

## CALIFORNIA COASTAL COMMISSION

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# F11a

**2-24-0004 (MMBN, San Mateo County)**

**February 9, 2024**

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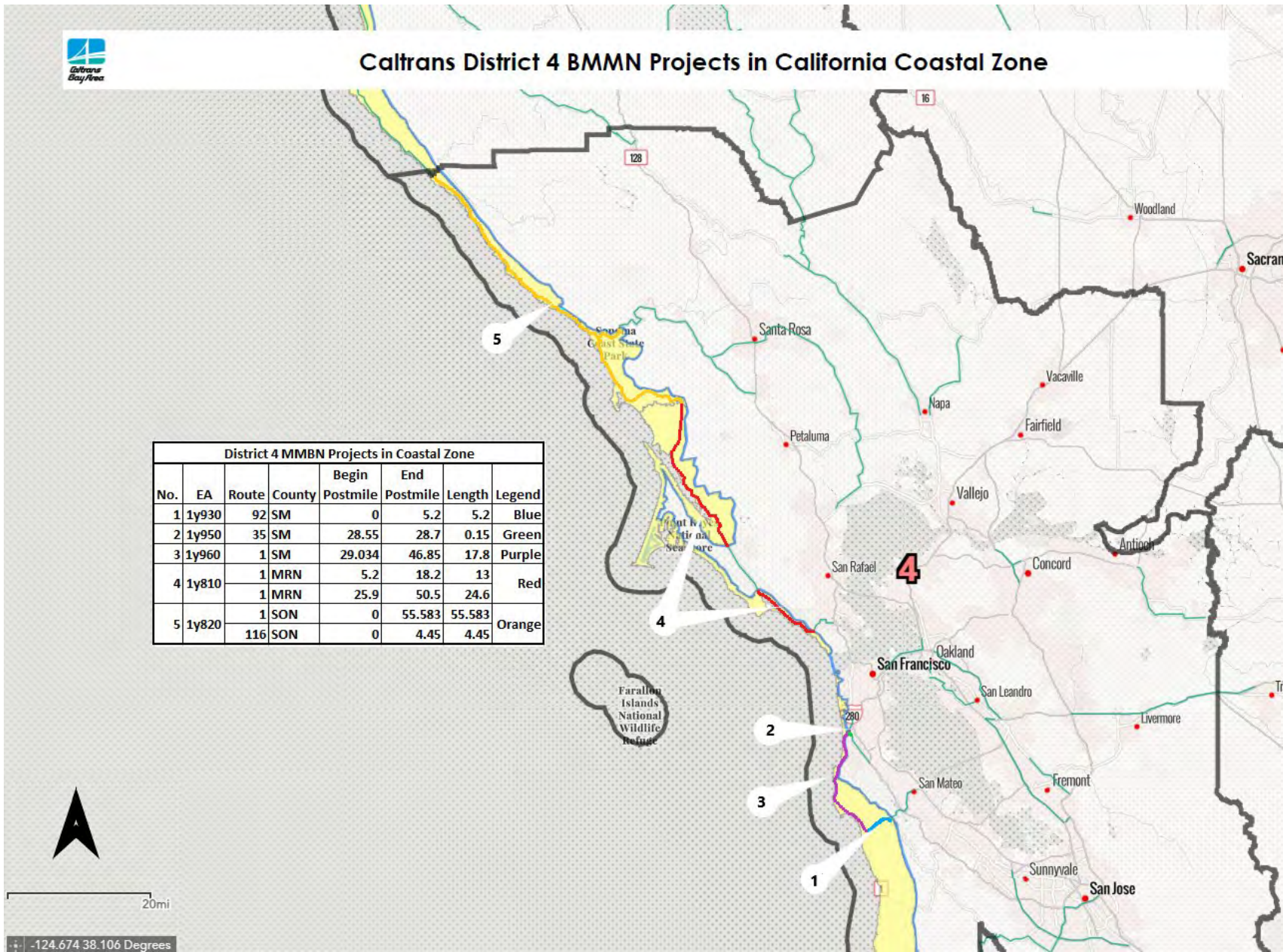
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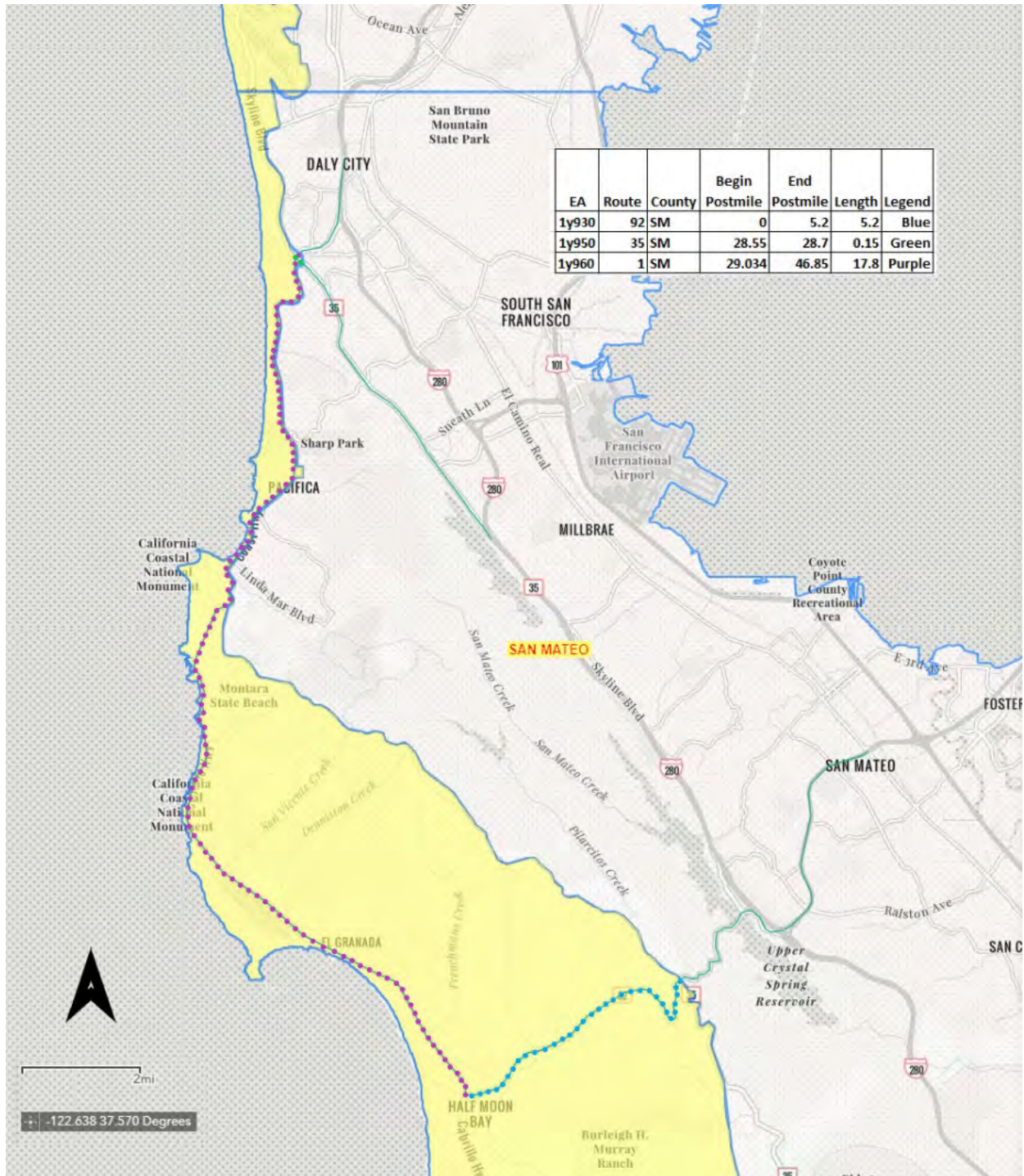
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# PROJECT AREA VICINITY



# PROJECT LOCATION SAN MATEO COUNTY



## **Project Description**

### **Background**

In July 2021, Governor Gavin Newsom signed into law Senate Bill (SB) 156 to create an open-access middle-mile network and bring equitable high-speed broadband service to all Californians. This effort is supported by Executive Order (EO) N-73-20 which directs all California state agencies to pursue a minimum broadband speed goal to guide infrastructure investments and program implementation.

### **Purpose**

The Middle-Mile Broadband Network (MMBN) Project would install the necessary broadband infrastructure along the State Highway System and Interstate System to connect to a third-party operated Last Mile Broadband Network, bringing internet connectivity to homes, businesses, and community institutions.

### **Need**

The lack of available middle-mile broadband infrastructure has been a major issue in connecting California's unserved and underserved communities. The statewide open-access middle-mile network as stated in SB 156 is a foundational investment to ensure every Californian has access to broadband Internet service that meets the connectivity needs of today, and well into the future. This project intends to support these communities in providing critical statewide broadband infrastructure to enhance access to, and increase the affordability of, high-speed internet for all Californians.

### **Project Description**

The California Department of Technology (CDT) in coordination with the California Department of Transportation (Caltrans) proposes to install broadband infrastructure including conduit, cable, vaults, markers, and network hubs at various locations along State Routes 1, 92, and 35 in San Mateo County. Work would consist of the following elements which are outlined on the MMBN statewide plan set. The construction duration is approximately 500 working days. The Tom Lantos Portion most likely will require night work estimated at 20 days. Total night workdays are estimated to be 50 days. This project does not anticipate any grading. This project does not anticipate any grading. It is anticipated that the project will disturb 100 CY of soil outside of environmentally sensitive areas (ESA) and vegetated areas.

### **Underground Conduit Installation**

One (1) two-inch diameter high-density polyethylene (HDPE) conduit would be installed underground within the Caltrans right-of-way (e.g., along right-of-way fence, next to roadway prism, in pavement, etc.). Installation methods that avoid sensitive environmental resources would be selected and may include one or more of the following:

- a. Open Trenching – approximately 12 inches wide and minimum depth of 42 inches.
- b. Horizontal Directional Drilling – approximately 12 inches diameter and minimum depth of 42 inches.

In Areas where ESA cannot be avoided, Conduit and vaults will be installed 24 inches below the paved surface.

### Open Trenching

This method of installation uses equipment such as a trencher with rock-wheel blades, excavator, backhoe, or similar equipment, to dig an open trench (Figures 2). This method is most suitable for rural to suburban areas with long and relatively flat terrain. Although this method allows for more controlled installations and better depth control, it may not be practical for locations containing sensitive environmental resources, landscaping, underground utilities, sidewalks, or road crossings. Typically, no more than 1,000 feet of trench would be exposed at any time during construction, and trenches would be filled at the end of each day.



**Figure 2. Open Trenching**

### Horizontal Directional Drilling

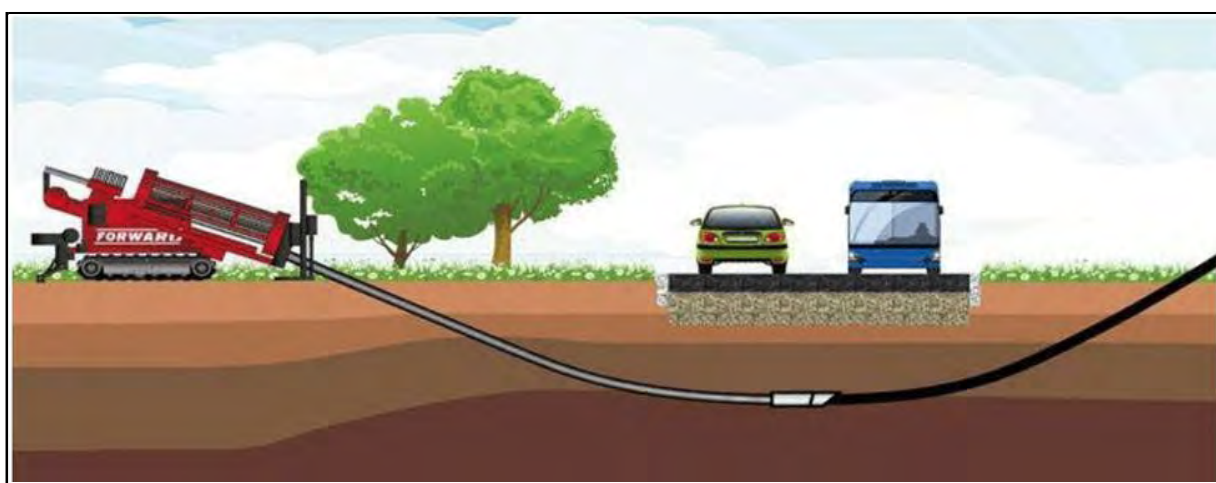
Horizontal directional drilling (HDD) allows for the installation of conduit under obstacles that inhibit plowing or trenching installations such as roadways, railroads, or environmentally sensitive locations. HDD is accomplished by using a steerable drill stem, and the depth and direction of the boring is controlled by the equipment operator.

HDD would be used in various locations along project routes to cross areas where surface disturbance or sensitive resources must be avoided (e.g., streams/rivers, cultural resources, railroad crossings, etc.) (Figure 3). For streams/rivers, drilling would only occur if the conduit cannot be attached to an existing structure.

To complete HDD, an approximately 7-foot-wide by 7-foot-long by 5-foot-deep work area would be excavated on each side of the crossing. One side would contain an entry pit and drilling equipment, while the other side would contain an exit pit. At the entry pit, a steerable drill stem

would be used to bore a pilot hole through the soil to the exit pit. Once the drill stem reaches the exit pit, a reamer (i.e., device used to enlarge the pilot hole) would be attached along with the conduit. The drilling machine would then ream an approximately 12-inch-diameter hole back toward the entry pit while concurrently pulling the conduit. Once the reamer and conduit are fully pulled through the entry pit, both the entry and exit pits would be backfilled and compacted and conduit placement would be complete.

During the drilling process, a bentonite slurry with polymer would be pumped through the bore hole to help lubricate the drill bit, prevent the bore tunnel from collapsing, and carry drill cuttings to the surface. Bentonite is a naturally occurring Wyoming clay known for its hydrophilic characteristics. The slurry would be pumped through the bore hole, collected at the surface, passed through machinery to remove the bore cuttings, and then recirculated through the hole. The slurry would be stored in tanks at the drill site when not in use, and excess slurry remaining after the bore is complete would be removed from the site and either reused by the drilling contractor or disposed of at an appropriate location.



**Figure 3. Horizontal Directional Drilling**

### **Conduit Installation on Existing Structures and Culverts**

#### Bridges, Concrete Barriers, and Sound Walls

Bridge, concrete barrier, and sound wall mounted conduits would either be installed in existing unused conduit passage(s) if structures were originally designed to accommodate conduit, directly attached to the structure, or placed in approximately 2- to 8-inch-diameter steel conduit attached to the structure. Bolts, clips, hangers, and/or anchors may be used to attach the conduit. When installing conduit on a bridge structure, an approximately 30-inch-wide by 48-inch-long by 36-inch-deep pit would be excavated at either end of the bridge to allow for pull vault installation (see vault installation below for more details).

All conduit installations on structures would be designed to accommodate thermal and/or seismic movement. In some cases, conduit may need to be painted or covered with an

approved coating to match the color of the structure.

### Culverts

Conduit would be installed under or over culverts or attached to culverts with clamps. For conduit installation in unlined channels and ditches, a minimum 24-inch clearance below the flowline would be maintained. HDD under culverts can be achieved without placing vaults.

### **Vault Installation**

One (1) 30-inch-wide by 48-inch-long by 36-inch-deep pull vault would be installed approximately every 2,400-feet (maximum spacing) (Figure 4). Every fifth vault would be a 48-inch-wide by 48-inch-long by 48-inch-deep splice vault. Additional vaults would be added at major intersections and urban centers in anticipation of future broadband connections. If there are known connection points at specific locations that mapping would be reviewed, and vaults would be placed accordingly.

Vaults may be installed above surrounding grade or flush with surrounding grade. Each vault would contain approximately 100 feet of fiber optic cable to accommodate geological movements, facilitate future repairs, and allow for anticipated last mile connections. As stated above, if conduit is installed along bridge structures, vaults would be installed at both ends of the bridge to aid conduit installation and maintenance access.

Approximately 90 vault boxes will be installed within Coastal Zone for the three projects.



**Figure 4. Vault Installation  
Maintenance Vehicle Pullouts**

No new paved maintenance vehicle pullouts would be constructed in the coastal zone.

### **Fiber Optic Markers**

Fiber optic markers would be installed on existing signage and metallic disk markers would be installed in the pavement. New flexible post delineators would be placed in coordination with the California Coastal Commission.

### **Geotechnical Borings**

Geotechnical boring may be required to determine subsurface conditions for network hub foundations or to assess if HDD can be used.

### **Staging, Storage, and Access**

Staging and storage areas would be selected by the construction contractor before and/or during construction. It is anticipated that staging and storage would occur at existing turnouts throughout the project limits and/or at Caltrans owned facilities (e.g., maintenance areas, parking lots, etc.). If needed, the contractor may temporarily acquire staging and storage areas through agreements with other entities. To ensure environmentally sensitive areas are



adequately protected, locations of staging areas would be determined in consultation with the environmental team. Access to project locations would be through existing developed roads, as feasible. However, temporary access roads may be needed for construction and installation of vaults.

### **Environmentally Sensitive Habitats Areas and Wetlands**

Caltrans environmental staff would work with Caltrans design to direct project routes around sensitive resources and wetlands. Directional drilling points, vaults, and other project features would only be constructed in areas that do not support sensitive resources. Environmentally sensitive areas (ESAs) shall be clearly identified on project plans and avoided during construction.

#### **1Y960**

The project footprint consists of paved highway roadbed and shoulder along SR 1. From PM 40.7 to PM 37.35 including the Tom Lantos Tunnels are within California red-legged frog (*Rana draytonii*) critical habitat. The intersection between Frenchmans Creek and Cabrillo Highway N runs above seasonal passage for steelhead trout (*Oncorhynchus mykiss*.) Projected activities at Tom Lantos Tunnels will have no effect to listed species and their habitat. Design confirmed the proposed Project will not have any impacts on nearby Environmentally Sensitive Habitat Areas (ESHAs).

#### **1Y950**

The project footprint consists of paved highway roadbed and shoulder. SR 35 PM 24.65 to 23.9 run through California red-legged frog (*Rana draytonii*) habitat. PM 23.9 to PM L22.761 run through San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) habitat none of which are within the Coastal Zone. Design confirmed the proposed Project will not have any impacts on nearby ESHAs.

#### **1y930**

The project footprint consists of paved highway roadbed and shoulder. SR 92 PM 1.9 to R7.5 run through California red-legged frog (*Rana draytonii*) critical habitat. Paved shoulder is not considered suitable habitat. No suitable habitat is present for any listed species.

### **Agricultural Resources**

No conversion of farmland is anticipated. All work would occur within the Caltrans right of way.

### **Public Access and Recreation**

No permanent impacts to access or recreation are anticipated; however, the proposed project has the potential to temporarily impact public access and recreation during construction. Parking would be limited in active work zones as shoulder and/or lane closure would be required. In addition, traffic delays would occur during construction (see traffic control below).

## **Traffic Control**

It is anticipated that one-way-reversing traffic control would be used for the duration of construction. This has the potential to result in delays of up to 15 minutes in each direction. Traffic control would include flaggers, an automated flagger system (e.g., temporary signal with solar or generator backup), and changeable message signs. No full roadway closures or detours are anticipated. To reduce traffic impacts, a Transportation Management Plan would be prepared as projects are developed and per Caltrans standards, pedestrians, bicyclists, and emergency service vehicles would be accommodated through the work zone.

## **Visual Resources**

It is anticipated all proposed projects would not adversely impact scenic resources along the highway.

## **Archaeology and Cultural Resources**

Cultural resources surveys would be conducted by qualified cultural resources professionals. This includes a combination of archival and background research, review of historical records and databases and pedestrian surveys of the project area. The archaeologist would make recommendations to modify the scope of work, provide training to the contractor regarding work near sensitive areas, as well as monitoring the construction in sensitive areas to ensure there is no adverse effect to cultural resources. For additional information, see attached cultural and tribal consultation summary.

## **Water Quality**

All proposed projects and hubs are outside of jurisdictional water resources; therefore, impacts are not anticipated. To ensure water quality is not impacted, Caltrans would adhere to Section 13 of the Standard Specifications (Water Pollution Control) with attention to the sections governing stormwater and non-stormwater discharges as well as apply appropriate erosion control to stabilize disturbed areas. For additional information, see attached water quality exemption and representative erosion control plans.

## **Landscape Architecture**

There are no Caltrans maintained landscaped areas within coastal jurisdiction and there are not any proposed landscape areas for this project and the conduit layout will avoid all high naturally vegetated areas.

## **Noticing**

Caltrans would notify the public with physical postings in the general vicinity of the project locations (i.e., start and end project limits). In addition, prior to the coastal hearing, Caltrans would place a notice in local newspapers for San Mateo Counties.

## Property Rights

All work is anticipated to occur within the Caltrans right of way. If work outside the Caltrans right of way is required, temporary construction easements or appropriate agreements with adjacent landowners would be acquired prior to construction. Encroachment permits are not anticipated to be required from the California Department of Technology (CDT).

## California Environmental Quality Act

The projects are funded by Item 7502-062-8506 of the Budget Act of 2021. The projects are statutorily exempt from CEQA per Senate Bill 156, PRC Section 21080.51 and meet the requirements of that section. As projects are developed and approved, appropriate environmental documentation would be prepared. Impacts to ESHAs will be avoided.

## Permits

The following permits/approvals are anticipated to be available and would be used as needed.

- California Department of Fish and Wildlife 1600 Master Agreement.
- United States Fish and Wildlife Service Programmatic Biological Opinion.
- United States Army Corps of Engineers Regional General Permit 23 (RGP-23).
- State Water Resources Control Board Programmatic Waste Discharge Requirements and Section 401 Water Quality Certification.

## Project Timelines

All proposed projects in the Coastal Zone currently fall into 2024 delivery and are expected to begin construction in as early as April 2024. The preliminary delivery schedule is listed below:

- Ready to List – March 1, 2024
- Approve Contract/Begin Construction – April 1, 2024
- Contract Acceptance/End Construction – November 30, 2026

Please note this schedule is subject to change based on project reprioritization and Coastal Development Permit issuance timeframe.

## Project Details

Please understand that all projects, including post mile (PM) limits, are subject to change based on direction from CDT. Therefore, Caltrans is requesting coverage for all broadband work (current and future) that could occur within Coastal Commission jurisdiction. Preliminary proposed project details are listed below:

EA: 04-1Y960. SM 1 PM 29.034/46.85

This project would install approximately 19 miles of MMBN infrastructure on SR 1 which include 18 miles that are located within the Coastal Zone. This project would also install .7 miles of MMBN infrastructure on SR 280 with 0 miles within the Coastal Zone.

EA: 04-1Y950. SM 35 PM 28.55/28.7

This project would install 5.8 miles of MMBN infrastructures on SR 35 which include 0.1 miles that are located within the Coastal Zone at the junction of SR 1 and SR 35.

EA: 04-1Y930. SM 92 PM 0/R5.2

This project would install 12 miles of MMBN infrastructure on SR 92 which include 5.2 miles that are located within the Coastal Zone on the western side of the project.

The primary installation methods along these routes would be HDD, with areas of open trenching within 6-feet from edge of pavement. Broadband conduit would cross bridge structures by attaching to bridge overhang/slab and/or the existing concrete structure. Conduit would cross large box culvert structures either above the culverts or directionally drilled under them. The majority of these routes have limited right-of-way and sensitive environmental resources, such as wetlands, immediately adjacent to the highway. These methods would be used to reduce environmental impacts and install broadband within the limited right-of-way. All installation methods would be reviewed and reassessed during constructability reviews with input from construction, environmental, right of way, etc.

### **Avoidance and Minimization Measures**

- Any vegetation removal or trimming taking place between February 1 and September 30 will require a Caltrans biologist to survey for nesting birds within 72 hours prior to construction. If active nests are discovered, the biologist will establish a buffer until the young have fledged.
- Any work done on grassy lands outside paved areas from SR 1 PM 40.7 to PM 37.35 and SR 92 PM 1.9 to R5.2 will require notification to be sent to Fish and Wildlife Services as not impact California red-legged frog.
- Any nightwork will focus light towards pavement and directed away from species habitat.
- Caltrans Best Management Practices (BMPs) will be utilized to prevent sediment from entering waterways. Erosion control avoidances measures include utilization rolled erosion, hydromulch, hydroseed, and adhering to storm water pollution prevention plan.
- Pre-construction survey results for presence or absence of species would be conducted can be sent to California Coastal Commission if requested.
- Contractor will be responsible for providing a frac-out contingency plan to California Coastal Commission prior to construction if requested.



# Middle-Mile Broadband Network Design Guidelines

April 2023



# MIDDLE-MILE BROADBAND NETWORK DESIGN GUIDELINES

California Department of Transportation

Prepared by  
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Middle-Mile Broadband Program  
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APRIL 2023



Cover image: Broadband Factors for Last-Mile Connectivity Prepared for the California Public Utilities Commission December 2021

Any questions or comments on these Middle-Mile Broadband Network Design Guidelines should be submitted by email to:

[HQ.DOD.MMBI@dot.ca.gov](mailto:HQ.DOD.MMBI@dot.ca.gov)

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Governor Gavin Newsom signed Senate Bill (SB) 156 into law in July 2021 to create an equitable, high-speed, open-access, Middle-Mile Broadband Network (MMBN) for all Californians. This bill helps to bridge the digital divide, increases equity, and provides reliable and affordable internet access to all Californians. SB 156 (Chapter 112, Statutes of 2021) expands the state's broadband fiber optic infrastructure and increases internet connectivity for families and businesses. It established the framework for planning, design, construction, operation, and maintenance of the statewide network and identified Caltrans as the construction entity. It allocated \$3.25 billion from the federal American Rescue Plan Act of 2021 to the MMBN and additional state funds to build out a critical network statewide. For the funds, contracts must be awarded by December 2024, and construction must be completed by December 2026.

