposes to offer Last Mile telecommunications service in urban areas in Northern California to various entities (their clients) by constructing new fiber optic cable facilities and ancillary equipment between structures to which the service would be provided. The term Last Mile refers to the distance between the source facility and the new customer. IPN has not identified all customers and therefore did not list specific construction locations at the time of submittal of their application for the Certificate of Public Convenience and Necessity (CPCN). Because it is not possible to exactly identify the location of each potential customer, the project has no preplanned routes or specific project maps. To adapt to this type of project, the California Public Utilities Commission (CPUC) developed the Last Mile initial study/mitigated negative declaration (IS/MND) as a process-oriented approach that sets performance standards for analyzing potential impacts and for identifying and implementing required mitigation measures.

IPN proposes to offer Last Mile telecommunication service in urban areas in California to various entities (their clients) by constructing fiber optic cable and ancillary equipment between structures to which the service would be provided. Proposed urban areas include the San Francisco Bay Area and the Sacramento metropolitan area (figure 2.1 of the main document). A complete list of cities and counties in which IPN intends to provide service is provided in table 2.1 of the main document.

The CPUC, as the state lead agency under the California Environmental Quality Act (CEQA), has determined that IPN's construction and operation of fiber optic cable facilities will serve public convenience and necessity, provided that the projects will have no significant impact on the quality of the environment. The proposed project would cross many jurisdictions and may require approvals and permits from various federal, state, and local agencies.

1.2 Purpose of this Plan

The CPUC developed the Last Mile IS/MND as a process-oriented approach that sets performance standards for analyzing potential impacts and for identifying and implementing required mitigation measures. The purpose of the IS/MND and this Mitigation Monitoring, Compliance, and Reporting Plan (MMCRP) is to establish a clear process for obtaining approval for specific projects, to ensure compliance with the mitigation measures identified in the IS/MND, and to ensure that IPN obtains and complies with both local ordinances and permit conditions that may be required from trustee and responsible agencies.

The CPUC has the authority under the Public Utilities Code to regulate the terms of services, and the safety, practices, and equipment of utilities under its jurisdiction. When adopting a negative declaration with mitigation measures, an agency must also adopt a program for reporting or monitoring mitigation measures that were adopted or made conditions of project approval pursuant to Public Resources Code (PRC), Section 21081.6(a) and State CEQA Guidelines, Sections 15091(d) and 15097. The MMCRP is prepared to ensure the mitigation measures and project revisions identified in the IS/MND are implemented.

IPN is required to implement the mitigation measures identified in the IS/MND and included in this MMCRP to avoid significant impacts on environmental resources. These mitigation measures are adopted as part of the IS/MND. The monitoring and reporting program provides guidance to IPN and their environmental monitoring team, the CPUC and its environmental consultant, and local, state, and federal resource agencies. The program guides monitoring efforts throughout the preconstruction, construction, and postconstruction periods.

The purpose of this MMCRP is to:

- clearly identify a monitoring and reporting protocol for mitigation measures that have been approved by the CPUC (CEQA lead agency for the project), trustee agencies, and responsible agencies;
- provide guidelines on monitoring roles and responsibilities;
- define compliance levels, performance standards, and reporting and variance procedures; and
- describe the CPUC's process for reviewing and approving specific projects within IPN's proposed project region.

1.3 Supporting Technical Documentation

No separate technical studies were conducted or documents prepared to support the IS/MND. If separate technical documents (e.g., wetland delineation report, cultural resource report, biological report) are required for specific projects, they will be prepared by IPN's environmental consultant and submitted to the CPUC

for review and approval. Depending on the resource issues and potential impacts, the CPUC will determine if the technical documents and supporting documents require further review by either responsible or trustee agencies.

1.4 Responsible and Trustee Agencies

Federal, state, and local agencies, including but not limited to the following, may issue permits or authorizations for the project and may have roles in overseeing environmental compliance for the project:

- U.S. Army Corps of Engineers (USACE),
- U.S. Fish and Wildlife Service (USFWS),
- National Marines Fisheries Service (NMFS),
- State Historic Preservation Officer (SHIPO),
- California State Lands Commission (SLC),
- California Department of Fish and Game (DFG),
- regional water quality control boards (RWQCBs),
- regional air quality districts, and
- local counties and cities

The lead agency (CPUC) has the primary responsibility for tracking and documenting the completion and implementation of mitigation measures. The CPUC and cooperating agencies have legally mandated authority and responsibility to enforce any laws, ordinances, and regulations which could be violated during construction. While there is a clear benefit in coordinating the activities between the cooperating agencies with the lead agency, it is also understood that none of the federal or state agencies with legal enforcement mandates have in any way waived their enforcement authority.

When a violation of a permit condition or mitigation measure is documented in the field, it is the responsibility of each agency to determine the appropriate compliance and enforcement action. For this reason, compliance and enforcement actions will be coordinated through the lead agency. The lead agency may enforce conditions and seek resolution of disputes, enforce permit conditions, and otherwise ensure compliance. Cooperating agencies should allow the lead agency to carry out its enforcement responsibilities in a coordinated fashion; however, even where the lead agency initiates a compliance and enforcement action, further action by any of the cooperating agencies is not precluded.

1.5 Plan Organization

This MMCRP is organized into the following sections:

- Section 1.0 Introduction
- Section 2.0 Roles and Responsibilities
- Section 3.0 Project Review and Approval Process
- Section 4.0 Documentation and Reporting
- Section 5.0 Variance Process
- Section 6.0 Dispute Resolution
- Section 7.0 Enforcement
- Section 8.0 Training and Coordination Meetings
- Section 9.0 Mitigation Monitoring Requirements

Section 2.0 Roles and Responsibilities

The purpose of the monitoring and reporting program is to identify resource issues for each specific project and ensure compliance with the IS/MND and with federal, state, and local conditions and regulations. While the program establishes an orderly process for resolving compliance violations, it does not in any way replace the agencies' respective roles and responsibilities for taking appropriate compliance and enforcement action where necessary. In general, the monitoring program will serve as an early-warning system to

- identify small problems before they develop into something larger,
- cooperate in the resolution of these problems, and
- document the success or failure of the environmental commitments presented in the IS/MND.

The operating philosophy of the monitoring program will be to establish and maintain an ongoing dialogue between the CPUC, IPN, and the agencies to encourage the best possible implementation of mitigation measures. The objective of the MMCRP will be to resolve compliance issues at the lowest possible level. This will be accomplished by establishing and following a communication and dispute resolution process which will provide all parties with the earliest possible notice of a problem and an adequate opportunity to participate in its resolution. Any problems which are not resolved in the field will be elevated to a formal resolution and enforcement process.

Effectiveness of the monitoring program depends on establishing and maintaining an organizational structure which clearly defines the roles and responsibilities of each participant. Because several agencies may be involved in the conditions and regulations of the construction process, it is critical that there be adequate coordination of the various agencies and their permit conditions. This will best be accomplished by developing a clear plan for submitting project documentation to the CPUC for approval, monitoring the field conditions and the applicable environmental commitment measures in the field, and by developing a clear communications protocol.

The following outlines the roles and responsibilities of each of the participants involved in the compliance and monitoring program for this project.