The lack of accessible middle-mile broadband infrastructure has been a major issue in connecting California's unserved and underserved communities to high-speed internet. Last-mile infrastructure relies on the middle-mile to connect residents, large and small businesses, schools, government offices, public safety agencies, and libraries. An open-access middle-mile network can provide the backbone for last-mile providers to serve residences and reduce the cost of providing service for businesses and anchor institutions.

Executive Order S-23-06 directed the California Broadband Task Force, of which Caltrans is a member, to facilitate broadband installation by public and private stakeholders. Furthermore, Executive Order N-73-20 directed state agencies and departments, including California State Transportation Agency, Caltrans, and California Transportation Commission, to work together to help facilitate the deployment and adoption of broadband services throughout the state. For the MMBN Caltrans is partnering with California Department of Technology (CDT), California Public Utilities Commission and the third-party administrator, TPA – GoldenStateNet. The design and construction of the middle-mile network are being monitored by the Middle-Mile Advisory Committee.

These MMBN Design Guidelines were prepared by Caltrans' Division of Design and Division of Construction for project engineers to use when developing contract plans, specifications, and estimates for MMBN projects within the Caltrans right-of-way. Caltrans will continually collect best management practices, refine its policies and procedures, and update the design guidance to better facilitate middle-mile broadband deployment in state highway right-of-way for the use by all Californians.

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Janice Benton

Assistant Deputy Director, Middle-Mile Broadband Initiative

California Department of Transportation

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# 1. INTRODUCTION

Middle-Mile Broadband Network (MMBN) is a state-owned open-access network of high-capacity fiber optic cables that carry large amounts of data at higher speeds over longer distances between local networks. It connects the large core internet pipelines, termed the first-mile broadband, to the last-mile local broadband network infrastructure that will connect to homes and businesses. The California Department of Transportation (Caltrans) will work with California Department of Technology (CDT) and their third-party administrators to manage construction of the middle-mile infrastructure within California State Highway right of way.

# 2. PURPOSE

These guidelines were prepared to establish uniform design requirements for the Middle-Mile Broadband Network within California State Highway System right of way.

# 3. BACKGROUND

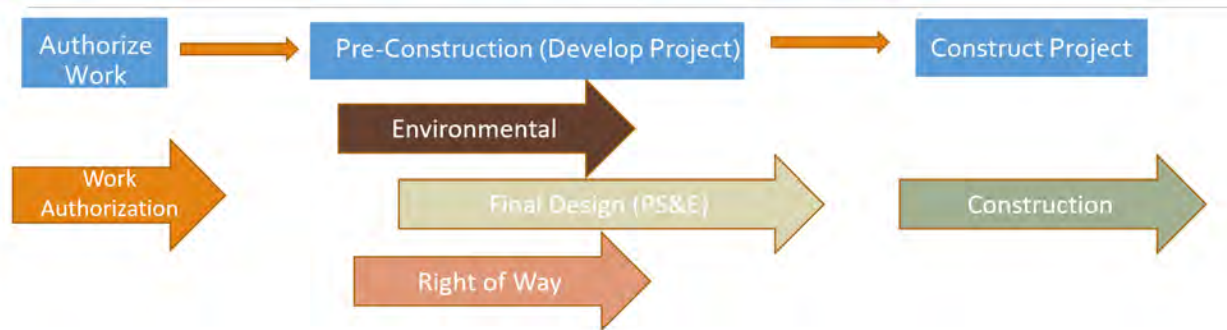
Governor Gavin Newsom signed broadband legislation in July 2021 to provide reliable and affordable internet access to all Californians. Senate Bill (SB) 156 (Chapter 112, Statutes of 2021) expands the state's broadband fiber optic infrastructure and increases internet connectivity for families and businesses.

The lack of middle-mile broadband infrastructure has been a major issue in connecting California's unserved and underserved communities. The statewide open-access middle-mile network included in SB 156 will be a foundational investment to ensure every Californian has access to broadband internet service that meets their connectivity needs of today and into the future. Last-mile infrastructure relies on the middle-mile network to provide service to residents, large and small-businesses, schools, government offices, public safety agencies, and libraries. An open-access middle-mile network can provide the backbone for last-mile providers to serve residents and reduce costs of providing service for businesses and anchor institutions.

Senate bill 156, Chapter 112, Statutes of 2021, established within the California Department of Technology the Office of Broadband and Digital Literacy. This office was established to oversee the acquisition and management of contracts for the development and construction of, and for the maintenance and operation of, a statewide open-access middle-mile broadband network. Caltrans was delegated the role of construction entity.

To deliver the broadband network infrastructure by the federal funding requirement that construction be completed by December 2026, a streamlined project development process was adopted. Project delivery phases discussed in the *Project Development Procedures Manual (PDPM)* would be developed concurrently. These may involve phases such as planning, project approval and environmental documentation, design, right-of-way, and construction phases. Figure 3-1 provides an illustration of the concurrent delivery phases. In addition, the projects will be delivered with usual project delivery

methods such as Design-Bid-Build and innovative delivery methods such as Job Order Contracting and Construction Manager General Contractor. Dig-smart opportunities on ongoing Caltrans projects are also being pursued to alleviate negative effects to traffic during construction.



**FIGURE 3-1: STREAMLINED DELIVERY PROCESS: CONCURRENT PROJECT DELIVERY PHASES**

Source: Caltrans Middle Mile Broadband Network Program

## 4. GENERAL DESIGN REQUIREMENTS

It is recommended that the designer cultivate delivery strategies, such as avoidance measures, minimizing impacts to existing state assets and environmental resources, applying best management practices (BMP) strategies, and implementing innovative design strategies to deliver the MMBN program. Avoidance measures may include routing the network around environmentally sensitive areas.

MMBN has the following design requirements to assure uniformity in the statewide network:

- Three 2-inch high-density polyethylene (HDPE) conduits
- Pull vaults every 2,400 feet along the fiber optic conduit path
- Splice vaults every 12,000 feet along the fiber optic conduit path
- Minimum 288-strand fiber optic cable
- Network hub shelters approximately every 50 miles along the fiber optic cable path

Consideration of the size of the MMBN contracts is an important factor in completing the MMBN both efficiently and effectively to control cost. The construction of the 10,000 mile middle-mile broadband network will not be accomplished by the 2026 deadline, or be cost effective, if the length of fiber optic network projects only constructs short sections. If it is possible, the best length for a project would be the distance between two network hub shelters, approximately 50 miles, so that fiber optic cable between the network hub shelters can be tested from termination panel to termination panel. It is understood that there are environmental and right-of-way issues, including railroad crossings, that will require the length of MMBN projects not cover 50 miles. To provide bidders a basis for bidding on the Regional Job Order Contracts, the following response was provided:

*“The anticipated average fiber optic network segment length that will be included in a single Work Order is 20-40 miles. However, some work orders may include segments that are shorter than 20 miles or longer than 40 miles. Most Work Orders are anticipated to be within a single geographical location.”*

Wherever possible MMBN contracts should be between 20-40 miles. Projects longer than 40 miles would allow a contractor to be more efficient and should be considered to reduce per mile MMBN cost.

#### **4.1. Fiber Optic Conduit Path**

For freeways and expressways with controlled access right-of-way, the preferred location for fiber optic conduit paths is within 10 feet of the right of way. When it is not possible to locate the fiber optic conduit path within 10 feet of the right of way line, choose the fiber optic conduit path from the following sequential order of options:

1. Between 5 feet from the edge of the shoulder to the right of way
2. Within the outside paved shoulder

**For middle mile broadband installations on the Interstate Highway System, Federal Highway Administration (FHWA) approval is required.** Refer to Chapter 17, Section 2, Article 4, “Federal Highway Administration Approvals,” of the *Project Delivery Procedures Manual (PDPM)* for projects on the Interstate Highway System.

For conventional highways, the preferred location for fiber optic conduit paths is from 4 feet from the edge of the pavement to the right of way. Where the terrain or environmental conditions are not suitable for fiber optic conduit installation, place the fiber optic conduit path within the outside paved shoulder. There are rural highways that do not have shoulders, and it may be necessary to place the fiber optic conduit paths within a traveled lane for some segments.

Fiber optic conduit paths should not be placed less than 4 feet from the edge of shoulder or edge of pavement because this area outside the pavement contains signs, guardrail, Caltrans electrical conduit, and Caltrans waterlines. This area is considered the no fiber optic cable zone that allows for roadside safety devices to operate properly and helps to prevent any future damage to the fiber optic cable by Caltrans maintenance forces installing or maintaining these roadside elements.

For freeway, expressway and conventional highway broadband middle mile installations within the pavement, Headquarters Division of Design, Office of Project Support approval is required. Caltrans’ broadband longitudinal encroachment policy prohibits broadband fiber optic cable installation within the pavement area, within 3 feet of the edge of pavement, or within 4 feet of the face of guardrail. On roadways with limited rights-of-way or other physical and environmental constraints, an encroachment policy exception must be requested. Refer to Chapter 17, Section 3, Article 4, “Clearance and Offset Requirements” of the *PDPM* for installation requirements. The criteria in Appendix A of this manual, “Wired Broadband Facility Accommodation in Access-Controlled State Highway Right-of-Way” memorandum dated March 22, 2022 replaces the existing wired

broadband accommodation criteria within access-controlled highway rights-of-way in Chapter 17, Section 2, Article 2, "Encroachment Policies," of the *PDPM*. Exceptions to the criteria will be considered on a case-by-case basis in accordance with Chapter 17, Section 4, "Exception Requests," of the *PDPM*. Approval of policy exceptions will be provided by Headquarters Division of Design, Office of Project Support, or for delegated districts, the delegated district approval authority.

For more information on locating the fiber optic cable path within the right-of-way, refer to Appendix A.

Fiber optic conduit paths should be straight where possible. When fiber optic conduit path is located more than 4 feet from the pavement, maintain a consistent offset from the roadway centerline where possible. When a fiber optic conduit path is located within a paved shoulder or lane, maintain a consistent offset from the roadway centerline.

The depth of fiber optic conduit path in unpaved areas must be a minimum of 42 inches to the top of conduit. In addition to the minimum conduit cover, the following requirements for fiber optic conduit path apply:

- Culverts – Must be a minimum 24 inches above or below the culvert.
- Lined channels – Must be a minimum 24 inches below the channel.
- Unlined channels or ditches – Must be a minimum 30 inches below the channel or ditch.
- Railroads – Must comply with the railroad company requirements.

If the fiber optic conduit path is proposed to go above the existing drainage culverts, then designers should consult with the District Culvert Maintenance group for concurrence to go above existing culverts.

Consult with the owners of channels not owned by Caltrans about the minimum clearance required below the channel. Channels crossing the highway right-of-way may be owned by a Flood Protection Board or Irrigation District. Fiber optic conduit crossings beneath a stream, river, canal or channel may be governed by the Army Corps of Engineers or other permitting agencies. For impacts to levees and jurisdictional channels, refer to section "Levee and Channel," of this manual.

The depth of fiber optic conduit path in asphalt pavement must be a minimum of 24 inches from the pavement surface to the top of conduit or at least 12 inches below the bottom of the structural section, including subbase, whichever depth is greater. The structural section depth can be found by coring, looking at district core records, or seeing if core data has been stored in the Ground Penetrating Radar IGPR data base.

District pavement core data is available at:

<http://www.ucprc.ucdavis.edu/CoreLogs>

Ground Penetrating Radar IGPR data is available at:

<http://www.ucprc.ucdavis.edu/iGPR/>

Consult with the Headquarters Pavement Program and District Materials Engineer to help determine the structural section depth so that the proper design depth for conduit installation below pavement can be used on a project.

If a shallower trench detail is necessary, coordinate through the District Pavement Program Advisor, typically the District Maintenance Engineer, and Materials Engineer to obtain an exception from the State Pavement Engineer. Documentation of exception approval must be submitted to the HQ Middle-Mile Broadband Initiative Program prior to construction authorization.

Refer to Appendix B “Broadband Micro-Trenching in Roadway Pavement,” memorandum dated September 16, 2022, and attachment, Decision Document Broadband Micro-Trenching in Roadway Pavement Memorandum, in this manual, for the authorization for trench in pavement method for MMBN.

Refer to the *Highway Design Manual* for additional design considerations. Refer to relevant Design Information Bulletins listed below when they apply to the project:

- DIB #81-02 - Minor Pavement Rehabilitation (CAPM)
- DIB #79-04 - Major Pavement Roadway Rehabilitation
- DIB #82-06 - Pedestrian Accessibility Guidelines for Highway Projects

Design Information Bulletins can be found at the link below:

<https://dot.ca.gov/programs/design/design-information-bulletins-dibs>

## 4.2. Utilities Investigations

All broadband network projects must comply with Appendix C “Utility Investigation for Broadband Middle-Mile Network” memorandum dated October 18, 2022, in this manual.

To better support the compressed schedule for designing and constructing the MMBN, Caltrans re-evaluated its utility investigation policy, which was developed for typical highway construction projects, and created guidelines for stand-alone MMBN projects. The project engineer is required to conduct initial utility investigations by performing encroachment permit searches and working with the utility engineering workgroup to determine the approximate location of utilities. The schedule may not allow for verification with utility companies. Four options were developed for project engineers to choose from for utility investigation for MMBN stand-alone projects:

- A. Verifying and Positively Locating Utilities at Spot Locations with High Potential for Conflicts and Locating Other Utilities During Construction
- B. Positively Locating Utilities in Construction
- C. Caltrans Utility Investigation Procedures
- D. Utility Investigating in Construction and Positively Locating in Construction

Non-Standard Special Provision Section 5-1.36C (2) “Nonhighway Facility Protection,” requires the contractor to locate existing subsurface facilities. Locating existing subsurface facilities is a two-phase process; the first phase is preliminary location based



on searching available records, site visual inspection, and geophysical methods. Based on the first phase information, the resident engineer determines which existing subsurface facilities will have to be positively located.

It is anticipated that contractors on Construction Manager General Contractor (CMGC) contracts have the capability to conduct their own potholing or other appropriate level of subsurface investigation to streamline the delivery of MMBN projects.

Refer to Appendix C, “Utility Investigation for Broadband Middle-Mile Network” and Appendix A, “Wired Broadband Facility Accommodation in Access-Controlled State Highway Right-of-Way” of this manual for details.

### 4.3. Structures

The fiber optic conduits may be placed within structure cells, attached beneath the structure, hung beneath the structure, or attached to the barrier on the structure. Refer to Appendix D, “Guidance for Broadband Installation on Bridges” of this manual, for guidance on mounting conduits on bridges.

In accordance with Appendix D, the project engineer can approve the location of fiber optic cable conduits on structures based on the guidance for mounting conduits. If there are no acceptable locations for mounting the fiber optic cable conduits, consult with Structure Maintenance and Investigations about how the conduits should be installed on the structure or whether a special design will be required.

Refer to Section 20 – 2” Communication Conduit Attached to Structures” of the *User Guide to Bridge Standard Detail Sheets*, for explanations on how to use bridge standard details for mounting conduits to structures. Consult the assigned Division of Engineering Services (DES) technical liaison engineer for the district where the project is located for special mounting designs not covered in the bridge standard details. The *User Guide to Bridge Standard Detail Sheets*, Section 20 – 2”, “Communication Conduit Attached to Structures” is available for Caltrans employees at:

<https://dot.ca.gov/programs/engineering-services/manuals/bridge-standard-details>

*User Guide to Bridge Standard Detail Sheet* is available for external stakeholders by contacting the MMBN Program webmaster at [HQ.DOD.MMBI@dot.ca.gov](mailto:HQ.DOD.MMBI@dot.ca.gov).

Consult with the Structure Maintenance and Investigation unit for structure foundation clearances if installed underground next to structures. Work with the assigned district DES technical liaison engineer when special details are required. Follow Chapter 17, “Encroachments and Utilities” of the *PDPM* for clearance requirements to existing structures foundations.

### 4.4. Railroads

Avoid affecting rail lines whenever possible. Railroads have special requirements for fiber optic cable crossing railroad tracks and may require special permits, fees, and reviews for locating utilities within railroad rights-of-way, which can greatly impact project

schedules. All plans for new or relocated fiber optic lines within 2 miles of a railroad right-of-way require the rail company's review and approval. If rail lines are affected, a full-time Inspector must be included in the contract to verify compliance with railroad requirements during construction.

Work with the district right-of-way agent and district railroad coordinator to obtain the railroad requirements and to obtain railroad authorization for fiber conduit paths crossing railroad right-of-way when avoidance cannot be achieved.

Refer to the standard detail sheet MIDDLE MILE BROADBAND NETWORK DETAILS (CONDUIT ENCASEMENT CROSSINGS) sheet number MMBND-3.

For general information about Union Pacific Railroad requirements, refer to the *Union Pacific Railroad Company 2022 Standards Manual - Fiber Optic Engineering, Construction and Maintenance* available at:

[https://www.up.com/cs/groups/public/@uprr/@it/@telecom/documents/up\\_pdf\\_nativ\\_edocs/pdf\\_up\\_fiberoptic\\_standards.pdf](https://www.up.com/cs/groups/public/@uprr/@it/@telecom/documents/up_pdf_nativ_edocs/pdf_up_fiberoptic_standards.pdf)

#### 4.5. Surveys

The typical basemapping used for Caltrans roadway projects is not required for all middle-mile broadband projects. To make design survey requests easy, basemap survey location was categorized by dividing the state into urban and rural areas, for recommended basemapping. The link below gives GIS mapping for basemap survey for the MMBN program.

<https://sv03tmcpo.ct.dot.ca.gov/portal/apps/mapviewer/index.html?webmap=717553fb6b2f4d7586aa75e4adfa1703>

Appendix E, "Survey Basemap Decision Matrix," of this manual was developed to aid the project engineer in selecting the appropriate basemap survey needs for their project.

The MMBN will require that survey control points information be provided to the contractor so that the contractor can both provide accurate information on the location of existing underground facilities and the "as built" location of the constructed fiber optic network. Non-Standard Special Provision Section 5-1.36C(2) "Nonhighway Facility Protection" requires the contractor to locate existing subsurface facilities. Non-Standard special provision Section 77-3 "Underground Infrastructure Documentation" requires the contractor to positively locate as-built MMBN infrastructure following the requirements for subsurface utility engineering quality level A.

Request that Surveys provide all survey control points within the project limits. To provide the contractor the survey control point information, the survey control points may be either indicated on the Project Control Map in the project plans or included in supplemental project information.

If survey control points are not available before project advertisement, the survey control point information must be provided at least 15 days before the contractor starts GPS site calibration or localization.

#### 4.6. Drainage

It is anticipated that some state drainage facilities may be affected during construction. Design flexibility in the choice of conduit installation method is needed to avoid negative effects to culverts, drainage inlets, and ditches. Drainage considerations should be made to maintain the original line and grade, hydraulic capacity, or original purpose of the facility with the goal of perpetuating natural drainage patterns. If changes to the line, grade or hydraulic capacity are necessary, include the district hydraulics engineer and incorporate drainage design into the project plans. Refer to the Chapter 800-890, of the *Highway Design Manual*, for drainage guidance. Follow standard drainage details and specifications.

Any work in the coastal zone should be designed following these design requirements:

- Chapter 880 of the *Highway Design Manual*
- Caltrans Design Manual for Hybrid Coastal Protection Strategies
- 2018 Update of the State of California Sea Level Rise Guidance, Ocean Protection Council
- Highways in the Coastal Environment, Hydraulic Engineering Circular No. 25 (3rd edition)
- 2022 Sea Level Rise Technical Report, National Oceanic and Atmospheric Administration

#### 4.7. Landscape

The trenching for conduits, vaults, and site work for a network hub shelter may affect the landscape. Conduct field investigations to assess and identify the status and condition of the existing landscape infrastructure, such as irrigation systems or smart irrigation controllers. Project engineer should consult with the district water manager for inventory of Caltrans irrigation systems. Assess effects of slope changes or tree removals to determine appropriate erosion control and if any restoration planting will be required. Refer to Chapter 29, "Landscape Architecture," of the *PDPM* for details.

Any work should be designed following these landscape architecture policies and guidance:

- Chapter 900 "Landscape Architecture," and Chapter 910, "Landscape Architecture," of the *Highway Design Manual*
- Landscape Architecture and Community Livability, such as, Scenic Highways and Classified Landscaped Freeways available at:

<https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability>

- Chapter 29, “Landscape Architecture”, of the *PDPM*
- Chapter 500, of the *Encroachment Permit Manual*

#### 4.8. Environmental

To follow applicable state and federal environmental laws, design and construction of the MMBN should consider opportunities to avoid or minimize environmental impacts associated with constructing project components, consistent with permitting requirements, including the fiber optic conduit path, vaults, and network hub shelters. Where necessary, mitigation for negative environmental impacts may be required. The district Environmental Analysis Unit should be consulted to support project development teams in the identification of design options and best management practices to avoid or minimize negative environmental impacts and support an efficient environmental permitting process for broadband projects. For considerations within the coastal zone, refer to the *Middle-Mile Broadband Network Coastal Zone Guidelines for Programmatic Permitting* for considerations in project plans to avoid and minimize coastal resource and public access impacts associated with project components.

To ensure that the project design complies with Senate Bill (SB) 156 requirements to be excluded from the California Environmental Quality Act (CEQA), the project engineer should work with the district Environmental team. SB 156 states the following requirements for Middle Mile Broadband project to have exclusion from CEQA:

- The project is constructed along, or within 30 feet, of the right-of-way of any public road or highway.
- The project is either deployed underground where the surface area is restored to a condition existing before the project or placed aerially along an existing utility pole right-of-way.
- The project incorporates, as a condition of project approval, measures developed to address potential environmental impacts.
- The project shall be required to include monitors during construction activities and measures to avoid or address impacts to cultural and biological resources.

#### 4.9. Aerially Deposited Lead

The construction of the MMBN will cause minimal disturbance of aerially deposited lead soil within the highway right of way because the excavated soil will be used as backfill at the same location for most work. There will be some surplus excavated material generated from the trench in pavement method, horizontal directional drilling, fiber optic vault installation and foundation excavation for network hub shelters. The following provides the estimated generated surplus excavated material:

- Trench in pavement method will generate approximately one cubic yard of surplus excavated material for every 25 feet of trench. The trench in pavement method will generate 264 cubic yards per mile of excavated material.

- Directional horizontal drilling method will generate 1.3 cubic yards of surplus material for every 100 feet of conduit installed. Horizontal directional drilling liquid waste will be disposed of under section 13-4.03D(5) "Liquid Waste" of the Caltrans standard specifications.
- Fiber optic vaults installation will generate approximately 3 cubic yards per vault. Vaults are spaced every 2,400 feet so there will be approximately 6 cubic yards per mile of surplus excavated material.
- Network Hub shelters are 12 feet X 20 feet and foundation excavation will generate approximately 12 cubic yards per network hub shelter.

The largest amount of surplus excavated material will come from the trench in pavement method of installation of conduit. This method of construction will be used mostly on rural two-lane conventional highways where the pavement section has been in place for many years (25-100 years). Testing of the soil prior to construction for aurally deposited lead beneath the pavement at locations where the trench in pavement method will be used is not possible. Because the soil below the pavement surface has not been exposed since construction of the roadway, the exposure to aurally deposited lead is considered minimal.

Hauling all of the surplus excavated material from the 10,000- mile MMBN to Class 2 and Class 3 landfills would possibly overwhelm the landfills capacity for accepting soils. Caltrans intends to use surplus excavated material generated on a project site within the limits of the project wherever possible to create a pad around vaults, as fill material at network hub locations, to construct maintenance vehicle pull outs for access to the vaults and to widen or flatten fill slopes for increased traveling public safety.

The expectation is that most excess excavated material generated from MMBN projects will be clean or Type Com. Type Com is regulated material that the Department may designate to be reused on the highway or disposed at an appropriately permitted California Class II or California Class III disposal facility. Type Com material has average ADL concentrations less than 5.0 mg/L soluble lead and more than 80 mg/kg total lead but not exceeding 320 mg/kg total lead. The soluble lead is tested using the CA-WET.

For any surplus excavated material taken from locations where existing test results for aurally deposited lead does not exist, Caltrans has worked with the Department of Toxic Substances to establish a testing protocol for determining the level of aurally deposited lead after the material has been excavated by testing every truck load of surplus excavated material generated on a project using a rapid test.

Locations where surplus excavation material will be used on a project must be shown on the project plans. For any surplus material taken from locations where existing test results for aurally deposited lead do not exist, the material will be tested by the contractor and if the material laboratory test verify that the material is clean or Type Com regulated material, the material can remain in place. If the rapid or verification testing determines that the material contains aurally deposited lead at the level for Type Z-2 material,

Caltrans must remove all of the surplus material at the location the Type Z-2 material was placed and haul all of the material to a Class 1 landfill.

It is important for project engineers to show on contract plans where surplus excavated material can be used on the project site, otherwise any Type Com surplus excavated materials will have to be disposed of at a Class 2 or Class 3 landfills and the hauling and disposal fees paid for as change order work.

#### **4.10. Levee and Channel**

Avoid impacts to levees and jurisdictional channels whenever possible. Levees and jurisdictional channels have special requirements for fiber optic cable crossings and longitudinal installations that require special permits, fees, and reviews for locating utilities on or near jurisdictional areas, which can impact project schedules. Refer to Appendix F, “Permit Considerations for U.S. Army Corps of Engineers Section 408 Permit,” of this manual for details on avoidance and minimization measures for project considerations. For general information about Section 408 and related non-federal permits, refer to:

<https://design.onramp.dot.ca.gov/node/2695>

Work with the district hydraulics engineer to identify the local, non-federal levee sponsor and U.S. Army Corps of Engineers liaison for Section 408 permit needs and review times.

#### **4.11. Stormwater**

MMBN projects must adhere to requirements of the National Pollutant Discharge Elimination System (NPDES) statewide storm water permits. Refer to Appendix F. “Stormwater Compliance,” of this manual.

District stormwater coordinators can provide specific project stormwater best management practices to include in the contract bid items.

#### **4.12. Contract Plans**

For MMBN projects, contract plans must include the following sheets as a minimum:

1. Title sheet with contract description showing project location and project limits
2. Typical roadway cross-sections with approximate right-of-way lines, and the proposed location of trenching method shown
3. Layout sheets for MMBN showing fiber optic facilities including conduit, pull vaults, splice vaults, and network hub shelters. Refer to the office of CADD and Engineering GIS's MMBN Project Tool Workflow to generate basemap for layout sheet production. CADD's MMBN workflow tool videos can be found at:

<https://cadd.onramp.dot.ca.gov/node/417>

4. Construction details and MMBN details showing the methods of installations and other details necessary for constructing the MMBN
5. Summary of quantity sheets and MMBN quantity sheets showing tables of quantity take-offs

6. MMBN quantity sheet that contains a table showing point coordinates for the proposed location of pull vaults, splice vaults, and network hub shelters
7. Site plan sheets for network hub shelters
8. If available, utility sheets showing the locations of existing utilities

Refer to the MMBN example typical plan set available for Caltrans employees at:

[Middle-Mile Broadband Network \(MMBN\) Program | Division of Design \(ca.gov\)](#)

MMBN example typical plan set is available for external stakeholders by contacting the MMBN Program webmaster at [HQ.DOD.MMBI@dot.ca.gov](mailto:HQ.DOD.MMBI@dot.ca.gov).

## 5. IMPLEMENTATION

Standard Details and Non-Standard Special Provisions (nSSP) were developed for the MMBN. These will provide for consistency in the network construction. The plan details and specification requirements are based on safety, maintainability, policies, and regulations for facilities within the State Highway System right-of-way.

The following nSSP specific to MMBN infrastructure were developed for the broadband program:

- Section 77-1, “General”
- Section 77-2, “Broadband Middle Mile Network”
- Section 77-3, “Underground Infrastructure Documentation”
- Section 77-4, “Network Hub Shelter”

In addition, Section 5-1.36C(2) “Nonhighway Facility Protection,” of the nSSP, was developed to expedite locating existing subsurface facilities by having the contractor perform the investigation and positively locating existing subsurface facilities.

The following MMBN standard details contract plan sheets have been developed for the broadband program:

1. DETAILS (CONDUIT INSTALLATION METHODS) sheet MMBND-1
2. DETAILS (CONDUIT INSTALLATION METHODS) sheet MMBND-1A
3. DETAILS (CONDUIT INSTALLATION) sheet MMBND-2
4. DETAILS (CONDUIT ENCASEMENT CROSSINGS) sheet MMBND-3
5. DETAILS (MAINTENANCE VEHICLE PULLOUT) sheet MMBND-4
6. DETAILS (FIBER OPTIC MARKERS) sheet MMBND-5
7. DETAILS (VAULT, TYPE 1) sheet MMBND-6
8. DETAILS (VAULT, TYPE 2) sheet MMBND-7
9. DETAILS (VAULT, TYPE 3) sheet MMBND-8
10. DETAILS (FIBER OPTIC SPLICING IN VAULT) sheet MMBND-9
11. DETAILS (TERMINATION PANEL) sheet MMBND-10
12. DETAILS (NETWORK HUB SHELTER LOCATION) sheet MMBND-11
13. BRIDGE STANDARD DETAILS 4-COMMUNICATION CONDUITS (OVERHANG/SLAB) sheet MMBND-12
14. BRIDGE STANDARD DETAILS 3-COMMUNICATION CONDUITS (OVERHANG/SLAB) sheet MMBND-12A
15. BRIDGE STANDARD DETAILS 4-COMMUNICATION CONDUITS (BARRIER) sheet MMBND-13
16. BRIDGE STANDARD DETAILS 3-COMMUNICATION CONDUITS (BARRIER) sheet MMBND-13A
17. BRIDGE STANDARD DETAILS 4-COMMUNICATION CONDUITS (EXISTING UTILITY OPENING) sheet MMBND-14
18. BRIDGE STANDARD DETAILS 3-COMMUNICATION CONDUIT (EXISTING UTILITY OPENING) sheet MMBND-14A



19. BRIDGE STANDARD DETAILS 4-COMMUNICATION CONDUITS (SOUNDWALL EXISTING CONCRETE) sheet MMBND-15
20. BRIDGE STANDARD DETAILS 3-COMMUNICATION CONDUITS (SOUNDWALL EXISTING CONCRETE) sheet MMBND-15A
21. BRIDGE STANDARD DETAILS 4-COMMUNICATION CONDUITS ATTACHMENT DETAILS sheet MMBND-16
22. BRIDGE STANDARD DETAILS 3-COMMUNICATION CONDUITS ATTACHMENT DETAILS sheet MMBND-16A
23. NETWORK HUB SHELTER WITH PROPANE GENERATOR SITE PLAN TYPICAL sheet MMBND-17
24. NETWORK HUB SHELTER WITH DIESEL GENERATOR SITE PLAN TYPICAL sheet MMBND-18
25. NETWORK HUB SHELTER FOUNDATION DETAILS sheet MMBND-19
26. NETWORK HUB SHELTER 12'X16' FOUNDATION PLAN sheet MMBND-20
27. NETWORK HUB SHELTER 12'X20' FOUNDATION PLAN sheet MMBND-21
28. GENERATOR AND PROPANE TANK FOUNDATION PLAN sheet MMBND-22

The current MMBN nSSP's, standard detail plan sheets, and example contract plan set are available for Caltrans employees at:

[Middle-Mile Broadband Network \(MMBN\) Program | Division of Design \(ca.gov\)](#)

MMBN nSSP's, standard detail plan sheets, and example typical plan set is available for external stakeholders by contacting the MMBN Program webmaster at [HQ.DOD.MMBI@dot.ca.gov](mailto:HQ.DOD.MMBI@dot.ca.gov).

The following sections provide information on the components and construction methods required for the MMBN to assist the project engineer in designing the fiber optic system and choosing the appropriate method for construction to determine the contract bid items.

## 5.1. Conduit

The MMBN must have three 2-inch conduits unless otherwise approved by CDT. Conduit for fiber optic cable system must be schedule SDR 11 high-density polyethylene (HDPE) flexible conduit with a smooth inner wall and smooth outer wall, complying with NEMA (National Electrical Manufacturers Association) TC-7 and ASTM International (ASTM) D-3350, except for horizontal directional drilling. For structure crossing, the conduits should be either the three, 2-inch HDPE flexible conduits used as inner ducts placed within a single steel outer conduit or three separate rigid 2-inch Type 1 conduits. Other structure mounted conduits are allowed were local or state agencies dictates otherwise.

The four methods for underground installation of fiber optic conduit are trenching, trenching in pavement, horizontal directional drilling, and plowing methods. A contractor can choose to use the jack and drill method as an alternate method to the directional horizontal drilling method. Based on the terrain, ground condition and obstacles, the project engineer should include the specific conduit installation method for the conduit bid item. The bid items for conduit installation are divided into the following categories Conduit Trench Method (3-2" HDPE), Conduit Trench in Pavement Method (3-2"HDPE), Conduit Horizontal Drilling Method (3-2"HDPE), Conduit Horizontal Drilling Method (3-2"HDPE in 6-inch Casing) or Conduit Plowing Method (3-2"HDPE). The California Department of Technology will provide the 2-inch HDPE conduit so that the conduit can be Department furnished material. Items bearing "Install" in the bid item description are used for Departmentally furnished material products and equipment. Conduit must be furnished by the contractor when the size or type of conduit is different from the CDT's Department furnished material list.

Based on the large cost differential for the installation of conduit in different subsurface conditions, and the fact that for job order contracts the contractor is not able to examine the work order site at the time of bidding, bid items were established for the different methods of conduit installation based on subsurface conditions:

- Soil
- Soil-Cobbles
- Soil-Boulders
- Rock 1
- Rock 2
- Rock 3

Section 77-2.04 "Conduit," of the Job Order Contract Special Provisions defines the subsurface conditions for bid items for conduit installation based on material encountered during conduit installation as shown in the following table:

**TABLE 5-1.1, SUBSURFACE CONDITION**

Material	Subsurface Condition
Soil <sup>a</sup>	Soil (Any combination of gravel, sand, silt, and clay). Soil and cobble mixture with less than 15 percent cobbles. Soil and boulder <sup>b</sup> mixture with less than 15 percent boulders <sup>b</sup> . Soil, cobble, and boulder <sup>b</sup> mixture with less than 15 percent cobbles and boulders <sup>b</sup> .
Soil - Cobbles <sup>a</sup>	Soil and cobble mixture with at least 15 percent cobbles.
Soil - Boulders	Soil and boulder <sup>b</sup> mixture with at least 15 percent boulders <sup>b</sup> .
Rock 1	Moderately soft, soft, or very soft rock as described in section 2.6.8. Rock Hardness <sup>a</sup> , and a uniaxial compressive strength of 1800psi or less.
Rock 2	Moderately hard and hard rock as described in section 2.6.8. Rock Hardness <sup>a</sup> , and a uniaxial compressive strength greater than 1800psi and less than 14,500psi.
Rock 3	Very hard and extremely hard rock as described in section 2.6.8. Rock Hardness <sup>a</sup> , and a uniaxial compressive strength of 14,500psi or greater.

<sup>a</sup>See *Soil and Rock Logging, Classification, and Presentation Manual*.

<sup>b</sup>A rock with a diameter greater than 12 inches, but not greater than 3 feet.

Caltrans Geotechnical Services provides a subsurface information memorandum to project engineers to use as the basis for estimating bid item quantities for conduit installation bid items based on the surface conditions. The report provides approximate postmile limits of subsurface condition material type. The information provided by Geotechnical Services is based on available subsurface information and geologic mapping. No additional borings are expected to be performed during the MMBN design phase. Rock quantities will need to be roughly estimated by the project engineer because rock hardness information is not readily available. In some cases, geotechnical reports may use a combined “Rock 2/Rock 3” designation due to limitation of information.

The project engineer must select the fiber optic conduit installation method and appropriate contract bid items to be used for conduit installation. Consult with district Geotechnical Services about the subsurface conditions along the fiber optic conduit path based on the criteria of soil, soil-cobbles, soil-boulders, rock 1, rock 2 or rock 3.

The *Caltrans Encroachment Permit Manual* has additional information on the conduit installation methods. Appendix E, “Guidelines and Specifications for Trenchless Technology Projects,” of the *Caltrans Encroachment Permit Manual*, is available at:

<https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/encroachment-permits/appendix-e-ada-a11y.pdf#page=63>

### 5.1.1. Trench Method

Trench method of installation involves digging open trenches. Traditional trenchers with rock-wheel blades, or similar equipment, are employed during construction. This method is most suitable for rural to suburban areas with long and relatively flat terrain. This method may be impractical for highly developed locations where there can be many obstacles, such as underground utilities, sidewalks, and road crossings. Digging trenches may have several undesired consequences, such as traffic disruption, larger environmental impacts, damage to landscape or infrastructure, and may inconvenience the public. However, trenching allows for a more controlled installation, and better depth control.

### 5.1.2. Trench in Pavement Method

Trench in pavement method is only allowed in asphalt pavement and not in concrete pavement. For the trench in pavement method, the conduits are placed into a trench that is 3 inches to 6 inches wide. Trench compaction is a challenge with this method. A colored cementitious slurry backfill is required as part of the installation. The trench in pavement method can be used within roadway outside shoulders, and on conventional highways, may be used within a traveled lane

To restore the pavement surface, the existing asphalt must be cold planed over the trench and the hot mix asphalt placed and compacted. There are separate details for trench in pavement within shoulders and within a lane. Refer to the MMBN standard details sheet MMBND-1 and MMBND-1A, "MIDDLE MILE BROADBAND NETWORK DETAILS (CONDUIT INSTALLATION METHODS)" available for Caltrans employees at:

[Middle-Mile Broadband Network \(MMBN\) Program | Division of Design \(ca.gov\)](#)

MMBN standard detail plan sheet is available for external stakeholders by contacting the MMBN Program webmaster at [HQ.DOD.MMBI@dot.ca.gov](mailto:HQ.DOD.MMBI@dot.ca.gov).

### **FHWA Approval Requirement**

**For broadband middle mile installations on the Interstate Highway System, Federal Highway Administration (FHWA) approval is required.** Refer to Chapter 17, Section 2, Article 4, "Federal Highway Administration Approvals," of the *PDPM* for projects on the Interstate Highway System.

### **Policy Exceptions (THIS SECTION IS CURRENTLY UNDER REVIEW)**

**For freeways and expressways broadband middle mile installations in the pavement within controlled access state highways, approval of policy exception is required by Headquarters Division of Design, Office of Project Support or a delegated District.** Caltrans broadband longitudinal encroachment policy prohibits broadband fiber optic cable installation within the pavement area, within 3 feet of the edge of pavement, or within 4 feet of the face of guardrail. On roadways with limited right-of-way or other physical and environmental constraints, an encroachment policy exception

must be requested for conduit installed within pavement. Refer to Chapter 17, Section 3, Article 4, "Clearance and Offset Requirements," of the *PDPM* for installation of utility requirements. Exceptions to the criteria will be considered on a case-by-case basis in accordance with Section 4, "Exception Requests."

**For all middle mile broadband conduit installations in the pavement with less than 42-inches of clearance below the surface, approval of policy exception is required by Headquarters Division of Design, Office of Project Support or a delegated District.** Caltrans clearance requirements for utilities is 42 inches below the finished grade. The middle mile broadband fiber optic cable installation within the pavement area is required to have a minimum coverage of 24 inches from the finished grade with a minimum distance of 12 inches from the top of the conduit to the bottom of the existing pavement structural section. On roadways with limited right-of-way or other physical and environmental constraints, an encroachment policy exception must be requested. Refer to Chapter 17, Section 3, Article 4, "Clearance and Offset Requirements," of the *PDPM* for installation of utilities requirements.

Refer to Appendix A "Wired Broadband Facility Accommodation in Access-Controlled State Highway Right-of-Way" of this manual for more details. The criteria in Appendix A, replace the existing wired broadband accommodation criteria within access-controlled highway right-of-way in Chapter 17, Section 2, Article 2 of the *PDPM*.

### 5.1.3. Horizontal Directional Drilling Method

Horizontal directional drilling, also known as directional boring, allows the installation of conduit under obstacles that do not allow convenient plowing or trenching installations, including roadways, channels, levees, railroads, or at some environmentally sensitive area locations. Horizontal directional bores are accomplished by using a steerable drill stem. The depth and direction of the boring can be controlled by the equipment operator. Very long bore lengths can be accomplished by using directional boring devices. Subsurface crossings are generally accomplished by digging a trench on each side of the crossing to allow for guidance and retrieval of the drill stem. Generally, try to keep the bore as straight as possible.

Horizontal directional drilling production rates are reduced when conditions include cobbles greater than 4 inches, or boulders.

The project engineer should coordinate early with the office of Geotechnical Investigations when this method is required.

### 5.1.4. Jack and Drill Casing

Jack and drill installation of a casing is typically required under railroads and roadways to prevent soil subsidence. It involves the cutting of the soil, generally 6 inches to 8 inches in diameter ahead of the pipe being jacked simultaneously by an auger within the pipe. Typical operations involve the excavation of entrance and exit pits, cutting of the pilot hole, casing, and site restoration. The depth of the boring is based on depth of the pits.

For three, 2-inch HDPE conduits, the typical casing size is 6 inches. The depth of cover for conduit in roadway crossing operation is a minimum 4 feet for a 6-inch diameter or smaller hole and a minimum 6-feet for an 8-inch to 14-inch diameter hole.

### **5.1.5.Plowing Method**

An alternative to trenching or boring uses a plow system to excavate a trench to the desired depth and bury conduits in a single operation. To install conduits, a dozer pulls the plow blade through the ground as the conduit is being installed. A reel carrier is mounted on the front of the tractor or on a separate vehicle to feed the conduit, the conduit passes through the fairlead system and into the chute behind the blade, where the conduit is placed at the required depth. Horsepower and weight are the primary factors affecting production speeds. Two pulling tractors may work in tandem to form a plow train. A dozer equipped with a ripper blade to make a cut in the ground for the plow to follow may also be used in areas with roots and some rock to loosen the ground in advance of the plowing tractor.

Plowing is not suitable for all projects; the procedure is best for long, straight runs on a flat terrain where there is plenty of room for equipment and where there are few or no buried utilities. The plowing process can be completed quickly, with effortless cleanup and minimal disturbance to the surrounding original surface area.

### **5.1.6.Selecting Conduit Installation Method**

After selecting the potential location of the fiber optic conduit path within the state highway right of way based on Section 4.1 Fiber Optic Conduit Path, of these guidelines, the conduit installation method must be selected. To assist in determining the conduit installation method refer to Table “Conduit Installation Method Selection” which shows the various conditions that affect the selection of the underground installation method for fiber optic conduits.

**TABLE 5-1.2, CONDUIT INSTALLATION METHOD SELECTION**

<b>Condition</b>	<b>Plowing Method</b>	<b>Trench Method</b>	<b>Trench in Pavement Method</b>	<b>Horizontal Direction Drilling Method</b>	<b>Horizontal Directional Drilling with Casing</b>
Soil	X	X	X	X	X
Soil-Cobbles	X	X	X	X <sup>1</sup>	X <sup>1</sup>
Soil-Boulders	No	X	X	X <sup>1</sup>	X <sup>1</sup>
Rock	No	X	X	X	X
Utilities Low Amount <sup>2</sup>	X	X	X	X	X
Utilities Medium Amount <sup>2</sup>	No	X <sup>3</sup>	X <sup>3</sup>	X	X
Utilities High Amount <sup>2</sup>	No	No	No	X	X
Crossing Roadways	No	No	No	No	X
Crossing Railroads	No	No	No	No	X
Crossing Waterways	No	No	No	X	X
Asphalt Pavement	No	No	X	X	X
Concrete Pavement	No	No	No	No	X
Environmental Sensitive Area <sup>4</sup>	No	No	X	X	X
Hazardous Waste <sup>4</sup>	No	No	X	X	X
Typical Cost Rank 1 - 5 (Low -High)	1	2	3	4	5

<sup>1</sup>Slow rate of production because it is harder to keep bore alignment.

<sup>2</sup>Utility Crossing of fiber optic conduit path  
 Low Amount = 1 crossing per mile  
 Medium Amount = 2-10 crossing per mile  
 High Amount = >10 crossing per mile

<sup>3</sup>Slow rates of production.

<sup>4</sup>Where ever possible avoid environmental sensitive areas or areas with hazardous waste.

The conduit installation method selection table shows the typical cost ranking for the conduit installation methods. A detailed cost analysis must be performed to determine the true total cost of using each method of conduit installation based on the contract bid prices. Using the Regional Job Order Contract bid item prices, perform a cost analysis of conduit installation methods by including all bid item cost associated with a conduit installation method based on the following:

- Trench Method - Include trench method bid item, minimal disturbance aerially deposited lead soil addition bid item and trench area restoration cost, such as, erosion control bid items.
- Trench in Pavement Method - Include trench in pavement method bid item, surplus excavated material bid item, cold plane asphalt concrete pavement bid item, hot mix asphalt bid item and associated traffic control bid items.
- Horizontal Directional Drilling Method - Include horizontal direction drilling method bid item, drill pit area restoration cost, such as, erosion control bid items, and if traffic control is necessary traffic control bid items.
- Horizontal Directional Drilling Method with Casing - For cost analysis include horizontal direction drilling method bid item, furnish casing bid item, drill pit area restoration cost, such as, erosion control bid items, and if traffic control is necessary traffic control bid items.
- Plowing Method - include plowing method bid item, minimal disturbance aerially deposited lead soil addition bid item and trench area restoration cost, such as, erosion control bid items.

For Job Order Contracts, choosing to use various methods of conduit installation on a project versus only using one method to make it more efficient for the contractor should be based only on the cost of the contractor using the most cost-effective conduit installation method. For Job Order Contracts, the contractor bids on quantity ranges or additive bid items to account for the inefficiencies in performing a small quantity of work. An example of an additive bid item for conduit installation is additive item "FOR LESS THAN 25,000 FEET ADD" which is used when the length of conduit installation method is less than 25,000 feet. For furnishing casing there are bid items based on the quantity range of the casing required for the Work Order.

## 5.2. Casing

To determine the size of the outer duct casing that will enclose a given number of inner ducts, the required size of casing, based on the cross-sectional area of the innerducts, is calculated as follows:

$$\text{Inner duct cross-sectional area} = [\pi(\textit{outside diameter})^2] \div 4$$

The cross-sectional area of the outer duct is calculated as follows:

$$\text{Outer duct cross-sectional area} = [\pi(\textit{inside diameter})^2] \div 4$$



The volume fill is the amount of volume the inner duct occupies inside the outer duct. To calculate the volume fill of the outer duct, use the equation:

$$\text{Volume Fill} = \frac{[(\text{number of innerducts}) \times (\text{cross-sectional area of inner ducts})]}{(\text{cross sectional area of outer duct})}$$

The volume fill is called the “run factor.” The more difficult the run, the higher the run factor. Keep the run factor low to make it easier for the contractor to install the inner ducts. Typical run factors:

Run factor = 0.7, the maximum value recommended

Run factor = 0.5, for shorter and straighter runs

Run factor = 0.3, for longer and more complex runs

For the installation of the three 2-inch HDPE conduits, the casing size should be 6 inches to allow for a run factor of 0.40.

For the installation of the four, 2-inch HDPE conduits, the casing size should be 8 inches to allow for a run factor of 0.35. For short lengths of horizontal directional drilling, a casing with inside diameter of 6 inches may be considered, a 6-inch inner duct casing has a run factor of 0.63.

The length of casing required should be based on minimum distances for roadways and railroads shown on standard detail sheet MMBND-3, “MIDDLE MILE BROADBAND NETWORK DETAILS (CONDUIT ENCASEMENT CROSSINGS).” For most casing installation, the contractor should be allowed to choose the type of casing based on the allowable alternatives in nonstandard special provision Section 77-2 “Broadband Middle Mile Network.” At some locations steel casings may be required under a railroad, for example. In this case, the size and type of casing must be shown on the contract plans and a bid item used for steel casing.

### **5.3. Vaults**

The MMBN is designed to give last mile providers the opportunity for access to the network along the fiber optic conduit path. Splice vaults provide locations where last mile providers may access the MMBN but in some situations pull vaults may also be used for last mile providers access. Splice vaults and pull vaults are used to install the fiber optic cable. Pull vaults must be located every 2,400 feet along the fiber optic conduit path, except every 12,000 feet a splice vault is placed instead of a pull vault.

The spacing of splice vaults is based on the length of a typical fiber optic cable spool, which is 5 miles or 26,400 feet with an additional splice vaults provided at approximately every 2.5 miles to allow last mile providers access the network. Fiber optic cable length on spools vary from 10 percent long (29,040 feet) to 5 percent short (25,170 feet). The California Department of Technology has directed that the Middle-Mile Broadband Network Design be based on a targeted fiber optic cable length of 3 percent short or 25,600 feet.

Pull vaults spaced at 2,400 feet are used to install the fiber optic cable and are spaced to prevent damage to a fiber optic cable because of excess tension. Splice vaults allow for the splicing of the fiber optic cable segments based on maximum spool length and serve as a locations where last-mile providers may access a fiber optic cable to link customers to the network.

The design of the MMBN is based on spacing of splice vaults every 12,000 feet with 4 pull vaults spaced at 2,400 feet between splice vaults. In addition, 100 feet of fiber optic cable slack must be provided in every vault and 50 feet of slack in the splice vaults at each end.

The fiber optic cable length required between splice vaults is calculated as follows:

$$\text{Cable Length} = 12,000 \text{ feet [splice vault spacing]} + (4 \times 100 \text{ feet}) \text{ [slack pull vaults]} + (2 \times 50 \text{ feet}) \text{ [slack at each end]}$$
$$\text{Cable Length} = 12,000 + 400 + 100$$
$$\text{Cable Length} = 12,500 \text{ linear feet}$$

Based on the 12,500 linear feet of fiber optic cable length required between splice vaults, including 100 feet of slack in the vaults, a 25,600-foot cable spool requires splices every other splice vault.

The project engineer should verify required fiber optic cable length, especially if additional pull vaults are required or intermediate splice vaults are added in a segment. If more than 4 vaults are added between the splice vaults where the fiber optic cable is to be spliced, the spacing on the splice vaults must be adjusted so the required fiber optic cable length does not exceed 25,600 feet.

Vaults should not be buried except where there are concerns about wire theft or when a permitting agency requires it because of visual impacts.

### **5.3.1. Pull Vaults**

Pull vaults, commonly referred to as “hand holes,” perform several important functions:

- Facilitate pulling cables for long distances
- Provide drainage for the conduit system so that freezing water does not damage the conduit or cables
- Provide a location for bending the conduit run without damaging the cables
- Provide a junction for conduits coming from different directions
- Provide access to the system for maintenance
- In some situations, pull vaults will provide a location where a splice is made to allow local access to the fiber backbone

Pull vaults must be located every 2,400 feet along the fiber optic conduit path, except every 12,000 feet where a splice vault is placed instead of a pull vault. The types of pull vaults are:

- Type 1 vault with external dimensions of 30 inches wide by 48 inches long by 36 inches deep when installed outside pavement
- Type 3 vault with external dimensions of 30 inches wide by 48 inches long by 36 inches deep when installed in pavement or within 5 feet of pavement
- Type 1 or Type 3 pull vaults with shallower depths are allowable if there are restrictive conditions, such as in high density utility locations.