2.1 CPUC and CPUC Monitor Roles and Responsibilities

The CPUC, as the designated lead agency, is responsible for ensuring full compliance with the mitigation measures adopted with the mitigated negative declaration for the proposed project. The CPUC may enforce compliance

through the use of a contractor. The CPUC will be responsible for the following activities:

- review all construction work plans
- issue notice-to-proceed letters
- issue letters of warning and stop work notices
- respond to variance requests involving changes to mitigation measures

Under the direction and guidance of the CPUC project manager and staff, CPUC's prime contractor overseeing the implementation of this MMCRP will be responsible for data management, project compliance monitoring and reporting, technical support, scheduling, reporting, and accounting. CPUC prime contractor's MMCRP roles and responsibilities described in this section will involve the following levels:

- program manager
- assistant program manager
- data manager
- compliance monitors
- technical advisors

Program Manager. The program manager will be responsible for ensuring that compliance and reporting activities are conducted in accordance with this MMCRP. The program manager will also be the primary contact for the CPUC and IPN and will provide assistance in reviewing all plans, resource documentation, and variance requests. Additionally, the program manager will coordinate with resource and other agencies (if necessary) to receive their approval on variance requests involving changes to mitigation measures.

Assistant Program Manager. The assistant program manager will support the program manager and will have the primary responsibility for overseeing resource monitors and ensuring that IPN has conducted the appropriate level of environmental clearance surveys and provided documentation. The assistant program manager will oversee field implementation and quality assurance of the compliance program, including environmental inspection, specialty monitoring, and flagging and fencing. The assistant program manager's responsibilities include: managing and supporting compliance monitors; coordinating information between IPN and federal and state agencies; negotiating and resolving any conflicts relevant to environmental compliance; reviewing all project documentation and technical plans; submitting and tracking approval of variance requests; and performing general troubleshooting on environmental compliance issues.

Data Manager. The data manager will prepare and manage the compliance tracking database. The data manager will provide training in the use of the

program and will assist with software- and laptop-associated issues. The data manager will be available to facilitate database queries.

Compliance Monitors. The compliance monitors will ensure that all construction activities are performed in accordance with all applicable mitigation requirements, permit conditions, and environmental specifications. They will act as a liaison between construction personnel and field agency representatives. The monitors consist of wildlife biologists, botanists, wetland ecologists, and archaeologists, and will be assigned to those areas requiring their expertise and presence, where necessary. The compliance monitors will be responsible for completing the project activity reports and noncompliance reports.

CPUC compliance monitors shall have the authority to order corrective action and/or stop work to maintain environmental compliance. The monitors will use sound professional judgment in exercising these authorities and will not stop work unless there is a situation that could: 1) cause serious injury or harm to persons or property, 2) harm threatened or endangered species or protected cultural resources, 3) violate certain federal or state codes, 4) violate the terms and conditions of the state or federal right-of-way or permits, 5) deviate from adopted mitigation measures, or 6) is necessary to protect public health and safety or the environment. CPUC compliance monitors will not have the authority to issue a Notice-to-Proceed (NTP); this authority is reserved in all cases to the CPUC.

Technical Advisors. The technical advisors will include biologists, archaeologists, water quality and erosion control specialists, and other resource specialists that may be required to review environmental clearance documents or review plans and specifications for compliance with the mitigation measures.

2.2 IPN's Roles and Responsibilities

IPN's construction and environmental team roles and responsibilities are described below for the following:

- engineering and construction project manager
- construction manager
- contract compliance inspector
- biological and archaeological resource monitors

Engineering and Construction Project Manager. IPN's engineering and construction project manager is responsible for coordinating with the CPUC project manager and staff, the CPUC contractor's program manager, assistant program manager, compliance monitors, technical advisors, other (including IPN's) resource monitors, all relevant agencies, and IPN's own engineering and construction representatives to ensure the appropriate clearance surveys are conducted. The engineering and construction project manager is also responsible

for resolving conflicts and coordinating resource avoidance and protection. The engineering and construction project manager will patrol the construction site periodically (while maintaining contact with IPN's own construction superintendents, supervisors, and/or contract compliance inspectors) to help monitor implementation of the resource protection measures and compliance with other required permits. Additionally, the engineering and construction project manager will coordinate, as necessary, with monitors from the CPUC and any other appropriate agencies.

Construction Manager. The construction manager is responsible for managing the construction contractor's activities to ensure all project facilities are completed according to project plans, including compliance with all mitigation measures and the procedures established in this MMCRP. The construction manager will notify the CPUC contractor's program manager of any proposed changes to the project work so that appropriate environmental reviews can be performed and subsequent actions taken (e.g., an NTP, further confirming studies, or additional CEQA review.

Contract Compliance Inspector. The contract compliance inspectors will be retained by IPN and will be responsible for ensuring that the plans and specifications are implemented to standard.

Specialized Resource Monitors. Qualified biologists and archaeologists will conduct field surveys to identify and document the presence or absence of sensitive resources. The resource specialists will identify for the contractor the necessary protection measures (e.g., fencing or setback buffers). Biologists and archaeologists will be on site during construction, where necessary, to monitor sensitive resource areas and ensure that the mitigation measures and permit conditions are being implemented. Other resource monitors will be called on-site when necessary and may include Native American, paleontological, and water quality or other specialized monitors.

Section 3.0 Project Review and Approval Process

The following sections describe the general types of construction activities that will require the CPUC's approval. This section also contains the CPUC's process for reviewing and issuing an NTP for specific IPN projects.

3.1 Types of Construction

IPN will use the following three general types of construction to install their fiber optic cable system:

- **Use of Existing Structures:** This activity is limited to the use of existing conduits or other facilities, such as existing surface-accessible manholes or existing overhead conduit. No subsurface excavation will occur; ground disturbance will be minimal. Existing road and utility rights-of-way will be used for access, and previously disturbed sites will be used for equipment staging areas. No new access roads will be constructed.

- **Minor Ground-Disturbing Activities**: This activity is limited to installation using new manholes or handholes along existing fiber optic cable lines. Existing road and utility rights-of-way will be used for access and previously disturbed sites for equipment staging areas. No new access roads will be constructed.

- **Moderate Ground-Disturbing Activities**: This includes linear construction activities such as trenching and directional drilling, and the construction of aboveground structures (i.e., central offices). Existing road and utility rights-of-way will be used for access and previously disturbed sites for equipment staging areas. No new access roads will be constructed. Impacts that would result from the construction of aboveground structures may be unique and will be specifically discussed.

- **Significant Variation to Analyzed Methods**: Any construction activities not defined above and activities that are outside the geographic boundaries analyzed in this document.

3.2 Project Review and Approval Steps

IPN will implement the following steps to obtain the CPUC's environmental approval for specific project (s) within the urban study area as defined in the IS/MND (see also section 1.3 and figure 1 in the IS/MND):

1. IPN submits proposed construction plans to their environmental consultant for review.

2. IPN's environmental consultant conducts database searches; site assessments; and coordinates with local, state, and federal agencies to determine if there are any sensitive resource issues or permits required for the project. IPN and/or their consultant will conduct any further resource surveys or additional studies required by the specific project routes' proximity to sensitive resources. The consultant completes the forms in the construction work plan (see appendix B of the IS/MND) to document that:

   - existing information has been reviewed;
   - the appropriate level of field surveys and studies have been conducted;
   - appropriate agencies and the affected public have been contacted;
   - permits have been obtained;
   - appropriate mitigation will be implemented; and
   - potential impacts will be avoided by the project.

   IPN will demonstrate that the project will not result in any impacts on previously undisclosed resources; will not result in impacts of greater severity on previously disclosed resources; and that the mitigation measures developed in this IS/MND continue to be effective in avoiding resource impacts or reducing them to less-than-significant levels..

3. IPN incorporates environmental resource issues identified in step 2 into their project design and construction specifications (e.g., location of barrier fencing to protect a sensitive-resource site).