Pull vault installation locations:

1. Must comply with the spacing requirement of 2,400 feet.
2. May be adjusted as much as 100 feet to allow for placing a pull vault at a convenient location. Pull vault spacing may be increased as much as 500 feet if the run of conduit is relatively straight between vaults.
3. Are required at the end of structures to allow for conduit transitions and to allow for easier installation of the fiber optic cable because of the number of conduit bends required at a structure.
4. Include additional pull vaults wherever the conduit bends, as measured cumulatively from the last pull vault, exceed 180 degrees. For more information on requirements for conduit bends along a conduit path, consult the district electrical design engineer.
5. For freeways and expressways, pull vaults wherever possible must be installed outside the access-controlled state highway right-of-way at these locations:
  - a. On local street overcrossing or undercrossing
  - b. Local streets at at-grade intersections on expressways
  - c. Along a frontage road
  - d. On other roads adjacent to the highway that are outside the right-of-way
6. For freeway and expressway pull vaults may be installed inside the access-controlled State Highway System right-of-way, if a locked gate is provided in the access control fence to access the vault from outside the right-of-way. For gates in the access-control fence, FHWA approval for the gate is required for a project on the Interstate Highway System. Chapter 17, Section 2, Article 3, of the *PDPM* states that installation of a locked gate on other access-controlled highways may be approved by the district director.

Pull vault installation near highways must:

1. Be installed a minimum of 5 feet from the edge of pavement. When it is impossible to install the pull vault more than 5 feet from the edge of pavement, a traffic rated pull vault must be installed within 5 feet from edge of pavement.
2. Not be located within a gore area or median.
3. For conventional highways, pull vaults may be installed either adjacent to an 8-foot minimum width shoulder or where a vehicle can park completely off the pavement for accessing the vault. After installation, limited access is only needed to repair a fiber optic cable or install an additional fiber optic cable in the network, so a maintenance vehicle pullout is not required.

4. For freeways and expressways, pull vaults installed within the access-controlled State Highway System right-of-way:
  - a. Can be installed either adjacent to an 8-foot minimum width shoulder or where a vehicle can park completely off the pavement for accessing the vault , with an approved encroachment policy exception. Only limited access to pull vaults is necessary after installation to either repair fiber optic cable or install an additional fiber optic cable in the network, so a maintenance vehicle pullout is not required.
  - b. FHWA approval is required for a MMBN project on the Interstate Highway System.
  - c. For non-interstate access-controlled state highways, except for pull vaults installed within 10 feet of the right-of-way, pull vault installations require Headquarters Division of Design, Office of Project Support or delegated district authority approval of an exception to policy.

### **FHWA Approval Requirements**

**For access gates installed to access pull vaults on the Interstate Highway System, Federal Highway Administration (FHWA) approval is required.**

**For broadband middle mile installations on the Interstate Highway System, Federal Highway Administration (FHWA) approval is required.** Refer to Chapter 17, Section 2, Article 4, “Federal Highway Administration Approvals,” of the *PDPM* for projects on the Interstate Highway System.

### **Policy Exception (THIS SECTION IS CURRENTLY UNDER REVIEW)**

**For freeways and expressways, broadband middle mile installation of vaults, also known as maintenance access points, within non-Interstate access-controlled State Highway System right-of-way, Headquarters Division of Design, Office of Project Support approval of an exception to policy is required.** The current wired broadband facility accommodation policy does not allow for the installation of vaults adjacent to the highway. Refer to the criteria in this manual’s Appendix A, “Wired Broadband Facility Accommodation in Access-Controlled State Highway Right-of-Way” memorandum dated March 22, 2022, which replaces the existing wired broadband accommodation criteria within access-controlled highway right-of-way in Chapter 17, Section 2, Article 2, “Encroachment Policies,” of the *PDPM*. Exceptions to the criteria will be considered on a case-by-case basis in accordance with Section 4, “Exception Requests,” of the *PDPM*. Approval of policy exceptions will be provided by Headquarters Division of Design, Office of Project Support, or the delegated district approval authority.

### **5.3.2. Splice Vaults**

A splice vault performs all of the functions of a pull vault. It also allows for the splicing of the fiber optic cable segments based on the maximum spool length, and it serves as a demarcation point for MMBN trunk cable. A demarcation point is the physical point at

which the last-mile broadband provider connects to the statewide MMBN. A splice vault accepts large fiber optic cables, such as 288-strand, 432-strand, or 864-strand cables where the network cable segments are spliced, and it allows fiber optic cable splices for delivery to last-mile broadband network providers.

Splice vaults must be Type 2 vault with external dimensions of 48 inches wide by 48 inches long by 48 inches deep.

Splice vault installation locations:

1. Are spaced every 12,000 feet along the fiber optic conduit for splicing the network fiber optic cable.
2. May be adjusted as much as 100 feet to allow for locating a splice vault at a safe and convenient location. Splice vault spacing may be increased as much as 500 feet if the run of conduit is relatively straight between the pull vault and splice vault.
3. Should be where last mile network providers may easily connect to the middle mile network. A splice vault should be within the limits of cities and towns along the fiber optic network to allow for ease of connection for last-mile broadband providers. A pull vault may be replaced with a splice vault for these locations.
4. Must allow a vehicle to be no more than 25 feet from the splice vault to allow for splicing to be done within the vehicle.
5. For network hub shelter locations must include two splice vaults. Refer to standard detail sheet MMBND-11, 'MIDDLE MILE BROADBAND NETWORK DETAILS (NETWORK HUB SHELTER LOCATION),' for typical splice vault locations at a network hub shelter.
6. For a contract that does not include construction of the network hub shelter, must include a splice vault near the network hub shelter location and assure that enough fiber optic cable slack is provided in the splice vaults to reach the proposed network hub shelter. A Non-Standard Special Provision will be required to increase the slack length more than 100 feet.
7. For freeways and expressways, splice vaults wherever possible must be installed outside the access-controlled State Highway System right-of-way at these locations:
  - a. On local street overcrossing or undercrossing
  - b. Local streets at at-grade intersections on expressways
  - c. Along a frontage road
  - d. On other roads adjacent to the highway that are outside the right-of-way
8. For freeways and expressways with splice vaults installed inside the access-controlled State Highway System right-of-way, if a locked gate in the access control fence will be necessary to allow for access to the vault from outside the right-of-way, FHWA approval is required for a project on the Interstate Highway System. In accordance with Chapter 17, Section 2, Article 3, "Access Restrictions," of the *PDPM*, installation of a locked gate on other access-controlled highways may be approved by the district director.

Splice vault installation near highways must:

1. Be a minimum of 5 feet from the edge of pavement.
2. For conventional highways:
  - a. Splice vaults should be located near public road intersections to make it easier for the last-mile broadband provider to connect to the MMBN and provide a safe location for the broadband maintenance vehicles to park off the state highway.
  - b. Be installed either adjacent to an 8-foot-wide shoulder or a maintenance vehicle pull out. When placed next to a maintenance vehicle pull out, the splice vault should be placed at the upstream end of the maintenance pull out so that a truck with splicing trailer can be used for performing the fiber optic splicing. Refer to standard detail sheet MMBND-4, "MIDDLE MILE BROADBAND NETWORK DETAILS (MAINTENANCE VEHICLE PULLOUT)," for a typical splice vault at a maintenance vehicle pullout.
3. For freeway and expressway splice vaults within the access-controlled right of way:
  - a. Must only be installed at a maintenance vehicle pull out if installed along the highway. The splice vault should be placed at the upstream end of the maintenance vehicle pull out so that a truck with splicing trailer can be used for the fiber optic splicing. Refer to standard detail MMBND-4 "MIDDLE MILE BROADBAND NETWORK DETAILS (MAINTENANCE VEHICLE PULLOUT)," for a typically splice vault at a maintenance vehicle pullout.
  - b. Installation of splice vaults on the Interstate Highways System require FHWA approval.
4. For non-Interstate access-controlled highways installation of splice vaults, except for splice vaults installed within 10 feet of the right-of-way, require Headquarters Division of Design, Office of Project Support or delegated district authority approval of an exception to policy.

### **FHWA Approval Requirements**

**For access gates installed to access splice vaults on the Interstate Highway System, Federal Highway Administration (FHWA) approval is required.**

**For broadband middle mile installations on the Interstate Highway System, FHWA approval is required.** Refer to Chapter 17, Section 2, Article 4, "Federal Highway Administration Approvals," of the *PDPM* for projects on the Interstate Highway System.

### **Policy Exception (THIS SECTION IS CURRENTLY UNDER REVIEW)**

**For freeways and expressways, broadband middle mile installation of vaults, also known as maintenance access points, within non-Interstate access-controlled State Highway System right-of-way, Headquarters Division of Design, Office of Project Support approval of an exception to policy is required.** The current wired broadband facility accommodation policy does not allow for the installation of vaults adjacent to the highway. Refer to the criteria in Appendix A, "Wired Broadband Facility

Accommodation in Access-Controlled State Highway Right-of-Way” memorandum dated March 22, 2022, of this manual, which replaces the existing wired broadband accommodation criteria within access-controlled highway right-of-way in Chapter 17, Section 2, Article 2, “Encroachment Policies,” of the *PDPM*. Exceptions to the criteria will be considered on a case-by-case basis in accordance with Section 4, “Exception Requests.” Approval of policy exceptions will be provided by Headquarters Division of Design, Office of Project Support, or the delegated district approval authority.

### **5.3.3. Buried Vaults**

Vaults should be installed flush to original surface whenever possible. The California Department of Technology has requested that vaults be at the surface wherever possible. When vaults must be buried underground, they must be buried a minimum of 6-8 inches below the surface. When it is necessary to bury a vault, a marker must be placed at the location of the buried vault for locating the vault, and a pull box must be placed at the surface with the tracer wire from the vault for locating the fiber optic conduit. A buried vault does not constitute a Maintenance Access Point in accordance with Caltrans policy in Appendix B, “Wired Broadband Facility Accommodation in Access-Controlled Highway Right-of-Way,” of this manual.

## **5.4. Fiber Optic Cable**

The MMBN will use the following fiber optic cables:

Type 1 Fiber Optic Cable must be 288-strand cable with:

1. Ribbon optical cable containing 24 fibers per ribbon
2. Minimum operational bend radius of 8.0 inches
3. Maximum cable outer diameter of 0.80 inches

Type 2 Fiber Optic Cable must be 432-strand cable with:

1. Ribbon optical cable containing 24 fibers per ribbon
2. Minimum operational bend radius of 8.3 inches
3. Maximum cable outer diameter of 0.83 inches

Type 3 Fiber Optic Cable must be 864-strand cable with:

1. Ribbon optical cable containing 24 or 36 fibers per ribbon
2. Minimum operational bend radius of 13.82 inches
3. Maximum outer diameter of 0.92 inches

The typical required number of fiber optic strands required for a segment of the MMBN is the Type 1, 288-strand cable. Contract the Caltrans MMBN program for the required number of fiber optic strands required for a segment of the MMBN.

## 5.5. Fiber Optic Splice Enclosures

Splice enclosures must be provided at splice vaults. There are 2 types of splice enclosures used for the MMBN in non-standard special provision Section 77-2 “Middle Mile Broadband Network.”

Type 1 and Type 2 fiber optic splice enclosures must:

1. Be single-ended dome type
2. Be compatible with both standard and ribbon splice trays
3. Be equipped with termination hardware for as many as six cables
4. Have the necessary cable retention and strength member retention hardware, port plugs, grounding accessories, and closure sealing accessories

A Type 1 splice enclosure must:

1. Support up to 432 mass fusion ribbon splices or 288 single strand fiber splices
2. Have a maximum 24-inch length

A Type 2 splice enclosure must:

1. Support up to 864 mass fusion ribbon, splices or 576-strand single strand fiber splices
2. Have a maximum 14-inch diameter
3. Have a maximum 30-inch length

The MMBN will require Type 1 and Type 2 splice enclosures based on the type of fiber optic cable as shown in Table 5-5.1, “Splice Enclosure.”

**TABLE 5-5.1, SPLICE ENCLOSURE**

<b>Fiber Optic Cable</b>	<b>Fiber Optic Splice Enclosure</b>
Fiber Optic Cable 288-Strand (Type 1)	Type 1
Fiber Optic Cable 432-Strand (Type 2)	Type 1
Fiber Optic Cable 864-Strand (Type 3)	Type 2



## 5.6. Fiber Optic Splice Trays

Splice trays must be provided in splice enclosures. There are 4 types of splice trays in the MMBN in non-standard special provision Section 77-2 “Middle Mile Broadband Network.”

A Type 1 single fiber splice tray must:

1. Be compatible with loose-tube single fiber splices
2. Be compatible with Type 1 splice enclosures
3. Have a minimum 24 single fiber splice capacity

A Type 2 single fiber splice tray must:

1. Be compatible with loose-tube single fiber splices
2. Be compatible with Type 2 splice enclosures
3. Have a minimum 72 single fiber splice capacity

A Type 1 ribbon fiber splice tray must:

1. Be compatible with ribbon cable fiber splices
2. Be compatible with Type 1 splice enclosures
3. Have a minimum 144 mass fusion splice capacity

A Type 2 ribbon fiber splice tray must:

1. Be compatible with ribbon cable fiber splices
2. Be compatible with Type 2 splice enclosures
3. Have a minimum 288 mass fusion splice capacity

The type of splice tray is based on the type of fiber optic cable, number of fiber strands, and type of splice enclosure as shown in Table 5-5.2, “Splice Tray.”

**TABLE 5-5.2, SPLICE TRAY**

<b>Fiber Optic Cable</b>	<b>Fiber Optic Splice Enclosure</b>	<b>Ribbon Fiber Optic Splice Tray</b>
Type 1 Fiber Optic Cable, 288-Strand	Type 1	Type 1 (2-Trays)
Type 2 Fiber Optic Cable, 432-Strand	Type 1	Type 1 (3-Trays)
Type 3 Fiber Optic Cable, 864-Strand	Type 2	Type 2 (3-Trays)

## 5.7. Network Hub Shelter

The MMBN is being constructed with fiber optic cable and connecting network hub shelters. Network hub shelters are highly specialized modular facilities for fiber optic cable signal regeneration and hosting electronic network equipment. An optical amplifier is used in fiber optic systems to regenerate an optical line signal. Such amplifiers are used to extend the reach of optical communications links by overcoming loss from attenuation of the optical signal. These installations are located along fiber network rings to reduce latency issues.

These precast concrete network hub shelters are positioned approximately every 50 miles along rights-of-way where buried fiber optic cable is transferred above ground to connect with amplifier devices to boost and enhance data signals. The network hub shelters allow broadband providers to connect to the fiber optic network backbone to deliver enhanced broadband communications and internet to commercial and residential end users. In addition, the MMBN has connection points, called splice vaults, located every 12,000 feet along the network to allow local access to broadband providers to connect to the fiber backbone.

### 5.7.1. Location Requirements

The final location of the network hub shelter is an iterative process with California Department of Technology and third-party consultant GoldenStateNet. If the proposed location of the network hub shelter needs to be changed, select a location within 10 miles of the proposed location. GoldenStateNet must authorize the revised network hub shelter location.

Refer to the MMBN GIS map for the proposed locations of the network hub shelters available at:

<https://sv03tmcpo.ct.dot.ca.gov/portal/apps/webappviewer/index.html?id=1476e94a2165401d916ba5bf911d2df8>.

#### 5.7.1.1. Location Safety Considerations

The network hub shelter, standby-by generator, above ground propane tank and site fencing are considered discretionary fixed objects based on their functional use on the highway system. The minimum clearance to a discretionary fixed object is 52 feet horizontally or 8 feet vertically upslope. A traffic safety device, such as guardrail or concrete barrier, will be needed if the available distance is less than minimum clearance requirement. Bold and underlined requirements of the *Highway Design Manual* that are not met will require design exceptions. Refer to section 309 – Clearances of the *Highway Design Manual* for further details.

Work with the District Traffic Safety Office and District Maintenance early in the design phase to ensure that network hub shelter sites are safe for the traveling public and maintenance staff when determining network hub shelter locations along the state

highway system. It is recommended to place the network hub shelters at locations shown below:

1. Leverage existing state facilities such as rest areas, maintenance yard, park and ride lots, fire stations, agricultural station, and existing private network hub shelter locations.
2. Where access can be made from other roads along the state highway system right-of-way locate network hub shelters at:
  - a. Local streets
  - b. Frontage road
  - c. Other roads adjacent to the highway
3. Along the State Highway where minimum setback clearance distances are available:
  - a. Adjacent to the outside edge of pavement and near stopping limits line on an onramp. Onramps are preferred to offramps because of low speeds at these locations.
  - b. Adjacent to the outside edge of pavement and near the stopping limits line of an offramp.
  - c. For connector locations contact the District Traffic Safety Office for siting network hub shelters. Analyze the egress and ingress of these locations for safe conditions.

Network hub shelters should not be located between the mainline and a ramp or within a gore area.

The list below refers to sections in the *Highway Design Manual* (HDM) that should be reviewed by the designer to properly place the network hub shelter along the state highway system:

- Topic 309. 1(2) Clear Recovery Zones (CRZ) –Bold and underlined
- Topic 309.1(2b) Discretionary Fixed Objects – Bold and underlined
- Topic 706 – Roadside Management and Vegetation Control
- Topic 902 – Sight Distance and Clear Recovery Zone Standards
- Topic 903.3 Roadside Amenities
- Topic 1003 – Bikeway Design Criteria – Bold clearance requirements

For traffic safety devices requirements, refer to the Traffic Safety Systems guidelines available at:

<https://safetyprograms.onramp.dot.ca.gov/manuals-guides>

#### **5.7.1.2. Site Location Requirements**

Network hub shelter installation locations requirements include:

1. Installation every 50 miles on the network. Locations can be adjusted as much as 10 miles; however, when location adjustments are necessary, GoldenStateNet

must be notified so that the network designer may design the equipment in the network hub shelter to provide addition boost to the optical signal output.

2. Leveraging existing state and federal facilities for network hub shelter locations, such as Caltrans excess land and non-highway operating right of way, highway rest area locations, maintenance yards, park and ride lots, California Department of Forestry and Fire Protection fire stations, state agricultural stations, and existing Caltrans network hub locations.
3. Placement near cities and towns to make it easier for last-mile broadband providers to connect to the MMBN.
4. Locating near an existing electrical power source. If none is available, alternative power opportunities may be sought.
5. Considering proximity to facilities such as emergency response, fire stations, and generator fueling sources.
6. Avoiding areas such as farmland, wildlife habitats, wetlands, rivers, streams, or other areas of potential environmental impacts.
7. For conventional highways, placing network hub shelters:
  - a. Near public road intersections to provide a safe location for the broadband maintenance vehicles to access the network hub shelter.
  - b. Along a state highway where there is adequate sight distance for vehicles entering or exiting the network hub access road.
8. For freeways and expressways, placing at a crossroad or near a local parallel road for access, wherever possible. If it is necessary to locate the network hub shelter within the controlled access right-of-way, a gate in the access control fence will be necessary to allow for access to the network hub shelter from outside the right-of-way and a fence placed around the network hub shelter within the right-of-way. If accessed through a locked gate, FHWA approval is required for projects on the Interstate Highway System. In accordance with Chapter 17, Section 2, Article 3, "Access Restrictions," of the *PDPM*, installation of a locked gate on other access-controlled highways may be approved by the district director.
9. Placing a network hub shelter adjacent to the highway within the right-of-way a minimum of 30 feet or farther from the edge of traveled way and with an access road where maintenance vehicles may be parked at least 30 feet from the edge of traveled way. If the clear area requirement from the roadway cannot be met, provide barrier or guard railing to protect the network hub shelter.

### **FHWA Approval Requirement**

**For broadband middle mile installations on the Interstate Highway System, FHWA approval is required.** Refer to Chapter 17, Section 2, Article 4, "Federal Highway Administration Approvals" of the *PDPM*, for projects on the Interstate Highway System.

## **Policy Exception (THIS SECTION IS CURRENTLY UNDER REVIEW)**

**For freeway and expressway, installation of network hub shelters for the MMBN within non-Interstate access-controlled State Highway System right-of-way, Headquarters Division of Design, Office of Project Support approval of an exception to policy is required.** The current wired broadband facility accommodation policy does not allow for the installation of network hub shelters within access-controlled state highway right-of-way. Refer to the criteria in Appendix A, “Wired Broadband Facility Accommodation in Access-Controlled State Highway Right-of-Way” memorandum dated March 22, 2022, of this manual, which replaces the existing wired broadband accommodation criteria within access-controlled highway right-of-way in Chapter 17, Section 2, Article 2, “Encroachment Policies,” of the *PDPM*. Exceptions to the criteria will be considered on a case-by-case basis in accordance with Chapter 17, Section 4, “Exception Requests,” of the *PDPM*. Approval of policy exceptions will be provided by Headquarters Division of Design, Office of Project Support, or the delegated district approval authority.

### **5.7.2. General Hub Shelter Building Requirements**

The network hub shelters will be Department furnished materials with the following general building requirements:

1. The standard hub exterior dimensions of 12 feet wide by 20 feet long by 10 feet high, not including wall-mounted apparatus, such as air conditioners, electrical panels, or other non-structural protrusions. In remote areas a smaller network hub shelter of 12 feet by 16 feet may be used.
2. Structural walls and ceiling components consisting of precast, minimum 5,000 pounds per square inch, steel reinforced concrete.
3. Exterior door must be steel, minimum 16 gauge, 36 inches wide, 84 inches high, factory prime painted with alkyd, rust-inhibiting paint, and equipped with an electronic mortise lock and keypad system.
4. Floor equipment load of minimum 300 pounds per square foot.
5. Roof live load of 100 pounds per square foot, higher roof loads available for snow load.
6. Building code-recognized fire rated for 2 hours.
7. Must withstand wind speeds of 150 miles per hour when secured to foundation.
8. Designed and constructed in accordance with American Society of Civil Engineers, ASCE 7 Seismic Design Criteria for Seismic Zone D, or Seismic Zone E, where required.
9. Bullet resistance per UL752, Level 4 (.30 caliber at 15 feet).
10. All joints must be sealed with a compressible, durable seal.
11. Underground cable entry point equipped to support 12, 2-inch conduits.
12. Underground electrical entry point equipped to support 2, 4-inch conduit, one for power source and one for standby generator.
13. Underground telecommunications entry point equipped to support 2-inch conduit.

14. Exterior lighting.
15. Emergency lighting inside the hut.
16. Hand-held fire extinguisher.
17. An inert gas fire suppression system.
18. Fire and smoke alarm with connection to the Network Operations Center.
19. Door access control with connection to the Network Operations Center
20. Security camera system including cameras inside and outside the shelter hut connected to the Network Operations Center
21. Out of band circuit back to the Network Operations Center.

Use the network hub shelter size of 12 feet by 20 feet at all locations, except at remote locations. A network hub shelter size of 12 feet by 16 feet is available but it has less capacity for network equipment, so it should only be used on fiber optic branches and not on the fiber optic network backbone. GoldenStateNet must authorize the use of a 12-foot by 16-foot network hub shelter at a location.

### **5.7.3. Exterior Finishes**

An exposed aggregate finish is the standard exterior finish of shelter hubs. Alternate exterior finishes of shelter hubs may be necessary for different locations in the state because of community or permitting agency requirements. The optional exterior finishes for shelter hubs available are:

- Fractured finish
- Broom finish
- Slump stone
- Lap siding using cement fiber board
- Brick

Exterior finish color paint options are available when an optional exterior finish is specified. Paints made specifically for concrete will enhance the appearance of the shelter, and painting protects the concrete from the weather.

There are three levels of exterior finishes:

- Tier 1 Major Environmental or Aesthetic Issues - Allowance for custom materials such as fiber cement siding, metal siding, and stone veneer to be applied to exterior of the shelter and for roof pitch such as gable, mono-slope and hip.
- Tier 2 Minor Environmental or Aesthetic Issues - Form liner finish. Manufacturer must supply brick, stone, and various siding appearance with allowance for selection from manufacturer's standard colors.
- Tier 3 Base Model - Standard aggregate finish with allowance to select from manufacturer's standard colors.

Work with district Environmental Analysis staff to determine appropriate network hub shelter architectural features that comply with permit agency or community requirements.

Consult with the Division of Engineering Services, Office of Transportation Architecture on developing network hub shelters architectural requirements.

#### 5.7.4. Network Hub Shelter Site Plan

The network hub shelter site:

1. Should be an approximately 50 feet by 50 feet fenced area that contains the shelter hut, standby generator, and fuel tanks. The site may be square, rectangular or a shape that accommodates the shelter and spacing requirements for standby generators and fuel tanks.
2. Provide a level, unobstructed area large enough for a crane and a tractor-trailer to park adjacent to the pad. The crane must be able to place outriggers within 5 feet of the edge of the pad; the truck and crane must be able to park side-by-side. No overhead lines may be within a 75-foot radius of the center of the pad. Firm roadbed with turns that allow 65-foot lowbed tractor-trailer must be available directly to the site.
3. Should be graded so that no more than 20 feet of run for every 1-foot rise (20:1) around the hub shelter
4. Must have the network hub shelter placed close to the center of the site wherever possible
5. Should have no vegetation within 30 feet of the network hub shelter for fire protection.
6. Must be treated to prevent vegetation growth within the fenced area.
7. Must have unpaved areas within the fenced area covered with gravel to prevent erosion and allow for maintenance vehicles to park within the fenced area
8. Must be surrounded by a high-security chain link fence at least 8 feet high with razor ribbon or barbed wire at the top. If high-security ornamental steel fencing is required, the fence must be minimum of 8 feet high. The pickets on the ornamental fencing should be curved outward and have some type of point or spear at the top to deter someone from climbing over.