4. IPN submits a route-specific construction plan to the CPUC and other agencies for their review. The construction work plan includes the proposed route-specific construction plans, project description, environmental clearance forms (including all necessary field surveys and resource studies), a mitigation monitoring plan (including all mitigation measures that will be implemented for the specific route), permits (or proof that permits are being obtained), documentation of consultation and notification, and a proposed construction schedule (see appendix B).

5. CPUC staff and/or CPUC consultant reviews the construction work plan and supporting documentation and provides comments to IPN (and CPUC if necessary). Depending on complexity, this review may take between 15 and 30 days.

6. If all the information is complete, IPN shows compliance with the IS/MND mitigation measures, and the information submitted for the route-specific project a) demonstrates that all proposed mitigation falls within that previously disclosed in the IS/MND, and b) demonstrates that the route-specific project impacts are neither broader in scope nor more severe than those previously disclosed in the IS/MND, the CPUC will issue a Notice to Proceed with the project(s) approximately 15 days from the end of the review period.

7. IPN's environmental consultant conducts an environmental awareness training for all individuals involved in the project and provides written documentation of the training (sign-in sheets).

Section 4.0 Documentation and Reporting

4.1 Daily-Activity Reports

All monitors (IPN or CPUC) will complete a daily-activity report at the end of each shift. Daily-activity reports will include a summary of the day's activities including locations that were visited and the times they were visited. Reports will record level of compliance per observation and any communications related to each observation. In the event of noncompliance, a report documenting the noncompliance will be provided. The report will include corrective actions needed and an expected implementation date of resolution(s).

4.2 Documenting Observations and Noncompliance

CPUC compliance monitors will document daily observations and classify them according to the following categories:

- acceptable
- minor problem
- violation
- repeated violation
- serious violation

The level of documentation and communication requirements will vary with the event observed. It is important to document all observations, including those categorized as "acceptable," because the documentation is a method of tracking construction activity and impact, identifying potential trouble-spots before they escalate into resource damage, and resolving noncompliance incidents.

Acceptable. An activity is considered acceptable when resources are protected in accordance with mitigation measures and permit conditions.

Minor Problem. Minor problems are technical violations which occur in very limited areas and have little or no immediate environmental consequence associated with them. Identification of a minor problem is an early warning to impending problems and the possibility of violation. By identifying minor problems it is expected that more severe problems will be avoided. It should be noted, however, that IPN retains full responsibility for the implementation of all mitigation measures.

Table A-1 identifies examples of minor problems and the protocol for documenting a minor problem.

Table A-1. Examples of Minor Problems and Protocol for Documenting a Minor Problem

Examples of Minor Problems	Protocol
■ Lack of maintenance of erosion or sediment control measures over a small area (see SWPPP) ■ Parking or driving outside the construction right-of-way in non-sensitive areas ■ Failure to pick up trash or store equipment and materials properly ■ Personnel present beyond limits of construction in non-sensitive areas ■ Failure to maintain orange construction barrier fencing or staking/flagging for resource protection ■ Small hazardous material spill in non-sensitive area (if spill is not cleaned up within 24 hours then the incident becomes a violation)	**IPN is responsible for:** 1. Identifying the problem. 2. Discussing the problem with the IPN contract compliance inspector and agency monitors and identifying corrective measures. 3. Documenting the conversation and actions taken in the Daily Activity Report. 4. Reinspecting site to ensure minor problem has been resolved. **CPUC Monitor is responsible for:** 1. Discussing the incident with IPN and their contractor. 2. Revisiting site to ensure problem was addressed.

Violation. A violation is an incident that is isolated in areal extent and is severe enough to warrant a specific and timely correction. Correction of a violation may be scheduled to take place within days and will require specific action by IPN and followup monitoring by the CPUC or its contractor to clear the noncompliance report.

Repeated violations may be treated as a severe violation. For example, if IPN had numerous pollution events due to breaks of fuel or hydraulic fluid lines, and the contractor failed to improve maintenance or otherwise avoid the problem, the situation might be treated much more seriously. More significant enforcement should be expected in such a case.

Table A-2 identifies examples of violations and the protocol for documenting a violation.

Serious or Repeated Violation. A serious violation involves a relatively large area and/or a more serious threat to the environment. A serious violation requires rapid correction and immediate notification. Once notified of a serious violation, the assistant program manager shall respond to the site as soon as possible, oversee the collection of information, and communicate as soon as possible with the program manager, the lead agencies and cooperating agencies as appropriate. Upon completion of the noncompliance report, the assistant program manager will transmit via modem or facsimile machine a copy of this report to the CPUC, appropriate resource agencies, and IPN. A meeting or conference call will be scheduled between the lead agencies, project management, and cooperating agencies to discuss the noncompliance report and the proper corrective action and follow-up enforcement actions that should be imposed. Upon agreement between the agencies as to the enforcement and corrective actions, the CPUC and/or program manager will communicate these actions to IPN. It is then anticipated that IPN would communicate these details to the contract compliance inspector and construction personnel and that the corrective actions would be implemented as rapidly as possible.

When a violation is repeated, has not been corrected by the resolution date, or has resulted from clear negligence on the part of IPN's contractor, the compliance monitor will document the nature of the noncompliance and report it to the assistant program manager. If it is a serious violation and there are safety concerns, the first priority is to secure the scene. The compliance monitor will have the authority to delegate the filing of the noncompliance report.

The plan for corrective action will identify specifically what IPN shall do to correct the identified problem and in what timeframe such corrections shall be completed. The assistant program manager may also schedule a re-inspection of the site to confirm that the corrective measures were fully implemented and that they were indeed effective. Once the problem has been fully corrected, the assistant program manager or compliance monitor will complete a noncompliance resolution report.

Table A-3 identifies examples of serious or repeated violations and the protocol for documenting a serious violation. This table also lists examples of serious violations that may warrant a verbal stop work notice.

4.3 Compliance Enforcement Documentation

The level of enforcement action required to correct compliance violations will depend upon the severity of the violation and the jurisdictional agencies involved in reviewing the corrective action and its timeframe. Compliance enforcement will occur through the following:

- daily-activity reports
- letter of warning
- suspension of construction

Daily-Activity Reports. Corrective actions to violations will be tracked using an electronic database. A noncompliance report issued will need to be closed with a complementary filing of a noncompliance resolution report. The resolution report will be submitted along with the daily-activity report on the day the violation has been corrected.

Letter of Warning. A letter of warning may be issued by the CPUC in the event of repeated simple violations which have not had adequate correction measures applied. A letter of warning is provided to IPN as an intermediate step prior to stop work or revocation of permit due to noncompliance. A letter of warning may only be issued by the CPUC, trustee agency, or responsible agency.

Suspension of Construction (Stop Work). A stop work notice can be issued by the CPUC or responsible and trustee agencies. A stop work notice may be issued against a particular activity (e.g., backhoe digging in a creek) or against a portion of the project, or the entire project. A stop work notice may be issued verbally; however, at its earliest convenience, the issuing agency shall document the stop work notice and provide copies to the other agencies and IPN. The documentation will outline the reason for the issuance of a stop work notice, the actions necessary to have the stop work notice released and the documents or actions that are necessary for IPN to request release from the stop work notice.

4.4 Documenting and Reporting Emergency Events

In the event of an emergency or crisis, an incident commander will be assigned to manage the resolution of the incident. Examples of emergency situations include medical emergencies, severe environmental events, or hazardous materials incidents. The incident commander will be responsible for the following activities:

Table A-2. Examples of Violations and Protocol for Documenting a Violation

Examples of Violations	Protocol
■ Lack of maintenance of erosion or sediment control measures over a large area ■ Establishing staging areas or wash stations within 50 feet of a sensitive resource ■ Driving or parking outside the construction zone in sensitive resource areas ■ Trenching or plowing outside the construction zone in non-sensitive resource areas ■ Bentonite frack-out in a non-sensitive stream (e.g., a stream that does not provide habitat for special-status species) ■ Unauthorized in-water work (including vehicle access) in a non-sensitive stream ■ Construction activities within a sensitive resource buffer zone that does not affect resource and is identified early and corrected ■ Unauthorized minor disturbance to a sensitive wetland or woody riparian habitat ■ Use of an unapproved staging and storage area that does not support sensitive resources ■ Equipment is not cleaned at noxious weed cleaning stations identified by the field monitors ■ Trenches are left open overnight and <u>do not</u> result in harm to a special-status species, livestock, or human. ■ Unauthorized construction within no-disturbance buffer zones for special-status raptor nests	**IPN is responsible for:** 1. Identifying the problem. 2. Discussing the problem with the IPN contract compliance inspector. 3. Verbally explaining the problem to the CPUC monitor. 4. Documenting the conversation in the daily activity report and any actions taken and completing a noncompliance report. 5. Faxing or e-mailing the noncompliance report to CPUC monitor and contacting appropriate agencies within 24 hours of incident. **CPUC Monitor is responsible for:** 1. Reporting incident as soon as possible to the CPUC. 2. Faxing or e-mailing copy of noncompliance report to the CPUC within 24 hours. 3. Reinspecting site with IPN to ensure the violation has been resolved, completing and submitting a noncompliance resolution report to the CPUC. **CPUC is responsible for:** 1. Reviewing and signing noncompliance report 2. Reviewing and signing noncompliance resolution report 3. Possible issuing of warning letter

Table A-3. Examples of Serious Violations and Protocol for Documenting a Serious Violation

Examples of Serious Violations	Protocol
• Serious Violations that Warrant Stop Work Notices • Construction activities are conducted within exclusion zones that result or have potential to result in a significant level of disturbance to a sensitive biological or cultural resources • Unauthorized in-water work in a stream that supports federal or state-listed species • Failure of erosion control during rain or storm event that results in substantial sedimentation problems • Harm to a state or federally listed species • Unauthorized significant disturbance to a sensitive wetland or woody riparian habitat • Hazardous materials spill that affects or has the potential to affect a sensitive resource or human health • Construction activities that restrict water flow causing a serious condition • Serious violations that may not warrant stop work notices • Construction activities in areas known or which have the potential to support special-status species or sensitive habitats that have not been staked and flagged • Construction outside the 20-foot-wide construction zone in sensitive resource areas and results in significant disturbance to a sensitive resource • Trenches are left open overnight, resulting in significant harm to a special-status species, livestock, or human. • Inadequate erosion control in place prior to construction during the rainy season • Construction activity in violation of any permit requirements that would cause serious impact to a sensitive species or habitat	**IPN is responsible for:** 1. Identifying the problem and determining if the violation warrants a stop work notice. 2. Immediately notifying the CPUC monitor and appropriate resource agencies 3. Discussing the problem with the IPN contract compliance inspector and identifying corrective measures 4. Completing a noncompliance report 5. Documenting the conversation(s) in the daily activity report **CPUC Monitor is responsible for:** 1. Immediately notifying the CPUC 2. Coordinating with IPN to identify and implement corrective measures 3. Reinspecting site with IPN 4. Working with field monitors to complete a non-compliance resolution report and faxing or e-mailing a copy to the CPUC **CPUC is responsible for:** 1. Reviewing and signing non-compliance report 2. Probable issuing of warning letter 3. Possible issuing of stop work notice

- promptly confirming that all appropriate public health and safety agencies have been notified of an immediate danger to the public;
- promptly notifying appropriate agency representatives;
- accurately gathering and confirming the necessary information from all parties involved in the incident;
- developing a resolution in consultation with appropriate parties (IPN, agencies, construction and environmental management, the contractor and the landowner);
- obtaining and documenting concurrence and/or approval from the appropriate agencies or individuals; and
- implementing and documenting the resolution (including any follow-up calls to interested agencies or individuals).

If the incident is a hazardous-material spill or the discovery of a hazardous material (of known or unknown constituents) in potentially significant quantities, specific reporting protocols must be followed. The protocols will be developed as part of the spill prevention and contingency plan.

Section 5.0 Variance Process

This section outlines the process that IPN will follow for obtaining a variance for deviations from the project description as approved in the IS/MND, or for any construction, operation, or maintenance activity or practice that is not carried out in accordance with approved plans, mitigation measures, or permit conditions.

IPN will be responsible for completing the variance request form for field variances. For formal variances, the program manager and program coordinator will work with the CPUC and appropriate agencies to complete and obtain a variance. IPN's environmental consultant will be responsible for providing environmental information to support formal variances.

All variances must be requested and approved in advance of variance-related activities. Grant of variance will not be considered retroactive and may not be used to dismiss previous conditions of violation. Field variances can be granted in the field by compliance monitors without further approvals.

5.1 Procedures To Request Field And Formal Variances

Field Variance Request. A field variance may be authorized for an activity that is site-specific in nature and would modify implementation of a mitigation measure so that the same or elevated level of resource protection is provided and would result in no new (or more severe) impacts. IPN completes the field variance form and requests authorization of the variance. Field variances can be signed/authorized on site by the compliance monitors.

Field variances may be issued for staging areas, fueling areas, and minor changes in mitigation measures that do not require approval from other agencies.

Formal Variance Request. A request for a formal variance is required for the following types of activities:

1. modification of the implementation of a mitigation measure for the entire project that results in the same or elevated level of resource protection;
2. change in project description; or
3. waiver of adopted mitigation measures, mitigation plans and conditions, or permit conditions.

Compliance monitors do not have the authority to approve formal variances in the field. IPN or their representative will work directly with the CPUC and other

resource agencies to obtain approvals for formal variances. IPN will not initiate the requested activity until the variance is approved.

Formal variance requests will include a completed variance request form and a memo with the following information:

- Date of request.
- Location of the variance activity, including maps and plans.
- Description of the mitigation measure, permit condition, or other project stipulation for which the variance is requested and references to applicable documents. This should also include reference to the specific resource number.
- Explanation of the need for the variance request and the reason it was not anticipated in preconstruction documents.
- Discussion of any previous variances of a similar nature.
- A CEQA-equivalent analysis that evaluates the occurrence of any potentially affected sensitive resources; any new significant impact(s); an incremental increase in the severity of a previously identified impact; or a reduction in efficiency, nature, or geographical location of a mitigation measure.
- Date of expected construction at the variance site.

IPN will receive a written determination of approval or denial of the request after the variance is reviewed by the CPUC and agencies (if the CPUC determines that additional agency review is necessary).

5.2 Procedures to Request Emergency Variance

In cases of emergency, the information described above in section 5.1 shall be communicated as soon as possible to the program manager. The program manager will coordinate with the CPUC, review these changes as soon as possible, and inform IPN of the CPUC's determination. A variance request must be completed by IPN in the manner described above as soon as feasible; each request will be considered on a case-by-case basis and responded to as promptly as possible. If the variance request is to address an immediate threat to human life or sensitive resources, and the CPUC or its contractor cannot be contacted immediately, IPN shall take the appropriate action to preserve life, prevent any adverse effect on public health and safety, protect the resource, and remove immediate hazard with minimum impacts on other significant environmental resources. A full report on such action shall be filed with the program manager within 72 hours.

Section 6.0. Enforcement

The CPUC and responsible and trustee agencies have the responsibility and authority to enforce implementation of mitigation measures and permit conditions and will use enforcement actions, if necessary, to ensure that violations of project conditions are corrected. The level of enforcement action required will depend on the severity of the violation, the responsiveness of IPN and its contractor, and the jurisdictional agencies involved in reviewing the corrective action.