A detailed site plan must be provided for each network hub shelter location and the site plan sheet must be approved by the local and state fire marshal. Show all details of the site, including:

1. Grading plan with network hub shelter building pad location
2. Graded 20:1 of flatter around the hub shelter
3. A 20-foot or wider access road with a minimum structure section of 0.25 feet of Type A hot mix asphalt over 6 inches of aggregate base
4. A turnaround area for fire apparatus on access roads longer the 150 feet
5. Location of fencing around the network hub shelter, including dimensions
6. A 20-foot-wide gate at the access road
7. Building access location
8. Power supply for the network hub shelter, including power source locations relative to the highway, underground electrical conduits, and conductors

9. Standby generator location and either natural gas supply line or propane tank and supply line
10. Electrical conduit from the standby generator to the network hub shelter
11. Out of node communication conduits from telecommunication provider to the network hub shelter
12. Two fiber optic conduit splice vaults within the fenced site, with conduit to the network hub shelter.

Work with the Division of Engineering Services, Office of Electrical, Mechanical, Water and Wastewater Engineering to develop network hub shelters site plans.

Refer to Appendix G, "Network Hub Site Plan Location Guideline" dated September 26, 2022, of this manual for required setbacks at network hub shelter sites. Refer to the standard detail sheets MMBND-17, "MIDDLE MILE BROADBAND NETWORK – NETWORK HUB SHELTER WITH PROPANE GENERATOR - SITE PLAN TYPICAL" and MMBND-18, "MIDDLE MILE BROADBAND NETWORK – NETWORK HUB SHELTER WITH DIESEL GENERATOR - SITE PLAN TYPICAL" for typical network hub shelter site plan setbacks.

A foundation detail plan sheet and foundation detail sheets must be included for the network hub shelter based on the size of the network hub shelter. Refer to the standard detail sheets MMBND-19, "MIDDLE MILE BROADBAND NETWORK - NETWORK HUB SHELTER - FOUNDATION DETAILS" MMBND-20, "MIDDLE MILE BROADBAND NETWORK - NETWORK HUB SHELTER 12'X16' - FOUNDATION PLAN" and MMBND-21, "MIDDLE MILE BROADBAND NETWORK - NETWORK HUB SHELTER 12'X20' - FOUNDATION PLAN".

A foundation detail sheet must be included for the standby generator and for an above-ground liquid propane tank. Refer to the standard detail sheet MMBND-22, "MIDDLE MILE BROADBAND NETWORK - GENERATOR AND PROPANE TANK - FOUNDATION PLAN," for standby generator and aboveground propane tank foundations.

### **5.7.5. Power, Standby Generator, Communication Requirements**

The project engineer for the network hub shelter must address the following requirements for power, standby generator, and out of node communications.

#### **Electrical Service**

Caltrans will be responsible for establishing new electrical service connections for network hub shelters. Follow the normal Caltrans procedures for establishing new electrical service. After the construction contract is accepted, Caltrans Construction staff will be responsible for transferring the electrical service charges to the California Department of Technology.

Network hub shelter electrical service requirements are:

- 120/240-volt single phase
- 60 kilowatts (kW)
- 200 amps



The contractor will be responsible for supplying materials and installing electrical conduits and conductors from the electrical service point to the network hub shelter. The electrical work specification requirements are covered by Sections 86, "General," and 87, "Electrical Systems," of the *Standard Specifications*. Include the electrical service point and conduits on the layout plan sheets and network hub shelter site plan.

The contractor will install conductors from the power source to the electrical panel in the network hub shelter. Include contract bid items for this work.

### **Standby Generator**

The power requirement for the standby generator is 60kW for network hub shelters. For the standby generator, include in the site plan the generator foundation and either liquid propane tank or a connection to natural gas. Diesel generators are available for sites where there is not enough space for the setbacks required for propane tanks. The 60kw diesel generators have a 500-gallon subbase diesel fuel tank with secondary containment.

The District Design Engineer is responsible for determining the type of standby generator that will be required for a network hub shelter location. Standby generators will be Department furnished materials procured by CDT as part of the network hub shelter procurement contract.

### **Propane Tank**

If a liquid propane standby generator is selected, a 1,000-gallon aboveground or underground propane tank is required for the standby generator. Underground tanks must be used wherever possible because of safety concerns for potential vehicle collusion, reducing tank explosions due to fires and preventing fires due to exposed gas line damage that occurs from heavy snow and ice accumulation in cold regions that can lead to shifting movements of the tank, pipe joints and fittings. Liquid propane tanks must be installed underground, exception for use of an aboveground tank must be approved by the HQ MMBI Program Manager for locations where an aboveground tank is necessary because of site conditions.

Justification for use of above ground propane tanks may include sites with hard rock or other conditions identified by Geotechnical Services. Safety and visually impacts must be addressed for above ground propane tanks. Above ground tank safety concerns, may be addressed by installing an underground tank at ground level and surrounding the tanks with Temporary Barrier System with soil mounded 2 feet above the tanks. Above ground tanks require a foundation to be shown on the site plan.

A liquid propane tank must be installed in accordance with Title 24, "Building Standards Code," of the California Code of Regulations The tanks must be installed to meet local county and fire district requirements. The tank location must meet the fire code requirements, and separation from water source requirements. The propane tank size is based on 72 hours of standby generator operation at 75 percent load for a 60kW generator.

Refer to Appendix H, “Network Hub Site Plan Location Guideline” dated September 26, 2022, of this manual for required setbacks for network hub shelter sites. Refer to the standard details sheet MMBND-17, “MIDDLE MILE BROADBAND NETWORK – NETWORK HUB SHELTER WITH PROPANE GENERATOR - SITE PLAN TYPICAL” for a typical site plan.

### **Out-of-Band Communication Service**

Out-of-band management is a node grid net services method of remotely controlling and managing critical internet technology assets and network equipment using a secure protocol connection through a secondary interface that is physically separate from the primary network connection. Out-of-band communication to the Network Operations Center must be provided by either hardwire telecommunications, broadband service, or cellular service.

Caltrans will be responsible for establishing new communication service connections for network hub shelters. Follow Caltrans procedures for establishing a new service. After the construction contract is accepted, Caltrans Construction staff will be responsible for transferring the telecommunications service charges to the California Department of Technology.

For hardwire services, the contractor will be responsible for supplying materials and installing conduits from the communication service location to the network hub shelter, including the demarcation cabinet noted in Sections 86 and 87, of the *Standard Specifications*. Determine if a demarcation cabinet is necessary or if the telecommunication provider can connect directly to the telecommunications board within the network hub shelter. The contractor will be responsible for supplying materials and installing cables for telecommunications or broadband from the demarcation cabinet to the network hub shelter. Include the service provider location and conduits on the layout plan sheets and network hub shelter site plan.

For wireless cellular service, the contractor will furnish and install wireless cellular service devices in the network hub shelter.

## 6. CONTRACT BID ITEMS

The MMBN projects will use unit price bid items to allow for more accurate estimating and to make it easier for contract administration when changes are necessary versus using lump sum prices.

For Design-Bid-Build, Job Order Contracts and Construction Manager General Contractor contract methods, the CDT will supply materials and equipment for the MMBN. The materials, products, and equipment supplied by CDT will be Department furnished materials on Caltrans construction contracts. For most MMBN bid items, Contractor's will only be required to install the materials, products, equipment and perform quality control testing. Items bearing "Install" in the bid item description are used for Department furnished materials, products and equipment.

The typical bid items to be used when the contractor installs materials, products and equipment for broadband middle-mile fiber optic network are shown in table, "Contractor to Install - Department Furnished Materials, Products and Equipment" of this manual.

**TABLE 6-1: CONTRACTOR TO INSTALL DEPARTMENT-FURNISHED MATERIALS, PRODUCTS AND EQUIPMENT**

Item Code	Item Description	Unit of Measure
014966	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[SOIL]	LF
014489	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[SOIL]	LF
014983	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE)[SOIL]	LF
014991	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE IN 6" CASING)[SOIL]	LF
015004	INSTALL CONDUIT PLOW METHOD (3-2" HDPE)[SOIL]	LF
014999	FURNISH 6" CASING [1-100 FEET]	LF
014537	INSTALL VAULT (TYPE 1)	EA
014538	INSTALL VAULT (TYPE 2)	EA
014539	INSTALL VAULT (TYPE 3)	EA
014545	INSTALL FIBER OPTIC CABLE 288 STRANDS (TYPE 1)	LF
014552	INSTALL SPLICE ENCLOSURE (TYPE 1)	EA
014564	INSTALL OBJECT MARKER (TYPE K-2(CA))	EA

For the horizontal directional drilling bid item INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE IN 6" CASING)[SOIL] the contractor must furnish the 6" casing so there is a bid item FURNISH 6" CASING[1-100 FEET].

A complete MMBN bid item list is available in AASHTOWare Project Preconstruction (AWP-P) based on contract type:

- Job order contract fixed price bid items
- Design-Bid-Build and CMGC

AASHTOWare Project Preconstruction (AWP-P) MMBN bid item lists are available for Caltrans employees at:

[Middle-Mile Broadband Network \(MMBN\) Program | Division of Design \(ca.gov\)](#)

MMBN bid item lists are available for external stakeholders by contacting the MMBN Program webmaster at [HQ.DOD.MMBI@dot.ca.gov](mailto:HQ.DOD.MMBI@dot.ca.gov).

## **6.1. Job Order Contract Bid Items**

The MMBN Job Order Contract Master Agreement contracts contain some unique bid items that are not included in typical design-bid-build contracts, the unique bid items are described in the following sections.

### **6.1.1. Lump Sum Bid Items**

Lump sum bid items do not exist in a Job Order Contract, except for mobilization. For existing Caltrans bid items paid by lump sum, units of measure have been established for use on job order contract bid items. The major areas affected by bid items unit of measure are Traffic Control System and Electrical Systems.

### **6.1.2. Bid Item Ranges**

The use of bid items with quantity ranges are provided for various bid items. Bid items with ranges are used for those bid items where a contractor has fixed cost associated with the bid items that must be spread over the quantity of work to be performed. The smaller the quantity of item needed the high the bid item cost.

Choose the bid item quantity range based on the total quantity required for a work order. Do not based the quantity range based on the quantity required for each location included in a work order.

### **6.1.3. Additive Bid Items**

The use of additive bid items is provided in Section 9-1.14 ADDITIVE BID ITEMS, of the work order special provisions. Job order contract bid items with [For <insert condition> ADD] are used to increase the base bid item price if the condition is encountered performing the work. Additive bid items are used to cover work restrictions, such as, nighttime, weekend, and short work shifts.

Based on the lane closure restriction charts include the appropriate add conditions for bid items that will require lane closures.

For example, the installation of broadband conduit using the trench in pavement method, if the lane closure charts only allowed lane closures at night time than bid item INSTALL CONDUIT TRENCH IN PAVEMENT METHOD(3-2" HDPE)[FOR NIGHT TIME WORK 7:30 TO 6:00 AM ADD] must be included in the Work Order.

#### **6.1.4. Additive Hauling Distance**

In design-bid–build contracts the contractor includes the cost of hauling material into the bid item price. The regional MMBN Job Order Contracts cover a larger area so contractors could not price the cost of hauling into the bid items because the variables of material source locations and work order locations.

At the joint scoping meeting the contractor should provide the material source location for materials, such as, aggregate base, hot mix asphalt and concrete, so that the project engineer can add the appropriate additive bid item based on the haul distance between the material source and the work order location.

#### **6.1.5. Move-In / Move-Out Equipment Bid Items**

In design-bid–build contracts the contractor includes the cost of equipment move in/ move out in the bid item price. For MMBN regional Job Order contracts based on the larger area covered by these contracts' contractors could not price the cost of equipment moves into the bid items because the variables of where the equipment is located and work order locations.

At the joint scoping meeting the contractor should provide estimated quantities for move-in / move-out equipment that will be needed for the work order. The project engineer can add the appropriate quantity for equipment move in / move out and type of transport vehicle based on work order location.

Add the appropriate additive bid item based on the equipment haul distance between where the equipment will be coming from and the work order location.

#### **6.1.6. Subsistence and Travel Bid Items**

In design-bid–build contracts the contractor includes the cost of subsistence and travel for employees in the bid item price. For the regional MMBN Job Order Contracts based on the larger area covered by these, contracts' contractors could not price the cost of employee's subsistence and travel into the bid items because the variables of where the employees are based and the work order locations.

The Department makes subsistence and travel reimbursements for labor when the work order's location is more than the distance specified in the Department of Industrial Relations posted travel and subsistence provisions for the Craft/Classification.

At the joint scoping meeting the contractor should provide estimated subsistence and travel quantities for employee craft/classifications that will be needed for the work order. The project engineer can add the appropriate subsistence and travel work order location bid items.

## 6.2. Quantity Estimates

The following guidance is provided to assist project design engineers in determining the engineer's estimate of quantities for MMBN contract bid items.

### 6.2.1. Fiber Optic Conduit

The quantity of conduit installed underground will be measured in a straight line between the centers of pull boxes, vaults, and network hub shelters. No allowance will be made for sweeps, vertical distances, or multiple runs of the conduit within a trench or bore. The contract bid items specify the type and number of conduits to be installed. The bid item 014975 "INSTALL CONDUIT TRENCH METHOD (3-2" HDPE) [SOIL]" is measured by the linear foot and provides for payment of the installation of the HDPE conduit.

When determining the length of conduit to be supplied as Department furnished material there will be three 2-inch fiber optic conduits placed so the measured length of the MMBN for the contract bid item length needs to be multiplied by 3 to determine the length of conduit required.

For structures, there will typically be an outer duct of rigid conduit with the three, 2-inch fiber optic conduits as inner ducts. The larger rigid conduit must be paid for as a separate bid item.

For some structures there will be a required rigid casing, referred to in electrical work as an outer duct, to protect the required three, 2-inch HDPE conduit placed within the casing.

Some fiber optic crossings of roadways, railroads, or other utilities will require rigid plastic pipe casings or steel casings. The casings must be paid for as a separate bid item.

Be sure to include the length of the three, 2-inch HDPE fiber optic conduits placed in casings used either on structures or underground.

### 6.2.2. Casings

The length of casing required should be determined based on minimum distances for roadways and railroads shown on details sheet MMBND-3, "MIDDLE MILE BROADBAND NETWORK DETAILS (CONDUIT ENCASEMENT CROSSINGS)."

For most casing installation, the contractor should be allowed to choose the type of casing based on the allowable alternatives in non-standard special provision Section 77-2 "Middle Mile Broadband Network." There may be some locations, such as under a rail line, where the railroad requires a steel casing. In this case, the size and type of casing must be shown on the contract plans and use non-standard bid item 015003 Furnish 6" CASING [FOR WELDED STEEL PIPE ADD].

For structures, when a casing is required, use non-standard bid item 014965 6" WELDED STEEL PIPE CASING (BRIDGE)."

## Trench in Pavement Method

The fiber optic conduit trench in pavement method bid item includes the conduit, excavation, slurry concrete backfills, tracer wire, and warning tape. Replacing the asphalt pavement above the trench is paid as separate bid items for cold plane asphalt, tack coat, and hot mix asphalt. The area of pavement replacement should be based on the length that the trench in the pavement and pavement areas that need to be replaced where conduit sweeps are made to pull vaults or splice vaults adjacent to the pavement.

### 6.2.3. Cold Plane Asphalt

The quantity of cold planning is measured by square yard. The quantity can be calculated by multiplying the length of the trench in the pavement in feet by the width of cold planning required, divided by 9 feet per square yard.

Quantity Estimate = [Length of Trench (feet) X Width of Trench (feet)] ÷ 9 feet per square yard

Example

The contract requires 15,200 feet of the trench in pavement and the trench in pavement shoulder detail requires existing asphalt to be cold planned 2 feet wide by 0.15 foot-deep.

Quantity Estimate = [Length of Trench (feet) X Width of Trench (feet)] ÷ 9 feet per square yard

Quantity Estimate = 15,200 feet X 2 feet ÷ 9 feet per square yard

Quantity Estimate = 3,378 square yards

### 6.2.4. Tack Coat

Tack coat must be used on the cold planed pavement for the trench in pavement method of conduit installation. The quantity of cold planing is measured by square yard.

From Table 2a, "Tack Coat Application Rates for Estimating HMA Type A, Type B, and RHMA-G," of the *Tack Coat Guidelines*, the tack coat application rate for planned pavement is 0.11 gallons per square yard for hot mix asphalt. The required volume in gallons of emulsion is calculated as follows:

Gallons of emulsion = (application rate) x (total area in square yards)

From the table at the end of Section 94, "Asphaltic Emulsion," of the *Standard Specifications*, there are 240 gallons per ton of emulsion at 60 degrees Fahrenheit. Therefore, the estimated quantity of tack coat is determined as follows:

Quantity of Tack Coat = (quantity of emulsion in gallons) ÷ (gallons of emulsion per ton)

Example

The contract requires 15,200 feet of the trench in pavement and the trench in pavement shoulder detail requires existing asphalt to be cold planed 2 feet wide by 0.15 foot-depth.

Area estimate = [Length of Trench (feet) X Width of Trench (feet)] ÷ 9 feet per

square yard

Area estimate = [15,200 feet X 2 feet] ÷ 9 feet per square yard

Area estimate = 3,378 square yard

Gallons of emulsion = (application rate) x (total area in square yards)

Gallons of emulsion = (0.11 gallon per square yard) x 3,378 square yards

Gallons of emulsion = 372 gallons

Quantity of tack coat = (quantity of emulsion in gallons) ÷ (gallons of emulsion per ton)

Quantity of tack coat = 372 gallons ÷ 240 gallons of emulsion per ton

Quantity of tack coat = 1.55 tons

### 6.2.5. Hot Mix Asphalt

The quantity of hot mix asphalt is measured in tons.

The quantity of hot mix asphalt is calculated by determining the amount of hot mix asphalt required in cubic yards and multiplying by 2 tons per cubic yard.

Quantity Estimate = [(length (feet) x width (feet) X depth (feet)) ÷ 27 cubic feet per cubic yard] x 2 tons per cubic yard

Example

The contract requires 15,200 feet of the trench in pavement and the trench in pavement detail requires existing asphalt to be cold planned 2 feet wide by 0.15 foot-depth.

Quantity Estimate = [(length (feet) x width (feet) x depth (feet)) ÷ 27 cubic feet per cubic yard] x 2 tons per cubic yard

Quantity Estimate = [(15,200 (feet) x 2 (feet) x 0.15 (feet)) ÷ 27 cubic feet per cubic yard] x 2 tons per cubic yard

Quantity Estimate = [(4,560 cubic feet) ÷ 27 cubic feet per cubic yard] x 2 tons per cubic yard

Quantity Estimate = [168.89 cubic yards] x 2 tons per cubic yard

Quantity Estimate = 338 tons

### 6.2.6. Pull Vaults

Pull vaults must be located every 2,400 feet along the fiber optic conduit, but every 12,000 feet a splice vault is placed instead of a pull vault. Pull vaults must be placed at the ends of structures to allow for conduit transitions and to allow for easier installation of the fiber because of the number of conduit bends required at a structure. Additional pull vaults must be installed at all locations wherever the conduit bends, as measured cumulatively from the last pull vault, exceed 180 degrees.

The number of pull vaults should match the number of pull vaults shown on the contract layout plan sheets.



### 6.2.7. Splice Vaults

The quantity of fiber optic splice vaults is based on placing a splice vault every 12,000 feet of fiber optic conduit. A splice vault should be placed within the limits of cities and towns along the fiber optic network to allow for easy of connection for last-mile broadband providers. Place two splice vaults at network hub shelter locations, one for each direction of fiber optic cable.

The number of splice vaults should match the number of splice vaults shown on the contract layout plan sheets.

### 6.2.8. Fiber Optic Cable

The quantity of fiber optic cable installed underground will be measured in a straight line between the centers of pull vaults, splice vaults, and network hub shelters plus 100 feet added for the slack fiber optic cable in every pull vault and splice vault.

### 6.2.9. Fiber Optic Splices

Fiber optic cable splices are measured by type of fiber optic cable for each splice. Fiber optic cable comes in 5-mile (26,400 feet) spools so the minimum number of splices should be based on a splice every other splice vault (24,000 feet). The number of splices should be half the number of splice vaults if a single fiber optic cable is used in the broadband fiber optic network segment.

### 6.2.10. Fiber Optic Splice Enclosures

Fiber optic cable splice enclosures are measured by type of fiber optic cable for each splice. A splice enclosure should be provided only where there is a splice. The number of splice enclosures should match the number of splices if a single fiber optic cable is used for the broadband fiber optic network segment.

### 6.2.11. Fiber Optic Splice Trays

The quantity of splice trays is required for the CDT work authorization for state-furnished materials and are not a separate contract bid item. The type of splice tray is based on the type of fiber optic cable, number of fiber strand, and the splice enclosure as shown in Table 6-2.1, "Splice Trays for Fiber Optic Cable Types."

**TABLE 6-1.1, SPLICE TRAYS FOR FIBER OPTIC CABLE TYPES**

<b>Fiber Optic Cable</b>	<b>Fiber Optic Splice Enclosure</b>	<b>Ribbon Fiber Optic Splice Tray</b>
Fiber Optic Cable, 288-Strand (Type 1)	Type 1	Type 1 (2-Trays)
Fiber Optic Cable, 432-Strand (Type 2)	Type 1	Type 1 (3-Trays)
Fiber Optic Cable, 864-Strand (Type 3)	Type 2	Type 2 (3-Trays)

Fiber optic cable splice trays are measured by tray. For a single fiber optic cable, the quantity of splice trays should be based on the number of splices times the number of trays required for the type of fiber optic cable.

Example:

For a project with Fiber Optic Cable 288-Strand (Type 1) and 22 splice vaults, the quantity of Type 1 ribbon splice trays required is calculated as follows:

Quantity Estimate = (Number Splices) times (Number Trays Required)

Quantity Estimate = 11 splices X 2 trays

Quantity Estimate = 22 ribbon splice trays

### **6.2.12. Object Marker Type K-2(CA)**

Object markers are required at MMBN splice vaults and pull vaults.

### **6.2.13. Flexible Post Delineator Non-Reflective Class 1**

Flexible post delineators are required every 500 feet along the fiber optic cable path in areas where the splice vaults or pull vaults are farther than 500 feet apart. Flexible post delineators are required for horizontal curves in the fiber optic cable path at:

- Beginning of the curve
- Middle of the curve
- End of the curve

### **6.2.14. Underground Infrastructure Documentation**

Caltrans is required to provide documentation of the MMBN infrastructure to California Department of Technology ++installed. The contractor must provide a 3-dimensional digital file with metadata of the underground infrastructure as installed. Refer to Non-Standard Special Provision Section 77-3, "Underground Infrastructure Documentation," for more information on the requirements.

The payment unit of measure is linear feet for underground infrastructure documentation. Measurement is based on linear feet along the infrastructure path between the centers of vaults and network hub shelters. To determine the estimated quantity, sum all the conduit installation methods quantities, including conduit on structures and the PVC conduit between splice vault to the network hub shelter.

### **6.2.14. Minimal Disturbance Aerially Deposited Lead**

Department of Toxic Substance Control has approved Caltrans methods and procedures in Special Provision 14-11.08 REGULATED MATERIAL CONTAINING AERIALLY DEPOSITED LEAD, for materials containing aerially deposited lead (ADL) management, in order to ensure compliance with the requirements and regulations outlined in the ADL Agreement. For Middle-Mile Broadband Network construction, the work is classified as ADL minimal disturbance. Minimal disturbance occurs when ADL regulated material

remains in area of disturbance, dust control measures are always in place, and regulated material is separated from vegetation.

When available, provide ADL test results with the work order as supplemental project information. For areas where no ADL test results are available, assume the soil is Type Com.

When the Caltrans test results for ADL show the existing soil meets the Type COM requirements or there are no ADL test results available for the project location, include minimal disturbance of aerially deposited lead bid items, for roadway excavation, structure excavation, conduit trenching method and conduit plowing method , shown in table “Job Order Contract Minimal Disturbance Aerially Deposited Lead Bid Items” or table “Design-Bid-Build Contract Minimal Disturbance Aerially Deposited Lead Bid Items”.

**TABLE 6-2.1, JOB ORDER CONTRACT MINIMAL DISTURBANCE AERIALY DEPOSITED LEAD BID ITEMS**

<b>Item Code</b>	<b>Item Description</b>	<b>Unit of Measure</b>
015092	ROADWAY EXCAVATION (MINIMAL DISTURBANCE AERIALY DEPOSITED LEAD)	CY
015093	STRUCTURE EXCAVATION (MINIMAL DISTURBANCE AERIALY DEPOSITED LEAD)	CY
014974	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE) [FOR MINIMAL DISTURBANCE AERIALY DEPOSITED LEAD SOIL ADD]	LF
015132	INSTALL CONDUIT PLOWING METHOD [FOR MINIMAL DISTURBANCE AERIALY DEPOSITED LEAD SOIL ADD]	LF

**TABLE 6-2.2, DESIGN-BID-BUILD CONTRACT MINIMAL DISTURBANCE AERIALY DEPOSITED LEAD BID ITEMS**

<b>Item Code</b>	<b>Item Description</b>	<b>Unit of Measure</b>
015427	MINIMAL DISTURBANCE AERIALY DEPOSITED LEAD (ROADWAY EXCAVATION))	CY
015428	MINIMAL DISTURBANCE AERIALY DEPOSITED LEAD (STRUCTURE EXCAVATION))	CY
015364	MINIMAL DISTURBANCE AERIALY DEPOSITED LEAD (CONDUIT TRENCH METHOD)	LF
015363	MINIMAL DISTURBANCE AERIALY DEPOSITED LEAD SOIL (CONDUIT PLOW METHOD)	LF

### 6.2.15. Surplus Excavated Material

There will be some surplus excavated material generated from the trench in pavement method, horizontal directional drilling, fiber optic vault installation and foundation excavation for network hub shelters.