Letter of Warning. A letter of warning will be issued by the CPUC or by the jurisdictional agency's project management in the event that repeated violations continue to occur and the source of the problem is not rectified. In general, the letter of warning may be provided to IPN as an intermediate step prior to a stop work notice or the revocation of permit due to noncompliance.

Suspension of Construction – Stop Work. A stop work notice can be issued by the CPUC and responsible and trustee agencies if any of the following apply: a construction activity is determined to be a deviation from the approved project, adopted mitigation measures, permit conditions, or other project approval; a sustained pattern of repeated violations, noncompliance reports, or complaints; or if the action has caused irreversible environmental damage or such damage is imminent. IPN shall immediately report any unapproved variances and suspension of construction to the program coordinator or compliance monitor. The program manager will coordinate with the CPUC and agencies, as appropriate, to discuss and resolve all stop work notices. Once a resolution had been jointly agreed to, and IPN has complied with all conditions, the CPUC will clear the stop work notice by issuing a Notice to Proceed, and construction may resume. IPN and its contractors are bound to discharge and/or observe stop work notices.

Like variances, stop work notices can be issued for site-specific activities (e.g., backhoe digging in a creek), for sections of the project area, or for the entire project. Stop work notices may also be issued to protect cultural or palaeontological resources that are uncovered during earth-moving activities.

A stop work notice may be issued verbally; however, at its earliest convenience, the CPUC or other issuing agency shall document the stop work notice and provide copies to the other agencies and IPN. Whenever a stop work notice is issued, a stop work notice form must be filled out (see construction work plan in appendix B of the IS/MND). The form should detail the reason(s) for the issuance of that notice, the actions necessary to have the notice released, and the documents or actions that are necessary for IPN to request a release from the stop work condition.

Section 7.0 Training and Coordination Meetings

An environmental training program will be provided for all individuals involved with IPN's projects. The goal of the program is to integrate environmentally responsible work practices into daily operations and standard construction procedures. Management-level staff from the contractor and the construction management team will attend a thorough training program, and construction crews will receive a very specific and targeted program that focuses on individual job responsibilities. In addition, daily/weekly tailgate meetings and monthly coordination meetings will be organized to address monitoring issues.

7.1 Environmental Awareness Training

An environmental awareness training program will be developed to ensure that mitigation measures and any permit conditions are implemented in an appropriate and timely manner. All levels of field management and construction personnel will be informed about environmental protection and the seriousness of noncompliance with environmental and other necessary permits. Training will take place at the IPN engineering level and at the contractor level. Training seminars led by IPN and qualified biologists and archeologists will be held before construction to explain and educate construction supervisors and managers about the following:

- the need for and importance of resource avoidance and protection,
- mitigation measures and associated plans (e.g., SWPPP),
- resource mapping format and interpretation of construction drawings,
- resource protection staking methods,
- construction process as it relates to required mitigation measures,
- roles and responsibilities, and
- project management structure and contacts.

All construction crew members will be required to complete a training class. These classes will cover issues such as the environmental issues mentioned above, resource mapping and construction drawing interpretation, roles and responsibilities, and site safety. Appropriate personnel from the CPUC and other regulatory agencies and their contractors will be invited.

7.2 Tailgate Meetings

As a part of their daily field responsibilities, IPN monitors will coordinate with construction staff to hold tailgate meetings on key environmental issues relevant

to particular work crews or locations. Agency monitors will be available to participate in tailgate training sessions as needed. Tailgate training might be required under the following circumstances:

- Prior to activity in known sensitive resource areas (e.g., adjacent to waterways or wetlands, special-status wildlife habitat, known cultural resources).
- Prior to activities requiring activity-specific instruction (e.g., installation of erosion control).
- In the case of repeat or uncorrected noncompliance events (e.g., activity outside of the work area, littering).
- Just prior to the beginning of important natural seasons, such as sensitive species breeding seasons or the wet-weather season.
- Just after discovery of an archaeological site that requires special protection measures.

7.3 Coordination Meetings

Coordination meetings will be scheduled on a monthly or more frequent basis to discuss construction and environmental compliance issues. The CPUC, IPN, the CPUC's contractor, and resource agencies (when necessary) will attend these meetings. The meetings will be scheduled for a day and time agreed to by all individuals. The coordination meetings will be provide an opportunity for discussing the following:

- project plans and reviews,
- stop work notices,
- permits and mitigation compliance issues,
- variance requests,
- construction schedule update, and
- general comments or concerns.

Section 8.0 Mitigation Monitoring Requirements

Compliance will be documented using a variety of forms including electronic daily-activity reports, noncompliance report forms, and noncompliance report resolution forms. Examples of the noncompliance report and noncompliance report resolution forms are contained in the construction work plan in appendix B of the IS/MND. All of the forms will contain tracking numbers and will be able to be cross-referenced to supporting documentation.

Table A-4 identifies the mitigation measures that may be required. These mitigation measures are discussed in detail in the project IS/MND.

Table A-4. Resources Impact and Mitigation Table for IP Network's Fiber Optic Cable Installation Project

Impacts	Mitigation Measures
	Aesthetics
AES-1: Adverse effect on a scenic vista or damage to a scenic resource	**AES-MM-1:** Identify scenic resources within 1,500 feet of the proposed alignment and locate all permanent substantial aboveground features 1,000 feet away from scenic resources
AES-2: Possible visual effect resulting from construction of central offices	**AES-MM-2:** Review and comply with local planning documents, zoning, and other ordinances regarding utility lines and buildings
AES-3: Possible light and glare effect resulting from construction of central offices	**AES-MM-3:** Use non-reflective material and directed lighting fixtures for all central offices
	Agricultural Resources
None	None
	Air Quality
AIR-1: Temporarily increased levels of air pollutants during construction exceeding air district thresholds	**AIR-MM-1:** Implement construction BMPs to reduce dust and air emissions **AIR-MM-2:** Obtain air permit
AIR-2: Temporary emissions exceeding limits from operating emergency backup generators	**AIR-MM-3:** Obtain authority to construct and permit to operate emergency backup generators, where required
	Biological Resources
BIO-1: Potential disturbance of special-status plant populations	**BIO-MM-1:** Retain a qualified botanist to conduct botanical surveys and document special-status plant populations **BIO-MM-2:** Avoid impacts on state- and federally listed and CNPS 1b special-status plant populations by establishing and observing exclusion zones **BIO-MM-3:** Avoid impacts on CNPS Lists 2 and 4 special-status plant populations by implementing specific measures **BIO-MM-4:** Confine construction equipment and associated activities to the designated work area

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-5: Retain qualified biologists and resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction
BIO-2: Potential introduction of new noxious weeds or spread of existing noxious weed	**BIO-MM-7:** Conduct a noxious-weed survey and document noxious-weed infestation
	BIO-MM-8: Avoid the dispersal of noxious weeds into uninfested areas
BIO-3: Potential disturbance of special-status wildlife species	**BIO-MM-9:** Retain a qualified wildlife biologist to conduct a habitat assessment for special- status wildlife species
	BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources
	BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction
	BIO-MM-10: Avoid impacts on vernal pool habitats by establishing and observing exclusion zones around vernal pools and hydrologically connected areas
	BIO-MM-11: Avoid disturbance to elderberry shrubs by establishing and observing exclusion zones
	BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones
	BIO-MM-13: Avoid disturbing active special-status raptor nests by establishing exclusion zones during the breeding season or constructing during the non-breeding season

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-14: Avoid disturbing active Swainson's hawk nests by establishing and observing buffer zones
	BIO-MM-15: Avoid disturbing active burrowing owl nests and implement standard DFG guidelines during the non-breeding season
	BIO-MM-16: Avoid San Joaquin kit fox dens by conducting preconstruction searches and rerouting around occupied habitat
	BIO-MM-17: Avoid disturbance to nesting cliff swallows by implementing timing restrictions and removing unoccupied nests
	BIO-MM-18: Avoid roosting bats by postponing bridge attachments on bridges that support roosting sites
	BIO-MM-19: Avoid impacts on state and federally listed wildlife species by rerouting around habitat areas
	BIO-MM-20: Fill or cover open trenches daily
BIO-4: Potential construction-related impacts on threatened, endangered, and other special-status fish species	**BIO-MM-21:** Retain a qualified fisheries biologist to identify streams and assess habitat for threatened, endangered, and other special-status fish species
	BIO-MM-22: Prepare and implement a storm water pollution prevention plan outlining BMPs for construction activities
	BIO-MM-23: Avoid in-water construction in all flowing streams that have the potential to support threatened, endangered, and other special-status fish species
	BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources
	BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-24: Avoid and minimize disturbance of woody riparian vegetation along drainages
	BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are substantially disturbed during construction activities
BIO-5: Potential removal or disturbance of woody riparian vegetation	**BIO-MM-26:** Identify and document woody riparian habitat
	BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources
	BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction
	BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones
	BIO-MM-24: Avoid and minimize disturbance of woody riparian vegetation along drainages
	BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are disturbed during construction activities
BIO-6: Potential short-term disturbance of waters of the United States (including wetland communities)	**BIO-MM-27:** Identify and delineate waters of the United States (including wetlands)
	BIO-MM-4: Confine construction equipment and associated activities to the project routes in areas that support sensitive resources
	BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are disturbed during construction activities
	BIO-MM-28: Minimize disturbance and restore other waters of the United States to pre-project conditions
	BIO-MM-29: Minimize disturbance and restore jurisdictional wetlands to preproject conditions
	BIO-MM-30: Avoid and protect specified jurisdictional wetlands adjacent to construction areas
BIO-7: Potential temporary disturbances to wildlife movements	**BIO-MM-12:** Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones
BIO-8: Potential temporary increases in sedimentation and turbidity resulting in the interference of migratory fish habitat	**BIO-MM-4:** Confine construction equipment and associated activities to the project routes in areas that support sensitive resources
	BIO-MM-5: Retain qualified biologists or resource specialists to monitor construction activities near specified sensitive biological areas
	BIO-MM-6: Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction
	BIO-MM-21: Retain a qualified fisheries biologist to identify streams and assess habitat for threatened, endangered, and other special-status fish species
	BIO-MM-22: Prepare and implement a stormwater pollution prevention plan outlining BMPs for construction activities
	BIO-MM-24: Avoid and minimize disturbance of woody riparian vegetation along drainages
	BIO-MM-25: Conduct postconstruction monitoring in woody riparian and wetland communities that are substantially disturbed during construction activities

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-28: Minimize disturbance and restore other waters of the United States to preproject conditions
BIO-9: Potential conflict with local policies or ordinances protecting biological resources	**BIO-MM-31:** Review local city and county policies, ordinances and conservation plans, and comply with requirements
BIO-10: Potential conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan	**BIO-MM-31:** Review local city and county policies, ordinances and conservation plans, and comply with requirements
Cultural Resources	
CUL-1: Potential disturbance of cultural resource sites	**CUL-MM-1:** Complete a cultural resource inventory of the proposed project study area and determine methods to avoid impacts on potentially significant cultural resource sites **CUL-MM-2:** Conduct test excavation to determine resource significance, and if significant, conduct data recovery excavation
CUL-2: Potential for ground-disturbing activities to damage unidentified buried cultural resource sites	**CUL-MM-3:** Stop work if cultural resources are discovered during ground-disturbing activities
CUL-3: Potential for indirect impacts on historic structures associated with placing central office buildings	**CUL-MM-4:** Place central office buildings to avoid impacts on the setting of significant and potentially significant historic resources
CUL-4: Potential for proposed project activities to damage previously unidentified human remains on non-federal land	**CUL-MM-5:** Comply with state laws pertaining to the discovery of human remains
Geology, Seismicity, and Soils	
GEO-1: Possible temporary accelerated erosion and sedimentation from soil disturbance and vegetation removal	**BIO-MM-22:** Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities

Table A-4. Continued

Impacts	Mitigation Measures
Hazards and Hazardous Materials	
HAZ-1: Possible release of hazardous materials during construction	**BIO-MM-22:** Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities **HAZ-MM-1:** Ensure proper labeling, storage, handling, and use of hazardous materials **HAZ-MM-2:** Report all significant releases or threatened releases of hazardous materials
HAZ-2: Possible discovery and accidental release of buried and unknown hazardous waste	**HAZ-MM-3:** Avoid known hazardous waste and contamination sites **HAZ-MM-4:** Report all discovery of hazardous waste, including soil and groundwater contamination, to the local hazardous materials response agency
HAZ-3: Possible exposure of the public or environment to hazardous materials sites	**HAZ-MM-3:** Avoid known hazardous waste and contamination sites **HAZ-MM-4:** Report all discovery of hazardous waste, including soil and groundwater contamination, to the local hazardous materials response agency
HAZ-4: Possible safety hazard due to helicopter or other aircraft in the vicinity of public or public-use airport	**HAZ-MM-5:** Undertake all flight operations in accordance with federal air administration safety and flight regulations
HAZ-5: Possible temporary limited emergency access	**HAZ-MM-6:** Prepare and implement a traffic safety plan, and coordinate with local transportation and emergency response agencies
HAZ-6: Possible temporary exposure of people or structures to wildland fires	**HAZ-MM-7:** Prepare a fire prevention and management plan
Hydrology and Water Quality	
HYD-1: Possible increase in sediment-loading into waterbodies as a result of project construction	**BIO-MM-5:** Retain qualified biologists and resource specialists to monitor construction activities near specified sensitive biological areas **BIO-MM-6:** Conduct a biological-resource education program for construction crews and enforce construction restrictions before construction

Table A-4. Continued

Impacts	Mitigation Measures
	BIO-MM-12: Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones **BIO-MM-22:** Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities. **BIO-MM-1:** Ensure proper labeling, storage, handling, and use of hazardous materials **HYD-MM-1:** Employ non-invasive construction methods at stream crossings
HYD-2: Possible temporary degraded water quality from accidental spills of hazardous materials during construction in exceedance of reportable quantities	**BIO-MM-22:** Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities **HAZ-MM-1:** Ensure proper labeling, storage, handling, and use of hazardous materials
HYD-3: Possible temporary water quality degradation from discharge of directional drilling slurry into waterbodies	**HYD-MM-2:** Integrate directional drilling slurry containment protocol into SWPPP or BMPs documentation as initially described in mitigation measure BIO-MM-22 **HYD-MM-3:** Inform governing agencies of the selected directional-drilling slurry to be used for directional drills **BIO-MM-5:** Retain qualified biologists and resource specialists to monitor construction activities near specified sensitive biological areas **BIO-MM-6:** Conduct a biological resource education program for construction crews and enforce construction restrictions before construction **BIO-MM-12:** Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones **BIO-MM-22:** Prepare and implement storm water pollution prevention plan outlining BMPs for construction activities **HAZ-MM-1:** Ensure proper labeling, storage, handling, and use of hazardous materials