Design the project so that surplus material can be reused within the right-of-way. Place surplus material at any of the following:

1. Widening embankments uniformly
2. Flattening slopes
3. Placing along the roadway or at other locations

When surplus material is generated on a project include the appropriate bid items shown in table “Job Order Contract Surplus Excavated Material Bid Items” or shown in table “Design-Bid-Build Contract Surplus Excavated Material Bid Items.

**TABLE 6-2.3, JOB ORDER CONTRACT SURPLUS EXCAVATED MATERIAL BID ITEMS**

<b>Item Code</b>	<b>Item Description</b>	<b>Unit of Measure</b>
015094	SURPLUS EXCAVATED MATERIALS (CY)	CY
015095	SURPLUS EXCAVATED MATERIALS [FOR HAUL DISTANCE 10-35 MILES ADD]	CY
015096	SURPLUS EXCAVATED MATERIALS [FOR HAUL DISTANCE 36-60 MILES ADD]	CY
015097	SURPLUS EXCAVATED MATERIALS [FOR HAUL DISTANCE >60 MILES ADD]	CY
015098	SURPLUS EXCAVATED MATERIALS [FOR TESTING ADD]	CY

**TABLE 6-2.4, DESIGN-BID-BUILD CONTRACT SURPLUS EXCAVATED MATERIAL BID ITEMS**

<b>Item Code</b>	<b>Item Description</b>	<b>Unit of Measure</b>
015094	SURPLUS EXCAVATED MATERIALS (CY)	CY
015363	AERIALY DEPOSITED LEAD SAMPLING, TESTING AND ANALYSIS (SURPLUS EXCAVATED MATERIALS)	CY

When the Caltrans test results for ADL at a location show the existing soil meets the Type COM requirements or when there are no ADL test results available, include bid for testing surplus excavated materials.

### **6.3. Bid Item Cost Estimate**

To have more accurate engineer estimating and to provide for easier changes in construction by change order, unit cost bid items will be used for MMBN contracts. In the original MMBN Design guidelines, the unit price bid item cost estimates that were shown in Appendix K, “Fiber Optic System Bid Items Estimated Cost Based on Quantities,” were based on information provided by the construction industry and other state Departments of Transportation fiber optic contract bid item costs for projects. The unit price bid item costs shown in this version of the MMBN Design Guidelines appendix are based on the bid results from the five regional Job Order Contract Master Agreement Contracts that had bids opened on January 12, 2023. The bid item prices are the average of all bidders on the five regional Job Order Contract Master Agreement Contracts, except the high bidder results for each region was not included in the average price.

For the regional Job Order Contract Work Orders the estimated unit prices must be based on the bid item code, item description and stipulated unit price shown on Job Order Contract Master Agreement Exhibit B – Stipulated Unit Price Agreement.

The following bid item lists are provided in this manual:

- Job Order Contract Fiber Optic Network Bid Items List
- Design-Bid-Build Contract Fiber Optic Network Bid Item List
- Network Hub Shelter Bid Item List
- Job Order Contract General Bid Items List

#### **6.3.1. Job Order Contract Fiber Optic Network Bid Items List**

Refer to Appendix I, “Job Order Contract Fiber Optic Network Bid Items List,” for typical bid items in broadband middle-mile contracts for broadband network. The contract bid items on this list were developed for use on MMBN job order contracts.

Include appropriate stormwater best management practices bid items and erosion control bid items for disturbed soil areas. For conduit trenching in soil, include permanent erosion control or landscaping bid items to restore the trench area. Assume a 10-foot width for the area impacted by trenching that must be restored. For trenching in pavement conduit installation include cold plane asphalt concrete pavement bid item, hot mix asphalt bid item and associated traffic control bid items.

#### **6.3.2. Design-Bid-Build Contract Fiber Optic Network Bid Items List**

Refer to Appendix J, “Design-Bid-Build Contract Fiber Optic Network Bid Items List,” for typical bid items in MMBN contracts for the fiber optic broadband network. The bid items for Design-Bid-Build contracts should also be used on Construction Manager General Contractor (CMGC) contracts.

The unit price bid item costs shown in this version of the MMBN Design Guidelines appendix are based on the bid results from the five regional Job Order Contract Master Agreement Contracts that had bids opened on January 12, 2023. For Design-Bid-Build

contracts and Construction Manager General Contractor (CMGC) contracts the unit prices shown should be adjusted based on the “ADD” bid item unit prices that are shown in Appendix I when appropriate to adjust the unit price based on quantity or constraints on when the work can be performed, such as, night time or weekend work.

Include appropriate stormwater best management practices bid items and erosion control bid items for disturbed soil areas. For conduit trenching in soil, include permanent erosion control or landscaping bid items to restore the trench area. Assume a 10-foot width for the area impacted by trenching that must be restored. For trenching in pavement conduit installation include cold plane asphalt concrete pavement bid item, hot mix asphalt bid item and associated traffic control bid items.

### **6.3.3. Network Hub Shelter Bid Items List**

Refer to Appendix K, “Network Hub Shelter Typical Contract Bid Item List,” for bid items that should be included in MMBN contracts that have a network hub shelter. The contract bid items list was developed for use on MMBN job order contracts but are also applicable to Design-Bid-Build Contracts and CMGC contracts.

For Network Hub Shelter site include appropriate bid items including:

- Clearing and grubbing
- Temporary erosion control for disturbed soil areas
- Clearing and grubbing
- Roadway excavation
- Import Borrow
- Aggregate base
- Hot mix asphalt
- Permanent erosion control or landscaping

### **6.3.4. Job Order Contract General Bid Items List**

Refer to Appendix L, “Job Order Contract General Bid Item List,” for bid items that are included in the Regional Job Order Contract Master Agreement contracts. Bid items shown in Appendix L cover all of the general work requirements that are in Caltrans typical highway construct contracts. The non-standard bid items developed for the MMBN Job Order contracts are necessary because unlike design-bid–build contracts the contractor cannot price:

- Lump sum items because there is no basis in the Regional Job Order Contract Master Agreement for the amount of work that will be required on each Work Order.
- Fixed cost such as move-in / move-out equipment into bid items because of the large area covered by the Regional Job Order Contract Master Agreement contract and uncertainty in where Work Orders will be located.
- Variable cost, such as, hauling material into the bid items because the variables of material source locations and work order locations.

## 7. CONTRACT TIME WORKING DAYS ESTIMATE

For estimating working days for contract time, both construction production rates and materials lead time need to be considered. To avoid project delays to contractors, the California Department of Technology (CDT) will supply most materials, products, and equipment for the middle-mile broadband network (MMBN). These materials, products, and equipment will be Department-furnished materials so no contract working days should be provided for obtaining materials.

### 7.1. Production Rates

Working with the construction industry, the production rates in Table 7-1.1, "Installation Production Rates PLOW Method"; Table 7-1.2, "Installation Production Rates Trench Methods"; Table 7-1.2, "Conduit Installation Production Rates Horizontal Directional Drilling Method"; and Table 7-1.3, "Vault Installation Production Rates," were developed for estimating the number of working days required for fiber optic items.

**TABLE 7-1.1, CONDUIT INSTALLATION PRODUCTION RATES PLOW METHOD**

Item Code	Item Description [Ground Classification]	Unit of Measure	Quantity Per Day
015004	INSTALL CONDUIT PLOW METHOD (3-2" HDPE) [SOIL]	LF	2,500
015005	INSTALL CONDUIT PLOW METHOD (3-2" HDPE) [SOIL- COBBLES]	LF	1,500

**TABLE 7-1.2, CONDUIT INSTALLATION PRODUCTION RATES TRENCH METHODS**

Item Code	Item Description [Ground Classification]	Unit of Measure	Quantity Per Day
014966	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE) [SOIL]	LF	900
014967	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE) [SOIL - COBBLES]	LF	575
014968	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE) [SOIL - BOLDERS]	LF	325
014969	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE) [ROCK 2]	LF	250
014975	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE) [SOIL]	LF	725
014976	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE) [SOIL - COBBLES]	LF	425
014977	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE) [SOIL - BOLDERS]	LF	250
014978	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE) [ROCK 2]	LF	350

**TABLE 7-1.3, CONDUIT INSTALLATION PRODUCTION RATES HORIZONTAL DIRECTIONAL DRILLING METHOD**

<b>Item Code</b>	<b>Item Description [Ground Classification]</b>	<b>Unit of Measure</b>	<b>Quantity Per Day</b>
014983	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE) [SOIL]	LF	1,500
014984	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE) [SOIL - COBBLES]	LF	500
014985	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE) [SOIL - BOULDERS]	LF	200
014986	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE) [ROCK 2]	LF	200

For determining the contract schedule, fiber optic vault construction can occur simultaneously with conduit installation.

**TABLE 7-1.4, VAULT INSTALLATION PRODUCTION RATES**

<b>Item Code</b>	<b>Item Description</b>	<b>Unit of Measure</b>	<b>Quantity Per Day</b>
014537	INSTALL VAULT (TYPE 1)	EA	6
014538	INSTALL VAULT (TYPE 2)	EA	5
014539	INSTALL VAULT (TYPE 3)	EA	6

Fiber optic cable comes on 5-mile spools, and installation of fiber optic cable cannot occur before conduit and vault installation is completed. Typically, the fiber optic cable is installed after all conduits and vaults are installed. For projects that have more than 15 miles of fiber optic cable, schedule overlap of conduit installation and fiber optic cable pulling is acceptable. Table 7-1.5, "Fiber Optic Cable Installation Rates," shows installation rates per day. Note that if a network hub shelter is required on a project, it should be installed before fiber optic cable installation.



**TABLE 7-1.5, FIBER OPTIC CABLE INSTALLATION RATES**

<b>Item Code</b>	<b>Item Description</b>	<b>Unit of Measure</b>	<b>Quantity Per Day</b>
014545	INSTALL FIBER OPTIC CABLE 288 STRANDS (TYPE 1)	LF	10,000
014546	INSTALL FIBER OPTIC CABLE 432 STRANDS (TYPE 2)	LF	10,000
014547	INSTALL FIBER OPTIC CABLE 864 STRANDS (TYPE 3)	LF	10,000

Fiber optic cable splicing, and testing, as shown in Table 7-3, “Fiber Optic Splicing,” must occur after fiber optic cable installation is completed.

**TABLE 7-1.6, FIBER OPTIC SPLICING PRODUCTION RATES**

<b>Item Code</b>	<b>Item Description</b>	<b>Unit of Measure</b>	<b>Days per Splice</b>
014557	INSTALL SPLICE FIBER OPTIC CABLE 288 STRANDS (TYPE 1)	EA	1
014558	INSTALL SPLICE FIBER OPTIC CABLE 432 STRANDS (TYPE 2)	EA	2
014559	INSTALL SPLICE FIBER OPTIC CABLE 864 STRANDS (TYPE 3)	EA	3

## 7.2. Estimating Contract Time Working Days

The construction of the 10,000 middle-mile broadband network will not be accomplished by the 2026 deadline if construction schedules for contracts rely on only one crew installing conduit on a contract. For consistency in estimating contract working dates the following strategies are to be used.

When there are multiple conduit installation methods on a contract, assume that all installation methods of conduit occur simultaneously and the installation method with the longest duration controls. There are opportunities to reduce working days when multiple conduit installation crews are able to work on a project efficiently and effectively. Assume when you have the same method of conduit installation but have differing soil conditions from soil to rock that two separate crews will perform the work because different equipment is required. The following table is to be used to determine the minimum number of conduit installation crews that are to be used in the critical path schedule developed to determine the number of working days for a contract.

**TABLE 7-2.1, CONDUIT INSTALLATION NUMBER OF CREWS TRENCH METHODS**

<b>Conduit Installation Method[Ground Condition]</b>	<b>Production Rate Per Crew Per Shift (Feet)</b>	<b>Quantity Estimate Length of Installation (Feet)</b>	<b>Number of Crews Required</b>
Trench [Soil]	900	0-30,000	1
		30,001-60,000	2
		60,001-100,000	3
		100,001-150,000	4
		>150,000	5
Trench [Rock]	250	0-10,000	1
		10,001-20,000	2
		20,001-40,000	3
		>40,000	4
Trench in Pavement <sup>1</sup> [Soil]	725	0-25000	1
		25,001-75,000	2
		75,001-150,000	3
		>150,000	4
Trench in Pavement <sup>1</sup> [Rock]	350	0-10,000	1
		10,001-20,000	2
		20,001-40,000	3
		>40,000	4
<sup>1</sup> Number of crews maybe limited by length of allowable lane closure or the minimum distance required between two consecutive lane closures.			

**TABLE 7-2.2, CONDUIT INSTALLATION NUMBER OF CREWS DIRECTIONAL DRILLING METHOD AND PLOW METHOD**

<b>Conduit Installation Method [Ground Condition]</b>	<b>Production Rate Per Crew Per Shift (Feet)</b>	<b>Quantity Estimate Length of Installation (Feet)</b>	<b>Number of Crews Required</b>
Horizontal Directional Drilling [Soil]	1500	0-50,000	1
		50,001-100,000	2
		100,001-150,000	3
		>150,000	4
Horizontal Directional Drilling [Rock]	200	0-10,000	1
		10,001-20,000	2
		20,001-40,000	3
		>40,000	
Plowing [Soil]	2500	0-75,000	1
		75,000-75,001	2
		>150,000	3
Conduit on Structures	100	0-2000	1
		2,001-5,000	2
		>5,000	3

### 7.3. Critical Path Schedule

Middle-Mile Broadband Network working days should be based on a critical path schedule that contains at a minimum the following activities:

- Construction area signs
- Pothole utilities
- Conduit installation
- Fiber optic cable installation
- Fiber optic cable splicing
- Punchlist

The following activities, while necessary, shall be assumed to be concurrent with the above critical activities and are non-critical:

- Water Pollution Control
- Clearing and grubbing
- Vault installation

- Resurface and restripe pavement where necessary
- Maintenance vehicle pullouts
- Erosion control
- Underground infrastructure documentation

The following best practices should be considered when creating the project schedule to determine number of working days necessary:

- Network hub shelters should be included in work orders that contain enough miles of fiber optic work such that the network hub shelter work stays off of the critical path.
- Conduit installation may partially overlap with potholing
- Fiber optic cable installation may partially overlap with conduit installation
- Fiber optic cable splicing, depending on quantity, may partially overlap with fiber optic cable installation

## 8. DEPARTMENT-FURNISHED MATERIALS

The California Department of Technology will supply materials and equipment for the broadband middle mile network. The materials, products, and equipment supplied by the California Department of Technology will be Department-furnished materials on Caltrans construction contracts. Caltrans construction contractors for most broadband middle mile network bid items will only be required to install the materials, products or equipment and perform quality control testing. Section 77-2 "Materials," and Section 77-4.01B "Materials," of the special provisions lists the Department-furnished materials and requirements.

The Department will furnish the following fiber optic materials to the contractor:

1. Type 1, Type 2, and Type 3, vaults
2. 2" high density polyethylene (HDPE) conduit and accessories
3. Grounding rods
4. Tracer wires
5. Warning tape
6. Type 1 to Type 3 fiber optic cables
7. Type 1 and Type 2 splice enclosures
8. Type 1 and Type 2 single fiber splice trays
9. Type 1 and Type 2 ribbon fiber splice trays
10. Hub termination panels
11. Cable marker labels
12. Object markers (Type K-2(CA))
13. Flexible post delineators non-reflective class 1

The Department will furnish the following network hub shelter materials to the contractor:

1. Precast network hub shelter
2. Standby generator
3. Main service disconnect
4. Automatic transfer switch
5. Local area network (LAN) panel
6. Hub termination panel

The main service disconnect, automatic transfer switch, and local area network (LAN) panel will be installed by the network hub shelter manufacturer prior to shipment of the network hub shelter to the project site.

### 8.1. Quantity Estimate

A spreadsheet has been developed to document the quantity and cost of Department-furnished materials, products and equipment that will be supplied by the California Department of Technology.

MMBN Department-furnished materials, products and equipment spreadsheet is available for Caltrans employees at:

[Middle-Mile Broadband Network \(MMBN\) Program | Division of Design \(ca.gov\)](#)

MMBN Department-furnished materials, products and equipment spreadsheet is available for external stakeholders by contacting the MMBN Program webmaster at:

[HQ.DOD.MMBI@dot.ca.gov](mailto:HQ.DOD.MMBI@dot.ca.gov)

The following subsection provide guidance on how to calculate the quantity of Department furnished materials based on the contract bid items estimated quantities.

### 8.1.1. 2-INCH HIGH DENSITY POLYETHYLENE (HDPE) CONDUIT

To determine the quantity for 2" HDPE conduit sum the bid item quantities for the bid item shown in the following table:

**TABLE 8-1.1, 2-INCH HIGH DENSITY POLYETHYLENE (HDPE) CONDUIT QUANTITY**

Item Code	Item Description	Unit of Measure	Quantity
014966	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[SOIL]	LF	
014967	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[SOIL - COBBLES]	LF	
041968	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[SOIL - BOULDERS]	LF	
015124	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[ROCK 1]	LF	
014969	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[ROCK 2]	LF	
015099	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[ROCK 3]	LF	
014975	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[SOIL]	LF	
014976	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[SOIL - COBBLES]	LF	
014977	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[SOIL - BOULDERS]	LF	
015126	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[ROCK 1]	LF	
014978	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[ROCK 2]	LF	
015101	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[ROCK 3]	LF	
014983	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE)[SOIL]	LF	
014984	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE)[SOIL - COBBLES]	LF	
Page 1 SUBTOTAL:			

**Table 8-1.1, 2-Inch High Density Polyethylene (HDPE) Conduit Quantity**

Item Code	Item Description	Unit of Measure	Quantity
014985	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE)[SOIL - BOULDERS]	LF	
015128	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE)[ROCK 1]	LF	
014986	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE)[ROCK 2]	LF	
015103	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE)[ROCK 3]	LF	
014991	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE IN 6" CASING)[SOIL]	LF	
014992	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE IN 6" CASING)[SOIL - COBBLES]	LF	
014993	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE IN 6" CASING)[SOIL - BOULDERS]	LF	
015130	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE IN 6" CASING)[ROCK 1]	LF	
014994	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE IN 6" CASING)[ROCK 2]	LF	
015105	INSTALL CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD (3-2" HDPE IN 6" CASING)[ROCK 3]	LF	
015004	INSTALL CONDUIT PLOWING METHOD (3-2" HDPE)[SOIL]	LF	
015005	INSTALL CONDUIT PLOWING METHOD (3-2" HDPE)[SOIL-COBBLES]	LF	
015014	INSTALL CONDUIT ON STRUCTURE(3-2" HDPE IN CASING)	LF	

Page 2 SUBTOTAL:



Total quantity of Department-furnished 2-inch HDPE conduit is determined using the HDPE SUB TOTAL linear feet quantity multiplied by three (3).

**Table 8-1.1, 2-Inch High Density Polyethylene (HDPE) Conduit Quantity**

Total Quantity	Unit of Measure	Quantity
Page 1 SUBTOTAL:	LF	
Page 2 SUBTOTAL:	LF	
HDPE SUBTOTAL	LF	
TOTAL (X3)	LF	

### 8.1.2.HIGH DENSITY POLYETHYLENE (HDPE) CONDUIT COUPLERS QUANTITY

To determine the quantity for 2-Inch high density polyethylene (HDPE) conduit couplers divide the quantity for 2-Inch HDPE conduit by 2,500 feet which is based on the length of the conduit reels.

$$\text{Couplers Quantity} = \text{Length of Conduit} \div 2500$$

For Horizontal Directional Drilling Method of conduit installation add addition couplers wherever there is a transition to another method of conduit installation.

$$\text{Couplers Quantity} = \text{Number of Transitions} \times 3$$

For the plowing method of installation add addition couplers wherever the plowing method must be stopped and restarted because the path is obstructed, such as, underground utilities, ditches, or channels.

$$\text{Couplers Quantity} = \text{Number of Obstructions} \times 3$$

**TABLE 8-1.2, 2-INCH HIGH DENSITY POLYETHYLENE (HDPE) CONDUIT COUPLERS QUANTITY**

Description	Quantity	Couplers Quantity (EA)
Length of 2-Inch HDPE conduit (Feet)		
Number of horizontal directional drilling transition locations		
Number of obstructions to conduit plowing method		
<b>TOTAL</b>		

### 8.1.3. TRACER WIRE QUANTITY

Tracer wire is not required for HDPE conduits placed within steel casings. To determine the length of Department-furnished tracer wire required use the 2-inch HDPE Conduit subtotal length from Section 8.1.1. and subtract the total steel casing length of the following contract bid items.

**TABLE 8-1.3, STEEL CASING LENGTH**

Item Code	Item Description	Unit of Measure	Quantity
014965	6" WELDED STEEL PIPE CASING (BRIDGE)	LF	
014503	FURNISH 6" CASING [FOR WELDED STEEL PIPE ADD]	LF	
TOTAL STEEL CASING LENGTH:			

Tracer Wire (Feet) = (2-inch HDPE Conduit Subtotal Length) – (Total Steel Casing Length)

### 8.1.4. WARNING TAPE QUANTITY

Warning tape is required for fiber optic conduit installed in trenches.

For warning tape insert the quantity for the following bid item for trenching and then sum the bid item quantities to determine the length of Department furnished warning tape markers.

**TABLE 8-1.4, WARNING TAPE QUANTITY**

Item Code	Item Description	Unit of Measure	Quantity
014966	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[SOIL]	LF	
014967	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[SOIL - COBBLES]	LF	
041968	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[SOIL - BOULDERS]	LF	
015124	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[ROCK 1]	LF	
014969	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[ROCK 2]	LF	
015099	INSTALL CONDUIT TRENCH METHOD (3-2" HDPE)[ROCK 3]	LF	
014975	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[SOIL]	LF	
014976	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[SOIL - COBBLES]	LF	
014977	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[SOIL - BOULDERS]	LF	
015126	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[ROCK 1]	LF	
014978	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[ROCK 2]	LF	
015101	INSTALL CONDUIT TRENCH IN PAVEMENT METHOD (3-2" HDPE)[ROCK 3]	LF	
<b>WARNING TAPE TOTAL:</b>			

### 8.1.5. VAULTS

Insert the quantity for the following bid item quantities for vaults to determine the required number of Department furnished vaults.

**TABLE 8-1.5, VAULTS QUANTITY**

Item Code	Item Description	Unit of Measure	Quantity
014537	INSTALL VAULT (TYPE 1)	EA	
014538	INSTALL VAULT (TYPE 2)	EA	
014539	INSTALL VAULT (TYPE 3)	EA	

### 8.1.6. GROUND ROD QUANTITY

Ground rods are required to be installed at every pull vault and splice vault. Locating an underground utility using tracer wire is accomplished by placing a low voltage charge on the tracer wire for the targeted segment to be located. When the tracer wire is grounded properly, the charge is pulled down the tracer wire, and a complete electrical circuit is created.

Ground rods are required at all vaults. The number of Department furnished ground rods required should match the sum of the quantity of vault bid items.

**TABLE 8-1.6, GROUND RODS QUANTITY**

Item Code	Item Description	Unit of Measure	Enclosures Quantity	Ground Rod Quantity
014537	INSTALL VAULT (TYPE 1)	EA		
014538	INSTALL VAULT (TYPE 2)	EA		
014539	INSTALL VAULT (TYPE 3)	EA		
GROUND ROD TOTAL:				

### 8.1.7. FIBER OPTIC CABLE QUANTITY

Insert the quantity for the following bid item quantities for fiber optic cable to determine the required length of Department furnished fiber optic cable.

**TABLE 8-1.7, FIBER OPTIC CABLE QUANTITY**

Item Code	Item Description	Unit of Measure	Quantity
014545	INSTALL FIBER OPTIC CABLE 288 STRANDS (TYPE 1)	LF	
014546	INSTALL FIBER OPTIC CABLE 432 STRANDS (TYPE 2)	LF	
014547	INSTALL FIBER OPTIC CABLE 864 STRANDS (TYPE 3)	LF	

### 8.1.8. SPLICE ENCLOSURES QUANTITY

Insert the quantity for the following bid item quantities for splice enclosures to determine the required number of Department furnished splice enclosures.

**TABLE 8-1.8, SPLICE ENCLOSURES QUANTITY**

Item Code	Item Description	Unit of Measure	Quantity
014552	INSTALL SPLICE ENCLOSURE (TYPE 1)	EA	
014553	INSTALL SPLICE ENCLOSURE (TYPE 2)	EA	

### 8.1.9. SPLICE TRAY QUANTITY

The type of splice tray is based on the type of fiber optic cable, number of fiber strands and type of splice enclosure as shown on the following table.

**TABLE 8-1.9, SPLICE TRAY QUANTITY BASED ON FIBER OPTIC CABLE STRANDS**

Fiber Optic Cable	Fiber Optic Splice Enclosure	Ribbon Fiber Optic Splice Tray
TYPE 1 FIBER OPTIC CABLE 288 STRANDS	TYPE 1	TYPE 1 (2-Trays)
TYPE 2 FIBER OPTIC CABLE 432 STRANDS	TYPE 1	TYPE 1 (3-Trays)
TYPE 3 FIBER OPTIC CABLE 864 STRANDS	TYPE 2	TYPE 2 (3-Trays)

Insert the quantity for the following bid item quantities for splice enclosures to determine the required number of Department furnished splice trays based on the fiber optic cable strands. For typical fiber optic cable 288 strands use two (2) TYPE 1 tray for each splice enclosure bid item 014552 INSTALL SPLICE ENCLOSURE (TYPE 1).