Table A-4. Continued

Impacts	Mitigation Measures
HYD-4: Possible increased flood hazards from possible placement of central offices within the floodplain	**HYD-MM-4:** Design central offices to comply with floodplain ordinances
Land Use and Planning	
LAN-1: Potential inconsistency with county, city, or local land use plans and policies	**AES-MM-2:** Review and comply with local land use plans, policies, zoning, and other ordinances
LAN-2: Potential inconsistency with conservation plan	**BIO-MM-12:** Avoid riparian and wetland habitats that support non-listed special-status species by establishing and observing exclusion zones
Mineral Resources	
None	None
Noise	
NOI-1: Temporary exposure of residences and other sensitive receptors to construction noise in excess of local standards	**NOI-MM-1:** Employ noise-reducing construction practices
NOI-3: Exposure of nearby sensitive receptors to excessive noise levels from use of emergency backup generators and other support equipment at central offices	**NOI-MM-2:** Design and locate emergency backup generators and other support equipment to limit noise from the engine generator
Population and Housing	
None	None
Public Services	
None	None
Recreation	
REC-1: Use of recreational facilities as staging or other work area	**REC-MM-1:** Avoid impacts on recreational facilities

Table A-4. Continued

Impacts	Mitigation Measures
Transportation/Traffic	
TRA-1: Potential for roadway safety hazards	**HAZ-MM-6:** Prepare and implement a traffic safety plan and coordinate with local transportation and emergency response agencies
TRA-2: Temporary inadequate access to areas along the project alignment resulting from construction-related and operation maintenance activities	**HAZ-MM-6:** Prepare and implement a traffic safety plan and coordinate with local transportation and emergency response agencies
TRA-3: Increased parking demand created by construction activities	**TRA-MM-1:** Limit all parking to right-of-way and pre-approved staging areas
Utilities and Service Systems	
UTI-1: Potential damage to subsurface utilities during trenching	**UTI-MM-1:** Determine the location of subsurface utilities and avoid during construction activities
UTI-2: Generation of solid waste resulting from construction activities	**UTI-MM-2:** Recycle and dispose of construction materials

Appendix B

Construction Work Plan and Forms

Construction Work Plan

The applicant must prepare a construction work plan package for each proposed project for CPUC approval. The work plan must follow the outline below, but the extent of the work plan depends on the nature of the route, and the spectrum could range from spot monitoring to extensive monitoring. Following this outline are the forms referenced below and in appendix A. These forms may be used by CPUC staff and/or their monitors.

1. **Applicant's Name**

2. **Utility Identification (Utility ID or "U Number")**

3. **Proposed Construction Plans**
   Include three copies of engineered construction plans.

4. **Project Description**
   A detailed description of the proposed project must be included.

5. **Environmental Clearance**
   5.1. Preconstruction Survey Checklist – Archaeological Resources (sample form follows)
   5.2. Preconstruction Survey Checklist – Biological Resources (sample form follows)

6. **Permits**
   6.1. List all agencies contacted regarding the proposed project (e.g., federal, state and local; environmental, air resources board, planning departments, and public works departments)
   6.2. Attach <u>all</u> obtained permits or authorizations
   6.3. List all pending permits and expected authorization dates (work plan will not be authorized until all permits are obtained and submitted to CPUC)
   6.4. Attach all required plans such as traffic control plans or SWPPP.

7. **Proposed Construction Schedule**
   Attach a detailed schedule of construction activities, including site restoration activities.

8. **Signature Block**
   Include a signature line for applicant, verifying that all information is complete and accurate. Construction cannot be initiated until the Notice to Proceed has been received by the applicant.

California Public Utilities Commission

Preconstruction Survey Checklist – Archaeological Resources

Date: _____

Name of Applicant: _____

Utility ID: _____

Location (Address, Provide Map): _____

Route Description: _____
_____
_____
_____
_____

Area Description:
- ❑ Urban
- ❑ Suburban
- ❑ Rural

Photo Documentation: ❑ Yes ❑ No

Substrate:
- ❑ Asphalt/Concrete
- ❑ Soil
- ❑ Other: _____

Archaeological Resources:

❑ Yes ❑ No CHRIS Records Search
❑ Yes ❑ No Request NAHC contact list and query Sacred Lands File
❑ Yes ❑ No Contact Parties on the NAHC list by letter and phone (identify concerns and sites)
❑ Yes ❑ No Site visit/survey (identify architectural, historic, and prehistoric resources)

Notes and Recommendations: _____
_____
_____
_____
_____
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_____
_____
_____
_____
_____
_____
_____
_____

California Public Utilities Commission

Preconstruction Survey Checklist – Biological Resources

Date: _____

Name of Applicant: _____

Utility ID: _____

Location (Address, Provide Map): _____

Route Description: _____
_____
_____
_____
_____

Area Description:
- ❑ Urban
- ❑ Suburban
- ❑ Rural

Photo Documentation: ❑ Yes ❑ No

Substrate:
- ❑ Asphalt/Concrete
- ❑ Soil
- ❑ Other: _____

Biological Resources:

CNDDB Search	❑ Yes	❑ No	Raptors Present	❑ Yes	❑ No
T&E Species Present	❑ Yes	❑ No	Burrows	❑ Yes	❑ No
Riparian Vegetation (List Spp)	❑ Yes	❑ No			
Tree Removal Needed?	❑ Yes	❑ No			
Nests Present (birds present? Spp)	❑ Yes	❑ No			

Notes: _____
_____
_____
_____
_____
_____
_____
_____

_____
_____

Consultation Required? ❑ Yes ❑ No (If yes why?) _____
_____
_____
_____

Water Resources and Wetlands:

Drainages Present	❑ Yes	❑ No	Wetlands Present	❑ Yes	❑ No
Lake or Pond	❑ Yes	❑ No	Delineation Required	❑ Yes	❑ No

Notes: _____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Permits Required:

USACE	❑ Yes	❑ No	NMFS	❑ Yes	❑ No
RWQCB	❑ Yes	❑ No	USFWS	❑ Yes	❑ No
CDFG	❑ Yes	❑ No	Regional Air Quality	❑ Yes	❑ No
State Lands Commission	❑ Yes	❑ No	Local Counties and Cities	❑ Yes	❑ No

Daily Activity Log

Company Name: _____

Utility ID: _____

Project Location: _____

Resource Monitor: _____ **Date:** _____

Time	Station	ACT	LOC	Monitoring Log

Activity (ACT)

1 ROW Preparation
2 Plow
3 Trench
4 Bridge Attachment
5 Directional Boring
6 Regen/Op-Amp Work
7 Staging Area Work
8 Access Road Work
9 Manhole/Handhole Work
10 Cable Installation
11 Reclamation Work

Location (LOC)

1 Road ROW
2 RR ROW
3 Utility ROW
4 Staging Area
5 Access Road
6 Regen/Op-Amp
7 Other or NA

NONCOMPLIANCE REPORT NCR

Company Name: _____ **Utility ID:** _____

NCR No. _____ **Date:** _____

Date of Noncompliance Activity ____/____/____ **Date of Resolution** ____/____/____

Compliance Level: ☐ Violation ☐ Repeated Violation ☐ Serious Violation

State: ☐ California

Land Ownership/Management: ☐ Private ☐ State ☐ Federal ☐ USFS Other: _____

Extent: ☐ Site-Specific ☐ Zonal ☐ Project-Wide

Station Numbers (Linear Segment)/Milepost: _____ to _____

Map No. _____

IN VIOLATION OF: ☐ Stated Mitigation Measures/IS/MND ☐ Permit(s) ☐ Condition(s) of Approval ☐ Other _____

AFFECTED RESOURCE(S) (INCLUDE RESOURCE NUMBER)

☐ Cultural Resources _____ ☐ Paleontological Resources _____ ☐ Biological Resources _____

☐ Water Resources/Wetlands _____ ☐ Soils _____ ☐ Hazardous Materials _____

☐ Other: _____ ☐ Other: _____ **Resource #** _____

NONCOMPLIANCE ACTIVITY

_____

_____

_____

_____

FOLLOWUP ACTION REQUIRED ☐ Yes ☐ No

_____

_____

_____

_____

Documentation: ☐ Photo ☐ Video ☐ Drawing ☐ Lab Sample ☐ Other _____

Agency(ies) with Jurisdiction: ☐ State _____ ☐ Other _____

Name: _____ Agency: _____ Signature: _____

Name: _____ Agency: _____ Signature: _____

Name: _____ Agency: _____ Signature: _____

Name: _____ Agency: _____ Signature: _____

NONCOMPLIANCE RESOLUTION REPORT

NCRR

Company _____ **Utility ID:** _____

NCR No. _____ **Date:** _____

NCRR No. _____ **Resource Monitor:** _____

Compliance Level: ☐ Violation ☐ Repeated Violation ☐ Serious Violation

State: ☐ California

Land Ownership/Management: ☐ Private ☐ State ☐ Federal ☐ USFS Other: _____

Extent: ☐ Site-Specific ☐ Zonal ☐ Project-Wide

Station Numbers (Linear Segment)/Milepost: _____ to _____

Map No. _____

AFFECTED RESOURCE(S) (PROVIDE MITIGATION NUMBER/PERMIT AND CONDITION NUMBER)

☐ Cultural Resources _____ ☐ Paleontological Resources _____ ☐ Botanical Resources _____

☐ Water Resources/Wetlands _____ ☐ Soils _____ ☐ Wildlife/Fisheries Resources _____

☐ Other: _____ ☐ Other: _____ **Resource #** _____

SUMMARY OF CORRECTIVE ACTION(S)

_____

_____

_____

_____

_____

_____

Issued by: _____ **Signature:** _____ **Date:** _____

Agency(ies) with Jurisdiction: ☐ State _____ ☐ Other _____

CONDITIONS OF APPROVAL

_____

_____

Name: _____ Agency: _____ Signature: _____

Name: _____ Agency: _____ Signature: _____

Name: _____ Agency: _____ Signature: _____

Stop Work Notice

Company Name: _____

Utility ID: _____

Project Location: _____ **NCR No. (if applicable):** _____

Resource Monitor: _____ **Date/Time of Violation:** _____

Date/Time of Stop Work Notice Issuance: _____

Observers on Site: _____

Land Ownership: ☐ Private ☐ State ☐ Federal

Station Numbers (Linear Segment): _____ to _____

Map Number: _____ **Construction Spread:** _____

In Violation of: ☐ IS/MND ☐ State Permit ☐ Federal Permit ☐ Local Permit ☐ Other

Communication Documentation (provide detailed documentation of verbal communications on Daily Activity Log form):

- ☐ CPUC
- ☐ CPUC Monitor
- ☐ Contractor _____
- ☐ Agency _____
- ☐ Agency _____

Actions Required to Release Stop Work Notice:

_____

_____

_____

_____

_____

_____

_____

_____

Stop Work Notice Released by (CPUC Staff Only):	**Date and Time of Release:**

Distribution List

Distribution List

State and Regional Agencies

State of California
Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

A Notice of Completion and 15 copies of the IS/MND will be submitted to the State Clearinghouse for distribution to relevant state and regional agencies, with the following suggested for receipt.

- Air Resources Board
- Bay Area Air Quality Management District
- California Department of Fish and Game Bay Area Region 2
- California Department of Fish and Game Sacramento Region 5
- California Department of Transportation, District 3
- California Department of Transportation, District 4
- California Highway Patrol
- Energy Commission
- Native American Heritage Commission
- Office of Historic Preservation
- Regional Water Quality Control Board, San Francisco Bay Region 2
- Regional Water Quality Control Board, Central Valley Region 5
- Sacramento Metropolitan Air Quality Management District
- Water Resources

Counties

Alameda County Community Development Agency
Contra Costa County Community Development
Sacramento County Planning Department
San Mateo County Planning & Building Division
Santa Clara County Planning Department

Cities

City of Alameda Planning Department
City of Atherton Planning Department
City of Belmont Community Development Planning Department
City of Berkeley Planning Department
City of Brisbane Planning Department
City of Burlingame Planning Department
City of Campbell Planning Division
City of Concord Planning Department
City of Cupertino Community Development
City of Daly City Planning Department
City of Dublin Community Development Department
City of East Palo Alto Planning Department
City of Emeryville Planning Department
City of Foster City Planning Department
City of Fremont Planning Department
City of Hayward Planning Department
City of Lafayette Planning Department
City of Livermore Community Development Department
City of Los Altos Community Development Department
City of Los Gatos Community & Development Department
City of Menlo Park Planning Division
City of Millbrae Planning Department
City of Milpitas Planning Department
City of Mountain View Community Development
City of Newark Planning Department
City of Oakland Planning Department
City of Orinda Planning Department
City of Palo Alto Planning & Community Environment
City of Pittsburg Planning Department
City of Pleasant Hill Planning Department
City of Pleasanton Planning and Community Development
City of Rancho Cordova Planning Department
City of Redwood City Planning Department
City of Sacramento Planning Department
City of San Bruno Community Development Department
City of San Carlos Planning Department

City of San Francisco Planning Department
City of San Jose Planning, Building and Code Enforcement Department
City of San Mateo Planning Department
City of San Rafael Planning Department
City of San Ramon Planning Department
City of Santa Clara Planning Division
City of Saratoga Community Development
City of South San Francisco Planning Department
City of Sunnyvale Community Development Department
City of Walnut Creek Planning Department
City of West Sacramento Community Development Department

List of Acronyms and Abbreviations

Acronyms and Abbreviations

Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
APE	area of potential effects
AQMD	air quality management district
ARB	Air Resources Board
ASTM	American Society for Testing and Materials
BAAQMD	Bay Area Air Quality Management District
BMPs	Best Management Practices
BO	Biological Opinion
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Program
CalEPA	California Environmental Protection Agency
CalOSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMA	congestion management agency
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CPCN	Certificate of Public Convenience and Necessity
CRHR	California Register of Historical Resources"
CWA	Clean Water Act
DFG	Department of Fish and Game
DHS	Department of Health Services
DTSC	Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FDA	Food and Drug Administration
Fed/OSHA	Federal Occupational Safety and Health Administration
FEMA	Federal Emergency Management Agency
HCP	habitat conservation plan
IPN	IP Networks, Inc.,
IS/MND	initial study/mitigated negative declaration
lbs/day	pounds-per-day
LOS	level of service
MMCRP	Mitigation Monitoring, Compliance, and Reporting Plan
mph	miles per hour
MSDS	material safety data sheet
NAAQS	national ambient air quality standards
NCCP	natural communities conservation plan
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOX	oxides of nitrogen
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
OES	Office of Emergency Services
OSHA	Occupational Safety and Health Administration
PG&E	Pacific Gas & Electric Co.

PM10	particles 10 microns or less in diameter
PM2.5	particles 2.5 microns or less in diameter
POP	point-of-presence
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppm	parts per million
PRC	California Public Resources Code
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
RMPP	Risk Management Prevention Program
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Officer
SPCP	spill prevention and contingency plan
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TMDL	total maximum daily load
tons/quarter	tons-per-quarter year
TSP	traffic safety plan
UBC	Uniform Building Code
UNE	unbundled network element
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service
V/C	volume to capacity
VELB	Valley elderberry longhorn beetle