**TABLE 8-1.10, SPLICE TRAY QUANTITY**

Item Code	Item Description	Unit of Measure	Enclosures Quantity	Trays Quantity
014552	INSTALL SPLICE ENCLOSURE (TYPE 1)	EA		
014553	INSTALL SPLICE ENCLOSURE (TYPE 2)	EA		

### 8.1.10. WRAP-AROUND CABLE MARKER LABELS QUANTITY

Wrap-around cable markers labels are required two (2) for each splice vault (TYPE 2) and one (1) for each pull vault (TYPE1) or (TYPE 3).

For wrap-around cable marker labels insert the quantity for the following bid item for vaults and then sum the bid item quantities to determine the number of Department furnished wrap-around cable markers.

**TABLE 8-1.11, WRAP-AROUND CABLE MARKER LABELS QUANTITY**

Item Code	Item Description	Unit of Measure	Quantity
014537	INSTALL VAULT (TYPE 1)	EA	
014538	INSTALL VAULT (TYPE 2)	EA	
014538	INSTALL VAULT (TYPE 2) [second label]	EA	
014539	INSTALL VAULT (TYPE 3)	EA	
TOTAL WRAP-AROUND CABLE MARKERS:			

### 8.1.11. TYPE K-2 OBJECT MARKERS QUANTITY

Type K-2 Object Markers are required for each splice vault (TYPE 2) and each pull vault (TYPE1).

For Type K-2 Object Markers insert the quantity for the following bid item for vaults and then sum the bid item quantities to determine the number of Department furnished wrap-around cable markers.

**TABLE 8-1.12, TYPE K-2 OBJECT MARKERS QUANTITY**

Item Code	Item Description	Unit of Measure	Quantity
014537	INSTALL VAULT (TYPE 1)	EA	
014538	INSTALL VAULT (TYPE 2)	EA	
TOTAL TYPE K-2 OBJECT MARKERS:			

### 8.1.12. FLEXIBLE POST DELINEATOR NON-REFLECTIVE CLASS 1 QUANTITY

Insert the quantity for the following bid item quantity for splice non-reflective flexible post delineators to determine the required number of Department furnished non-reflective flexible post delineators based on the length of fiber optic conduit installed underground.

**TABLE 8-1.13, FLEXIBLE POST DELINEATOR NON-REFLECTIVE CLASS 1 QUANTITY**

Item Code	Item Description	Unit of Measure	Quantity
014565	INSTALL FLEXIBLE POST DELINEATOR NON-REFLECTIVE CLASS 1	EA	

### 8.1.13. 2-INCH PVC CONDUIT QUANTITY

PVC conduit is required between the splice vaults and network hub shelter. Six 2-Inch conduits should be installed between a splice vault and the network hub shelter. Three spare conduits are being installed for use by last mile providers. The quantity of 2-inch PVC conduit based on the length of conduit required between the splice vault and network hub shelter. Add an addition 6 feet of conduit for the stub up into the network hub shelter foundation.

Calculation:

$$\text{PVC Conduit} = ((\text{Length between splice vault and network hub shelter}) + 6) \times 12$$

### 8.1.14. 2-INCH PVC CONDUIT COUPLERS QUANTITY

Based on the length of 2" PVC conduit in the item above divide by 20 feet to determine the number of Department furnished 2-inch PVC couplers.

Calculation:

$$\text{Number of Couplers} = \text{PVC Conduit (Feet)} \div 20$$



### 8.1.15. 2-INCH PVC CONDUIT ELBOWS QUANTITY

For each network hub shelter provide twelve (90) degree elbows for the conduit between the splice vaults and network hub shelter.

For 2-inch PVC conduit elbows insert the quantity for the following bid item for network hub shelters and then sum the bid item quantities and multiply by twelve (12) to determine the number of Department furnished 2-inch PVC conduit elbows.

**TABLE 8-1.14, 2-INCH PVC CONDUIT ELBOWS QUANTITY**

Item Code	Item Description	Unit of Measure	Quantity
014568	INSTALL NETWORK HUB SHELTER (12' X16')	EA	
014801	INSTALL NETWORK HUB SHELTER (12' X20')	EA	
SUBTOTAL:			
TOTAL (X12)			

### 8.1.16. HUB TERMINATION PANELS, 288 STRANDS QUANTITY

A hub terminal panel is required in network hub shelter for each cable termination in the shelter. For the typical 288 stand cable there will be at a minimum to fiber optic cable per network hub shelter.

For hub terminal panels, insert the quantity for the following bid item for network hub shelters, then sum the bid item quantities and multiply by two (2) to determine the number of Department furnished hub terminal panels.

**TABLE 8-1.15, HUB TERMINATION PANELS, 288 STRANDS QUANTITY**

Item Code	Item Description	Unit of Measure	Quantity
014568	INSTALL NETWORK HUB SHELTER (12' X16')	EA	
014801	INSTALL NETWORK HUB SHELTER (12' X20')	EA	
SUBTOTAL:			
TOTAL (X2)			

### 8.1.17. Stand-By Generator

For projects that have a network hub shelters, include the quantity and type of generator that will be Department-furnished equipment:

- 60kW Liquid Propane or Natural Gas
- 60kW Diesel UL 142 TANK SCAQMD
- 60Kw Diesel UI Tank SCASQMD

Include any special requirements for particulate filters on stand-by generators.

### **8.1.18. Network Hub Shelter**

For projects that have a network hub shelters, include the quantity of network hub shelters and required exterior finish requirements.

There are three levels of exterior finishes:

- Tier 1 Major Environmental or Aesthetic Issues - Allowance for custom materials such as fiber cement siding, metal siding, and stone veneer to be applied to exterior of the shelter and for roof pitch such as gable, mono-slope and hip.
- Tier 2 Minor Environmental or Aesthetic Issues - Form liner finish brick, stone, and various siding appearance with allowance for selection from manufacturer's standard colors.
- Tier 3 Base Model - Standard aggregate finish with allowance to select from manufacturer's standard colors.

## **8.2. Department-Furnished Materials Reservation**

To ensure that the California Department of Technology materials will be available for contracts, the quantity of Department-furnished materials must be shown on the Work Authorization funding spreadsheet submitted to the California Department of Technology for funding authorization. The CALIFORNIA DEPARTMENT OF TECHNOLOGY FURNISHED MATERIALS list that must be completed is shown in Appendix M of this manual.

## 9. REFERENCES

1. Middle-Mile Broadband Network Standard Details  
<https://design.onramp.dot.ca.gov/broadband-middle-mile-network-bmmn-program>
2. Non-Standard Special Provision Middle-Mile Broadband Network  
<https://design.onramp.dot.ca.gov/broadband-middle-mile-network-bmmn-program>
3. *Highway Design Manual*  
<https://dot.ca.gov/programs/design/manual-highway-design-manual-hdm>
4. Broadband Accommodation Within Access-Controlled State Right of Way  
<https://design.onramp.dot.ca.gov/downloads/design/files/projsupp/broadband%20acomodationmemo3-25-2022.pdf>
5. Chapter 17 of the *Project Development Procedures Manual*  
<https://dot.ca.gov/-/media/dot-media/programs/design/documents/pdpm-chapter17-a11y.pdf>

# MIDDLE-MILE BROADBAND NETWORK COASTAL ZONE GUIDELINES FOR PROGRAMMATIC PERMITTING

California Department of Transportation

December 2022

## TARGET AUDIENCE

This guidance is to support District Project Development Teams (PDTs) in complying with the [California Coastal Act](#) (Coastal Act), which mandates protection of coastal resources in California's coastal zone. Design and construction of the Middle-Mile Broadband Network (MMBN) should consider opportunities to avoid and minimize coastal resource and public access impacts associated with project components as described in this guidance including the fiber optic conduit path, installation methods, vaults, network hub shelters, and fiber optic markers. Where necessary, mitigation for coastal resource impacts may be required.

District Project Environmental Team staff are available to support PDTs through the assessment of environmental impacts of feasible design options and associated best management practices to avoid and minimize coastal resource impacts—ultimately supporting an efficient and programmatic permitting process for MMBN projects. A key initial ingredient for streamlining permits will be to bundle together each District's project segments that require Coastal Development Permits (CDPs) and work with the California Coastal Commission's and local government's staff to submit a consolidated permit application for processing.

This document covers suggestions for planning, siting, designing, and constructing the MMBN in ways to conform to Coastal Act policies. It is anticipated that there will be a clear reflection of the selected MMBN project design, along with any necessary permit conditions, within standard and non-standard special provision contract specifications for MMBN projects in the coastal zone.

## INTRODUCTION

Environmental considerations for the Coastal Zone are provided in this document to avoid and minimize impacts to environmental resources protected by the Coastal Act ("coastal resources") and support a more streamlined coastal development permitting process for MMBN projects. Coastal resources include environmentally sensitive habitat areas (ESHAs); the marine

environment; coastal waters including wetlands, streams, estuaries, lakes, and the ocean; cultural resources; scenic and visual resources; and prime agricultural lands. The Coastal Act generally requires new development, which includes the scope of work of the MMBN project, to avoid or minimize impacts to coastal resources. The Coastal Act also requires new development to protect and enhance public coastal access and minimize risks to life and property in areas with environmental hazards such as fire zones, flood zones, geologic hazards, and areas subject to sea level rise. Relevant policies of the Coastal Act are provided in Appendix A at the end of this document.

In general, the coastal development permitting process can be streamlined by avoiding coastal resources or by ensuring that the development activities have no potential for any adverse effect, either individually or cumulatively, on coastal resources. Where it is not possible to fully avoid areas with coastal resources, or impacts to such resources, implementation of sensitive design options and best management practices (BMPs) as discussed below can help minimize impacts and support findings of consistency of MMBN projects with the Coastal Act. Mitigation may be required for any unavoidable temporary or permanent coastal resource impacts. Early and frequent coordination with District Project Environmental Teams and California Coastal Commission (Coastal Commission) staff is strongly recommended to identify opportunities for coastal resource protection and coastal development permit streamlining.

This document focuses on environmental impacts to coastal zone resources resulting from feasible design options and BMP options for MMBN project segments within the Coastal Zone for the purposes of streamlining the coastal development permitting process. It aims to facilitate the siting, design, and construction of MMBN projects to be consistent with Coastal Act policy requirements. Separately, but similarly, this guidance is also consistent with SB 156 requirements for CEQA exemptions as follows:

1. The project is constructed along, or within 30-feet of, the right-of-way of any public road or highway.
2. The project is either deployed underground where the surface area is restored to a condition existing before the project or placed aurally along an existing utility pole right-of-way.
3. The project incorporates, as a condition of project approval, measures developed to address potential environmental impacts.
4. The project shall be required to include monitors during construction activities and measures to avoid or address impacts to cultural and biological resources.

## FIBER OPTIC CONDUIT PATH

For the fiber optic conduit path, the preferred siting from a coastal resource standpoint will be dependent on the location, the presence of coastal resources or coastal hazards, and the potential for impacts to those resources (including the potential need for mitigation). Determining these factors will heavily rely on discussions between District Project Environmental Teams, Coastal Commission staff, and other resource agencies as necessary. In general, placing conduit within the existing pavement footprint is most likely to avoid coastal resource impacts as construction would be occurring in a previously disturbed area and may reduce permitting requirements. Placing conduit as close to the edge of pavement as possible and/or in areas devoid of coastal resources as characterized in the March 25, 2022, Caltrans “Accommodation of Wired Broadband Facilities Within Access Controlled State Highway Right of Way” Memorandum also has the potential to avoid or reduce coastal resource impacts, as well as permitting complexities.

#### **FIBER OPTIC CONDUIT INSTALLATION METHOD**

Of the fiber optic conduit installation methods discussed in the MMBN Design Guidelines, the preferred option(s) from a coastal resource standpoint will depend on location, presence of coastal resources and environmental hazards, and the potential for coastal resource impacts. In general, in-pavement micro-trenching and horizontal direction drilling (also known as boring) have reduced environmental impacts in past broadband projects as compared to the other underground installation methods (e.g., plowing and trenching) due to their reduced disturbance to unpaved surfaces that may contain coastal resources. The following discussion addresses the potential impacts that the various installation methods can have on coastal resources, and best management practices (BMPs) for avoiding such impacts.

General BMPs that should be employed for programmatic permitting regardless of the installation method:

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#### **BIOLOGICAL AND CULTURAL BMPS:**

1. As a general practice, ensure that biological and cultural resource awareness training with construction crews occurs prior to commencement of construction in or near such resource areas and that such training provides construction crews with relevant context on the requirements of the Coastal Act and any permit conditions of approval.
2. Prior to construction, as appropriate along focus segments, complete biological “clearance” surveys for sensitive species of nesting birds, amphibians, other wildlife, and rare plants as well as their habitat areas and flag off the boundaries of any identified nesting or breeding area, wetland, and any other type of ESHA with temporary construction

- fencing, flags, or similar means. Exact installation locations or methods may need to be adjusted to avoid these areas accordingly.
3. Prior to construction, as appropriate along focus segments, complete cultural “clearance” surveys for sensitive archaeological and tribal resources and flag off the boundaries of any identified resource areas with temporary construction fencing, flags, or similar means. Exact timing for clearance surveys may need to be adjusted to ensure they occur during the appropriate time for plant, animal, or bird identification, such as during the blooming period of various rare plant species. Exact installation locations or methods may need to be adjusted to avoid any identified sensitive areas accordingly.
  4. Ensure that tribal consultations are timely and coordinated with Coastal Commission staff. Absent a process specific to MMBN, refer to the November 2022 [Coastal Commission Memo: Tribal Consultation for Caltrans Projects](#) for provisions, and that results of those consultations inform appropriate BMPs for constructing in or near areas of known or potential cultural resources.
  5. Avoid ground-disturbing activities in areas that contain known cultural resources to the extent feasible. Cultural monitoring should occur in areas of known or potential cultural resources if avoidance is not feasible. If cultural resources will be impacted, additional treatment measures such as data recovery may be required.
  6. Per SB 156 Statutory Exemption requirements, projects must include monitors during construction. Refer to the [Standard Specifications](#), Section 14, for contract specifications associated with Environmental Stewardship and monitoring to ensure contractors meet permit requirements and other environmental commitments. Examples of Standard Specifications for inclusion within Section 14 include, but are not limited to, section 14-2.03A, “Archaeological Resources General,” section 14-2.03B “Archaeological Monitoring Area,” section 14-6.03D, “Contractor-Supplied Biologist,” section 14-6.03d(2), “Natural Resources Protection Plan,” and bid items “Contractor supplied biologist” (Item code 146001) and “Natural Resources Protection Plan (Item code 014424). On-site monitoring can significantly reduce the potential for impacts to coastal resources and associated mitigation requirements, as well as project delays, and is strongly recommended for all project segments where coastal resources may be present.
  7. When required per the contract specifications, clean construction equipment prior to entering the work site to minimize the potential for the transport of non-native vegetation seeds and plant material.
  8. Avoid impacts to tree roots by working around driplines of trees. Consult an International Society of Arboriculture (ISA) Certified Arborist for tree and root pruning.

9. If tree removal is unavoidable, contact the Caltrans District Landscape Architect for approval.

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**HAZARD AVOIDANCE BMPS:**

1. Avoid areas that are highly vulnerable to flood hazards, coastal erosion, and sea level rise. Sea level rise is expected to cause increasingly frequent flood events, accelerated coastal erosion rates, and rising groundwater levels, which may affect operations and maintenance needs. The MMBN may need to be incorporated into future sea level rise adaptation projects for the state highway system and cannot be expected to rely on existing or future shoreline protective devices.
2. Avoid installing above-ground components in high fire hazard zones and below-ground components in areas with high liquefaction potential and seismic activity to the extent feasible.

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**ACCESS AND CIRCULATION BMPS:**

1. Limit the area of temporary impacts (e.g., staging and storage) to areas authorized by the Engineer. Consult with Coastal Commission staff on locations of concern and how temporary and permanent impacts are defined and treated.
2. Implement a public access and traffic safety plan to ensure safe and continuous public access and traffic circulation through or detoured around active construction segments.

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**WATER QUALITY BMPS:**

1. Avoid construction during or immediately following heavy rain events to prevent runoff pollution.
2. Implement erosion, runoff, and sediment control BMPs for coastal water quality protection. Erosion control netting should be loose-weave and made of natural fibers to avoid potential for wildlife entanglement and plastic pollution.
3. All ground disturbance that occurs outside of paved areas should be appropriately stabilized and revegetated following construction utilizing only regionally appropriate or locally grown or collected native plant seeds, excluding any species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or the State of California.
4. Ensure proper containment and disposal of any construction-related debris or hazardous materials.
5. Establish a plan for spill prevention and response measures.
6. For consistency with Stormwater Permit compliance, refer to Appendix G of the [MMBN Design Guidelines](#).



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### **BAROTRAUMA EFFECTS ON AQUATIC SPECIES**

Depending on site characteristics and proximity to water sources, the potential of any drilling or other construction activities to create barotrauma impacts on aquatic species should be assessed and a plan created for avoiding or minimizing those effects.

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### **MITIGATION OF UNAVOIDABLE IMPACTS TO COASTAL RESOURCES**

Mitigation for any temporary or permanent impacts to coastal resources may be necessary. Impacts to sensitive habitat are temporary only if the habitat will recover to its pre-impact condition and function within one year of disturbance. If recovery will take more than one year, the impacts are permanent. Depending on the circumstances, both temporary and permanent impacts may require mitigation. Following impact avoidance and minimization investigations, timely consultation between District Project Environmental and Landscape Architecture Teams and Coastal Commission staff should occur to determine whether, and at what ratios, mitigation may be necessary. Need for mitigation is determined by the type of resource being impacted, the size of the area being impacted, and the requirements of the Coastal Act or certified Local Coastal Program. Programmatic approaches to such mitigation may be explored.

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### **IN-PAVEMENT MICRO-TRENCHING:**

There are certain circumstances, including areas where the right of way contains highly sensitive resources or difficult geology or where the available right of way is too narrow to accommodate MMBN components, that in-pavement micro-trenching may be preferred. Consideration also should be given to the fact that in-pavement micro-trenching is the most likely installation method to avoid impacts and thereby simplify or avoid permit requirements. Within the coastal zone, this might include qualifying for a coastal development permit exemption or waiver when there are no sensitive coastal resources in close proximity, nor is there any potential to individually or cumulatively adversely affect such resources. Implementation of the applicable BMPs listed above is essential for avoiding individual or cumulative adverse impacts to coastal resources and obtaining a programmatic permit, waiver, or exemption.

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### **HORIZONTAL DIRECTIONAL DRILLING:**

Horizontal directional drilling (HDD) is another environmentally-preferable option as this installation method limits surface disturbance to areas of bore entry and exit pits and can allow for boring under rather than trenching through wetlands, streams, trees, and other ESHAs, as well as existing utilities and irrigation facilities. Coastal resource concerns associated with HDD primarily include the potential for discharge of excavated materials, drilling muds, fluids and other materials from construction activities; the potential for hydraulic fracturing (frac-out) to

impact coastal water quality or ESHAs; noise and vibration impacts to sensitive wildlife species that may occur in the project vicinity; vegetation impacts at bore entry and exit pits; trampling of sensitive wildlife or plant species during equipment mobilization; impacts to cultural resources during ground-disturbing activities outside of paved areas; and risk exposure to hazardous materials or environmentally hazardous areas.

BMPs to avoid or minimize these impacts include:

1. having a contingency plan or spill prevention plan in place to ensure swift and effective responses to any frac-outs or other fuel spills, including providing spill and frac-out equipment with each bore rig at all times during active drilling (refer to Appendix G: Stormwater Compliance in the [MMBN Design Guidelines](#) for consistency with Stormwater Permit Compliance)
2. implementing a soil and waste excavation and management plan to ensure proper drilling, stockpiling, and disposal procedures are followed throughout installation
3. identifying and avoiding drilling in any area with hazardous materials or high liquefaction potential
4. having a qualified biological and cultural monitor present throughout construction, as needed based on site conditions and resource proximity. Similar BMPs may be necessary for other installation methods.

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#### **TRENCHING:**

Trenching involves potential impacts to coastal resources as it involves ground-disturbing activities outside of existing paved areas. Specifically, the trenching procedure and equipment may involve vegetation removal, noise disturbance to nearby wildlife species, ground-disturbing activities in environmentally or culturally sensitive areas, and water quality impacts from sediment runoff. Installation within previously disturbed areas that are devoid of coastal resources and implementation of the general BMPs listed above can help to avoid or minimize these coastal resource impacts. If there is any case where conduit must be installed through an environmentally or culturally sensitive area and alternative installation methods that would minimize impacts cannot be used, mitigation can be expected to be required for any temporary or permanent impacts.

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#### **PLOWING:**

See trenching.

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#### **JACK AND DRILL:**

See HDD.

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**AERIAL INSTALLATION:**

The MMBN is planned for underground installation only. Under rare circumstances, with approval from CDT, aerial installation may be considered. Potential impacts from aerial installation include impacts to scenic and visual resources (e.g., obstruction of a protected view, location within a designed scenic area); exposure to environmental hazards (e.g., risks associated with location in a high fire hazard severity zone); and impacts to any vegetation, water resources, or cultural resources that must be removed or disturbed during construction.

BMPs for avoiding these potential impacts include using underground installation methods where feasible; or, where underground installation is not feasible or would cause greater environmental impacts, aerial installation should utilize existing utility infrastructure as available. Co-locating broadband cable with existing utilities on existing poles to the greatest extent feasible would be the first preference. Where new utility poles would be required, the following BMPs would help to avoid or minimize coastal resource impacts:

1. Limit the number of new poles and pole heights such that obstruction of any protected views and intrusion into any designated scenic areas is minimized to the extent feasible. Providing visual impact analyses such as project renderings and early coordination with the Coastal Commission will support efforts to minimize visual impacts.
2. Avoid areas that are subject to fire hazards, flood hazards, geologic and seismic hazards, and sea level rise to the extent feasible. If such areas cannot be avoided, provide appropriate design features (e.g., fireproofing, flood-proofing) to minimize risks and support safe, on-going operations of the MMBN.
3. Avoid vegetation removal or surface water disturbance to the extent feasible. Where this is not feasible, ensure that a qualified biological monitor is present to identify and protect any sensitive wildlife or plant species, such as through pre-construction biological surveys.
4. Avoid and minimize surface disturbance activities where any cultural resources may be present.

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**STRUCTURE ATTACHMENT:**

Structure attachment (i.e., installation on bridges) can avoid coastal resource impacts typically associated with ground-disturbing activities but has the potential to disturb sensitive wildlife such as nesting birds and roosting bats that may use the structure or the surrounding area for habitat. BMPs to avoid or minimize these impacts include avoiding installation during bird nesting and bat roosting seasons, conducting pre-construction surveys to identify any active nests or roosts, and providing a qualified biological monitor to assist in halting or adjusting construction activities to avoid wildlife impacts as necessary.

## **FIBER OPTIC MARKERS**

Fiber optic markers have the potential for visual impacts as an above-ground component of the MMBN. To reduce visual impacts from the fiber optic markers, the Disk Marker is the preferred option. Opportunities to install fiber optic markers on pre-existing signs, guard rails, or other transportation system infrastructure should be utilized to further reduce the potential for visual impacts.

## **VAULTS**

Placement of vaults must consider avoidance of protected coastal resources and environmental hazard areas. Specifically, consideration of vault spacing flexibility (i.e., less than the standard requirement of every 2,500 feet) is necessary for vaults in the following locations:

1. Inundated or Saturated Soils
2. Waters of the U.S. or State
3. Wetlands
4. Rivers / streams
5. Environmentally sensitive habitat areas
6. Presence of Cultural or Tribal Resources
7. Designated scenic areas
8. Protected visual resources
9. Prime agricultural soils
10. Areas with high fire, flood, geologic, or other environmental hazards, will be exacerbated by sea level rise

BMPs for avoiding or minimizing coastal resource impacts that may be caused by vaults include:

1. To the extent feasible, install vaults underground or flush with the ground within previously disturbed right-of-way areas. Where vaults must be above-ground, co-locate vaults with existing state facilities or infrastructure.
2. Avoid siting vaults within cultural resource areas, environmental hazard areas, and areas with prime agricultural soils. Siting vaults in areas subject to current or future flood and erosion hazards and sea level rise inundation may cause future operations and maintenance issues.
3. If hazard areas cannot be avoided, provide appropriate design features (e.g., fireproofing, flood-proofing) to minimize hazards risks and support safe, on-going operations of the MMBN.
4. Provide qualified biological and cultural monitors during ground disturbing activities.
5. Consider aesthetic treatments such as colorization or screening to improve compatibility with the surrounding environment and community character. Consult with the Caltrans District Landscape Architect for recommendations on aesthetic treatments to address visual impacts.

For vaults proposed in or near wetlands, consult with the District Project Environmental Teams and Coastal Commission staff to determine if the vault is an allowed use within wetlands pursuant to the Coastal Act, options for relocating the vault with an appropriate buffer distance from wetlands (typically 100 feet), and whether mitigation may be necessary for any unavoidable impacts.

The Coastal Act requires the protection of ESHAs from any significant disruption of habitat values and only allows for uses that are dependent on ESHA resources; broadband is not such a use. Every effort should be made to site development such as vaults out of ESHAs because of these prohibitions, or more complicated permitting considerations and procedures will be triggered.

### **VAULTS MARKERS**

Vault markers have the potential for visual impacts as an above-ground component of the MMBN network. To reduce visual impacts from the Vault Markers, the Disk Marker is the preferred option. Opportunities to install vault markers on pre-existing signs, guard rails, or other transportation system infrastructure should be utilized to further reduce the potential for visual impacts.

### **NETWORK HUB SHELTERS**

Placement of network hub shelters must consider avoidance of protected coastal resources and environmental hazard areas. Advance consultations between Caltrans and Coastal Commission staff regarding the siting of network hub shelters in the coastal zone are strongly recommended. Specifically, consideration of network hub shelter spacing flexibility (i.e., within 5 miles of the proposed location) is necessary for network hub shelters that are proposed within or in close proximity to the following locations:

1. Inundated or Saturated Soils
2. Waters of the U.S. or State
3. Wetlands
4. Rivers / streams
5. Environmentally sensitive habitat areas
6. Presence of Cultural or Tribal Resources
7. Designated scenic areas
8. Designated scenic highways
9. Protected visual resources
10. Viewsheds from public beaches or trails
11. Prime agricultural soils
12. Areas with high fire, flood, geologic, or other environmental hazards, including those that will be exacerbated by sea level rise

BMPs for avoiding or minimizing coastal resource impacts that may be caused by network hub shelters include:

1. To the extent feasible, site network hub shelters within previously disturbed right-of-way areas and co-locate network hub shelters with existing state facilities or infrastructure, particularly those areas where electrical service is already available; this can both reduce environmental impacts and potential construction delays.
2. Site network hub shelters a minimum of 100 feet from any ESHA, wetland, and stream/riparian corridor.
3. Avoid siting network hub shelters within cultural resource areas, environmental hazard areas, and areas with prime agricultural soils. Siting network hub shelters in areas subject to current or future flood hazards, coastal erosion, and sea level rise inundation may cause future operations and maintenance issues. Network hub shelters must be sited to avoid the need for shoreline protective devices (e.g., seawalls, revetments) over the full design life of the infrastructure.
4. If hazard areas cannot be avoided, provide appropriate design features (e.g., fireproofing, flood-proofing) to minimize hazards risks and support safe, on-going operations of the MMBN.
5. Provide qualified biological and cultural monitors during ground disturbing activities.
6. Every effort should be made to place network hub shelters outside of ESHAs, provide adequate buffers around those areas, and avoid any negative impacts to coastal public access. Consult with the Caltrans District Landscape Architect for recommendations on adequate buffers to address visual impacts.

Aesthetic treatments such as architectural styling, colorization and other design options for the fence, shelter structure, and any other above-ground infrastructure to match the surrounding community character should be considered. Providing visual impact analyses such as network hub shelter renderings and early coordination with Coastal Commission staff will support efforts to minimize visual impacts and speed the process for appropriately siting the facilities. Consult with the Caltrans District Landscape Architect to perform a visual impact analysis.

## APPENDIX A: RELEVANT COASTAL ACT POLICIES

Relevant policies of the Coastal Act include, but are not limited to, the below. For complete and current Coastal Resources Planning and Management Policies, reference Chapter 3 of the [Coastal Act](#).

**30210.** In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously

# COASTAL MIDDLE-MILE BROADBAND NETWORK

## Coastal Resources Assessment

Prepared for  
California Coastal Commission

September 2023







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# EXECUTIVE SUMMARY

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## ES.1 Introduction

The State of California is undertaking a statewide initiative to build a critical fast-speed internet network. The Middle-Mile Broadband Network (MMBN) project would connect the large core internet pipelines (termed the first-mile broadband network) to homes and communities (termed the last-mile broadband infrastructure), with an emphasis on reaching unserved and underserved communities. Last-mile infrastructure relies on the middle-mile to provide service to residents, large and small businesses, schools, government offices, public safety agencies, and libraries; yet middle-mile networks, especially in underserved communities and more rural areas of the state, often remain unbuilt.<sup>1</sup>

In July 2021, Governor Gavin Newsom signed Senate Bill (SB) 156 into law to create an equitable, high-speed, open-access, MMBN that would use high-capacity fiber-optic cable lines to carry large amounts of data at higher speeds over longer distances between local networks. The MMBN project is intended to address inequities in access to internet connection options, the importance of which has been magnified through the COVID-19 pandemic, as Californians are more reliant on remote connectivity for healthcare, education, and employment than ever before. SB 156 aims to bridge the digital divide, increase equity, and provide reliable and affordable internet access to all Californians. The law calls for expanding the state’s broadband fiber-optic infrastructure and increasing internet connectivity for families and businesses.

SB 156, supported by Executive Order (EO) N-73-20, directs the State Department of Technology (CDT) to oversee and manage the development, implementation, and operation of the MMBN project; however, the bill also requires all State agencies to work in cooperation to expedite delivery and permitting. In order to facilitate rapid build-out throughout the state, the MMBN would be installed along state highways in state right-of-way.

Under the project, approximately 456 miles of broadband infrastructure would be installed within California’s coastal zone (referred to herein as “the coastal MMBN project” or “the project”). Since the broadband infrastructure would be placed within the State Highway System right-of-way, the California Department of Transportation (Caltrans) is responsible for planning, designing, and constructing the network within the coastal zone. CDT will be the permit applicant for project segments, and Caltrans will be the permit agent. Caltrans is also responsible for obtaining (whether as permittee or agent for the CDT) coastal development permits (CDPs) from the

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<sup>1</sup> California Department of Transportation (Caltrans) and California Department of Technology (CDT), 2023. Middle-Mile Broadband Network Design Guidelines. April 2023.

California Coastal Commission (Coastal Commission), or from local governments with certified Local Coastal Programs (LCPs) pursuant to the California Coastal Act.

By its nature of facilitating connection to coastal communities and following state coastal highways, the MMBN raises multiple Coastal Act issues. However, Caltrans will not be preparing accompanying California Environmental Quality Act (CEQA) documentation prior to or concurrent with the CDP applications because Caltrans believes the project meets the criteria of the statutory exemption from CEQA provided under SB 156. For this reason, and to facilitate expedited review and permitting in accordance with SB 156 requirements and timelines, the Coastal Commission has undertaken a statewide environmental assessment of the project's potential coastal resource impacts and Coastal Act policy implications in advance of receiving CDP applications. This assessment report will enable Coastal Commission staff's evaluation of Caltrans' CDP applications in alignment with the expedited coastal MMBN project timeframes and in the absence of other comprehensive environmental analysis, such as would typically be provided in a CEQA document. This evaluation will provide the basis for staff recommendations to the Coastal Commission, and this report, along with other materials and staff analysis, will support the Commission's evaluation and decision-making on MMBN permit applications.

Although Commission staff may use this information in developing recommendations for the Commission, and the Commission may use it in making permit decisions, this assessment does not represent the findings of the Commission and nothing in this document limits the Commission or its staff from relying on other evidence or coming to other conclusions regarding the proposed project's impacts or its consistency with the Coastal Act.

## **ES.2 Project Overview**

Coastal MMBN project infrastructure and associated underground and aboveground elements include fiber optic cable conduit, underground vaults, cable and vault markers, paved maintenance pullouts, and network hub shelters. In rare circumstances, where underground placement is not feasible, the fiber optic cable may be placed aurally along an existing utility pole right-of-way. Five network hub shelters would be located within the coastal zone. Construction staging areas would be located within the project area as well. The coastal MMBN project conduit would be installed using various methods depending upon site conditions and existing coastal resources to be avoided. Potential conduit installation methods include plowing, trenching, horizontal directional drilling, jack and drill casing, or bridge mounting. Disturbed areas would be restored after construction is completed.

The project would extend from Del Norte County in the north to San Diego County in the south, and would include elements in Caltrans districts 1, 4, 5, 7, 12, and 11. Each district contains multiple segments, and certain segments may be prioritized for implementation ahead of others. While the exact location of the project elements for each segment has not yet been determined, all construction activity would occur within the State Highway System right-of-way, which is termed the "right-of-way" or "project area." The final siting of coastal MMBN project elements would be determined as Caltrans develops project plans, in consultation with Coastal Commission and other resource agency staffs, and would be dependent on geography, the presence of coastal



resources or coastal hazards, and the potential for impacts to those resources (including the potential need for avoidance or mitigation), with an overarching goal of avoiding all impacts to natural and tribal resources.<sup>2</sup>

## ES.3 Approach to Analysis

Given the scale of the project, lack of specific design detail, and expedited timeline, this report relies almost entirely upon existing available geospatial data for project area characterization and impacts analyses. The approach to analysis included a robust literature review and geospatial data compilation effort, a gap analysis of the compiled information, a field study to address identified data gaps, and development of a geospatial database (coastal MMBN geodatabase) containing project description and coastal resource and hazard information compiled during the literature review and field study. The coastal MMBN geodatabase includes a customized dashboard to support resource information queries by resource topic, project area, and jurisdiction of interest (e.g., Caltrans district, county, local coastal program segment). The coastal MMBN geodatabase is available to Coastal Commission staff for use alongside this report when reviewing Caltrans' CDP applications for individual project segments.

## ES.4 Summary of Issues

The project involves installing fiber-optic cable conduit, vaults, and network hub shelters and associated improvements. Most of the infrastructure would be placed at ground level or underground, except for network hub shelters and certain segments of conduit or cable for which underground siting is not feasible. Impacts would mostly be temporary, limited to the construction phase. Permanent impacts would be largely confined to installation of the five network hubs within the coastal zone. There could also be the potential for small areas of permanent impacts where project elements would need to be located above-ground due to site constraints (i.e., bridges) or for access (i.e., maintenance vehicle pullouts, object markers). The analysis concluded that the project may result in coastal resource impacts or hazards risks that could be considered to have consistency issues with the Coastal Act, as summarized below. Avoidance and minimization measures are recommended to address such impacts and resolve potential policy conflicts. A list of the recommended measures is provided in Section E.5.

- **Public Access and Recreation.** The project could temporarily impact public access and recreation within and beyond the project area through closure of coastal routes or parking areas during construction.
- **Environmentally Sensitive Habitat Areas.** The project could temporarily or permanently impact environmentally sensitive habitat areas (ESHA) through the removal and/or trampling of vegetation, inadvertent placement of project materials, or accidental discharges of hazardous materials (e.g., drilling muds), increased human presence, noise, and lighting. The project could also result in special-status plant or animal mortality, disruption of animal foraging and breeding behaviors, or degradation of suitable habitat.

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<sup>2</sup> California Department of Transportation (Caltrans), 2022. Middle-Mile Broadband Network Coastal Zone Guidelines for Programmatic Permitting. December 2022.

- **Water Quality, Coastal Waters, and Wetlands** The project could impact waters and wetlands through inadvertent vegetation trampling and soil compaction from equipment operation or staging, vegetation clearing for access to work areas, soil excavation during facility installation, placement of project elements in wetlands, and topographic modifications affecting surface hydrology. The project could degrade the quality of coastal waters through direct or indirect discharges of drilling mud, equipment fuel, bore or trench spoils, concrete and asphalt, paints and solvents, contaminated soil, and polymer and asphalt dust.
- **Visual and Scenic Resources and Community Character.** The project may require vegetation removal or grading which could diminish the scenic and visual quality of coastal areas. The project would also introduce new vertical features into the coastal zone which could diminish the visual quality and character of the project area. The project may require the placement of conduit along the exterior of historic bridges, which could impact their historic character.
- **Cultural and Paleontological Resources.** Project activities involving ground disturbance could result in permanent adverse effects on pre-contact Native American archaeological resources and historic-era archaeological resources as well as historic-era architectural resources. Impacts on paleontological resources would not be expected due to the depth of paleontologically sensitive geologic deposits.
- **Hazards.** By its necessity of being located along coastal highways, the MMBN is subject to potential coastal hazards that also generally threaten existing highways. The project could theoretically increase risk to life or property through placement of project elements in areas subject to current or future flooding (e.g., with sea-level rise), tidal inundation, groundwater intrusion, tsunamis, coastal erosion, earthquakes, or wildfire.
- **Agriculture.** The project could result in the permanent conversion of mapped or zoned agricultural lands within the project area, but is unlikely to convert prime farmland in active production.
- **Environmental Justice.** Since project construction would occur along the length of the project alignment, impacting all State Highway Segments in the coastal zone equally, the project would not result in disproportionate impacts to any specific disadvantaged communities. Installation of network hub shelters could impact the surrounding communities for longer periods than other project elements, but none of the hub shelter sites would be located within identified disadvantaged communities. The project would benefit disadvantaged and under-resourced communities and reduce inequities through access to more reliable, faster, and affordable high-speed internet.

## ES.5 Impact Avoidance and Minimization Measures

Impact avoidance and minimization measures developed for the project include those recommended in Chapter 4, *Environmental Setting, Impacts, Minimization Measures, and Policy Consistency*, along with best management practices developed by Caltrans and Coastal Commission staff. Recommended avoidance and minimization measures and best management practices are summarized below. Additional or fewer measures may be required to assure that coastal resources impacts or hazards risks are avoided, depending upon the project description details within each coastal development permit application. As the project is expected

to be constructed in segments, which may vary in time within and across districts, applicable measures are intended to apply to each individual project segment.

## Avoidance and Minimization Measures

**Table ES-1** presents the text of avoidance and minimization measures recommended in Chapter 4.

## Best Management Practices

Caltrans, in coordination with Coastal Commission staff, has prepared guidance to support the Caltrans District Project Development Teams (PDTs) in complying with the Coastal Act. The document, *Middle-Mile Broadband Network Coastal Zone Guidelines for Programmatic Permitting*,<sup>3</sup> outlines best management practices for planning, siting, designing, and constructing the coastal MMBN project in ways to conform to Coastal Act policies.<sup>2</sup> The project's *Design Guidelines*<sup>4</sup> reference the *Coastal Zone Guidelines* and state they should be considered for project elements in the coastal zone to avoid and minimize coastal resource and public access impacts associated with project components. While the *Coastal Zone Guidelines* are not design requirements, it is expected that District PDTs will incorporate relevant best management practices into their project designs and CDP applications. Impact avoidance and minimization measures are proposed for the project based on measures approved by the Coastal Commission for similar projects, with the intent that these measures could be incorporated into future CDPs as necessary.

<sup>3</sup> Caltrans, 2022. Middle-Mile Broadband Network Coastal Zone Guidelines for Programmatic Permitting. December 2022.

<sup>4</sup> Caltrans and California Department of Technology (CDT), 2023. Middle-Mile Broadband Network Design Guidelines. April 2023.

**TABLE ES-1  
RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
<b>4.1 Public Access and Recreation</b>		
PAR-1	<b>Public Access, Traffic, and Staging Management and Notification Plan</b>	The Permittee shall prepare and implement a Public Access, Traffic, and Staging Management and Notification Plan for each MMBN project segment where temporary impacts to public access and circulation will occur during project construction. The Plan shall be designed to (1) limit lane closures and the use of public access pull outs for construction staging or operations to the maximum extent feasible; (2) provide for continuous pedestrian, bicyclist, and emergency vehicle access through or around the work corridor; (3) ensure that public parking areas remain accessible or alternative, temporary and equivalent replacement public parking is provided during construction; and (4) provide notice to affected local communities of impending construction with resulting traffic delays and other effects to the traveling and local public, with available alternative routes or detours identified, and messaging and signage in languages used by the local community.
PAR-2	<b>Construction Timing</b>	Construction is prohibited during weekend days and public holidays from the Saturday of Memorial Day weekend through Labor Day inclusive, unless the Executive Director authorizes such work due to extenuating circumstances. During this timeframe, maintenance of equipment and material storage is permitted during weekends and during non-daytime hours (i.e., from one-hour after sunset to one-hour before sunrise).
<b>4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas</b>		
<b>General Measures</b>		
BIO-1	<b>Resource Review and General Pre-construction Surveys</b>	<p><b>Pre-construction Survey:</b> A qualified biologist<sup>5</sup> shall conduct a desktop review, including via the coastal MMBN project GIS database, CNDDDB and other relevant BIOS layers, CalFlora, etc. for areas within 2 miles of the site. This shall be followed by pre-construction surveys to verify the presence/absence of aquatic resources (including wetlands as defined in Coastal Act section 30121) and/or potential ESHA within 200 feet of the project area, and/or special-status species within 500 feet of the project area and delineate any sensitive resource areas and their appropriate buffers as specified in <b>Avoidance and Minimization Measures BIO-5 through BIO-16</b>. The following additional measures shall be undertaken, as applicable:</p> <ol style="list-style-type: none"> <li>1) If special-status species are mapped with CNDDDB occurrences in the survey area, the Permittee shall implement specialty pre-construction survey requirements as set forth in <b>Avoidance and Minimization Measures BIO-6 and BIO-8 through BIO-16</b>, based upon species present.</li> <li>2) If a special-status plant or animal species, or suitable habitat, is detected during the general pre-construction survey, the Permittee shall implement the protective measures set forth in <b>Avoidance and Minimization Measures BIO-6 through BIO-16</b> for special-status plants, invertebrates, birds, amphibians and reptiles, and mammals, as applicable.</li> <li>3) If aquatic resources and/or ESHA are detected during the general pre-construction survey, the Permittee shall implement the additional protective measures set forth in <b>Avoidance and Minimization Measure BIO-5, Coastal Waters/Wetlands/ESHA</b>.</li> <li>1) 4) The Permittee shall revise project construction plans/methods as necessary to avoid direct impacts to aquatic resources and/or ESHA or special-status species identified in the pre-construction survey (e.g., utilize HDD installation, trench in pavement).</li> </ol>

<sup>5</sup> A qualified biologist or environmental resources specialist is an individual with a four-year degree in biological sciences and at least three years of local (i.e., to the region) field experience surveying the respective special-status species and their habitat that may occur on the site.

**TABLE ES-1 (CONTINUED)**  
**RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)		
<i>General Measures (cont.)</i>		
BIO-2	<b>Worker Environmental Awareness Program Training</b>	A qualified biologist shall develop and present a Worker Environmental Awareness Program (WEAP) training to construction personnel prior to the commencement of construction activities within the project area of a given project segment. The training shall be required for all project personnel prior to their work on the site and shall inform recipients of the applicable permit requirements, in addition to the potential presence of ESHA, aquatic resources (wetlands and open water), or special-status species resources in proximity to the project area. The training shall establish and notify workers of the communication protocol for when sensitive resources are detected or impacted during construction activities. This information shall also be available at the job site to ensure the importance of these measures is recognized. All participants in the training shall provide written verification that they have completed the training. The Permittee shall maintain updated training verification logs and provide the logs and training materials to the Executive Director and appropriate resource agencies for review within 24 hours of receipt of request.
BIO-3	<b>Biological Monitoring</b>	<p>Prior to commencement of construction of a given project segment, the Permittee shall retain the services of a qualified biologist or environmental resources specialist to monitor the site during construction activities and conduct surveys of sensitive species.<sup>6,7</sup></p> <ul style="list-style-type: none"> <li>• A qualified biologist or resource specialist shall be present onsite during construction to monitor all ground-disturbing activities within 200 feet of aquatic resources (wetlands and open water) and ESHA, to avoid or minimize impacts to coastal waters, wetlands, ESHA, or the special-status species occupants of these resources.</li> <li>• A qualified biologist or resource specialist shall document all project activities concerning these resources in daily logs that will at a minimum include the following: date, monitor information, weather details, description of construction activities, incidences of non-compliance and any resolutions.</li> <li>• The Permittee shall prepare and submit to the Coastal Commission a post-construction monitoring report within 90 days of completion of construction. The report shall include, at a minimum, a brief description of project activities, the results of all resource surveys performed, details of resources encountered, and a documentation of environmental/biological compliance (e.g., avoidance, impacts, and mitigation).</li> </ul>
BIO-4	<b>Artificial Nighttime Lighting</b>	For construction and operation of project elements within 200 feet of ESHA, avoid nighttime construction to the extent feasible. If unavoidable, all temporary and permanent artificial nighttime lighting shall be shielded, directed downward and away from adjacent ESHA, and be the minimum necessary for safety to minimize potential effects on wildlife that may utilize the habitat. Any use of artificial night lighting must incorporate protocols published by the International Dark Sky Association, such as use of lighting with a color temperature of 3000K and below to reduce short-wave blue-violet light that is more harmful to wildlife.

<sup>6</sup> For the purpose of this mitigation measure, “sensitive species” shall be taken to mean species listed or candidates for listing as threatened, endangered, or fully protected under the Federal Endangered Species Act or California Endangered Species Act; species identified as a CDFW Species of Special Concern or Special Animal; species with a NatureServe State or Global Rank 1-3; plant species with a California Rare Plant Rank of 1 or 2.

<sup>7</sup> A qualified biologist or environmental resources specialist is an individual with a four-year degree in biological sciences and at least three years of local (i.e., to the region) field experience surveying the respective special-status species and their habitat that may occur on the site.

**TABLE ES-1 (CONTINUED)  
RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)		
<i>Coastal Waters and Wetlands</i>		
WET-1	<b>Best Management Practices</b>	<p>The Permittee shall implement the following best management practices (BMP) during all phases of project construction:</p> <ol style="list-style-type: none"> <li>1. <b>Runoff Protection.</b> Silt fences, straw wattles, or equivalent apparatus shall be installed at the perimeter of all construction areas to prevent construction-related runoff and sediment from discharging from the construction area entering into storm drains, or otherwise offsite or towards the beach and ocean. Special attention shall be given to appropriate filtering of all runoff, and all drainage points, including storm drains, shall be equipped with appropriate construction-related containment and filtration equipment. All runoff controls shall be in place during construction.</li> <li>2. <b>Erosion Control.</b> Erosion, sediment, and vehicle tracking control BMPs shall be installed as necessary within the project area (e.g., staging areas, hub locations) to prevent construction-related runoff. Erosion control devices include, but are not limited to fiber rolls, silt fence and shaker plates. Fiber rolls shall be biodegradable, and all erosion control devices shall be installed and maintained such that they will not entrap or harm wildlife. To minimize wildlife entanglement and plastic debris pollution, the use of temporary rolled erosion and sediment control products with plastic netting (such as polypropylene, nylon, polyethylene, polyester, or other synthetic fibers used in fiber rolls, erosion control blankets, and mulch control netting) is prohibited. Any erosion-control associated netting shall be made of natural fibers and constructed in a loose-weave design with movable joints between the horizontal and vertical twines.</li> <li>3. <b>Equipment BMPs.</b> Equipment washing, and maintenance shall take place at an appropriate off-site and inland location to help prevent leaks and spills of hazardous materials at the project site, preferably on an existing hard surface area (e.g., a road) or an area where collection of materials is facilitated. All construction equipment shall also be inspected and maintained at a similarly sited inland location to prevent leaks and spills of hazardous materials at the project site. Fueling and maintenance of construction equipment and vehicles shall be conducted off site if feasible. Any fueling and maintenance of mobile equipment conducted on site shall take place at a designated area located at least 50 feet from coastal waters, drainage courses, and storm drain inlets, if feasible (unless those inlets are blocked to protect against fuel spills). The fueling and maintenance area shall be designed to fully contain any spills of fuel, oil, or other contaminants. Equipment that cannot be feasibly relocated to a designated fueling and maintenance area may be fueled and maintained in other areas of the site, provided that procedures are implemented to fully contain any potential spills.</li> <li>4. <b>Good Housekeeping.</b> Active construction areas shall be maintained clean and free of deleterious materials at all times. Secondary containment should be placed beneath all construction equipment and hazardous material, and any leaks or other spills of hazardous substances shall be cleaned up immediately. Stockpiled materials (e.g., topsoil or backfill material) shall be adequately covered and contained to prevent runoff and sedimentation of nearby sensitive resources. Waste generated during construction shall be collected in covered, locking receptacles, that are emptied and disposed of properly, on a routine basis.</li> <li>5. <b>Trash/Debris.</b> During construction, all trash and debris shall be properly contained, removed from the work site, and disposed of on a regular basis to avoid contamination of habitat during construction activities. Any debris inadvertently discharged into coastal waters or surrounding habitats shall be recovered immediately and disposed of consistent with the requirements of this CDP. All construction debris shall be disposed of in an upland location outside of the coastal zone or at another disposal facility approved by the Executive Director.</li> </ol>

**TABLE ES-1 (CONTINUED)**  
**RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)		
<i>Coastal Waters and Wetlands (cont.)</i>		
WET-2	Debris Disposal Plan	Not less than ninety (90) days prior to the anticipated commencement of construction of a given project segment, the Permittee shall submit, for the review and approval of the Executive Director, a plan for the disposal of excess construction debris and hazardous materials (e.g., contaminated soils and groundwater). The plan shall list the names of all authorized disposal site(s) where materials will be lawfully disposed of and describe the manner and schedule by which the materials will be removed from the construction site. The Permittee shall undertake development in accordance with the approved final Debris Disposal Plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.
WET-3	Spill Prevention	Fuels, lubricants, solvents, and other hazardous materials shall not be allowed to enter the coastal waters or wetlands. Hazardous materials management equipment shall be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials cleanup/remediation service shall be locally available on call. Any accidental spill shall be rapidly contained and cleaned up consistent with the Water Quality and Wetland Protection and Frac-out Contingency Plan required by <b>Avoidance and Minimization Measure WET-4, Water Quality and Wetland Protection</b> , and <b>Avoidance and Minimization Measure WET-5, Frac-Out Contingency Plan</b> .
WET-4	Water Quality and Wetland Protection	Not less than ninety (90) days prior to the anticipated commencement of construction of a given project segment, the Permittee shall submit for the review and approval of the Executive Director a final Water Quality Protection Plan prepared in accordance with the requirements of the mitigation measures recommended herein and containing the following components: <ul style="list-style-type: none"> <li>A. A Linear Construction Activities Notification (LCAN) or equivalent requirement (e.g., Storm Water Pollution Prevention Plan (SWPPP)) for development authorized that prevents contamination of wetlands and associated damage to sensitive species from storm water runoff during the proposed construction period; and</li> <li>B. Post-construction Best Management Practices (BMPs) plan for development authorized under the permit for water quality protection. The plan shall prioritize the use of BMPs in the following order: 1) site design BMPs (including by minimizing impervious surfaces), 2) source control BMPs, 3) treatment control BMPs. The BMPs shall be designed to treat, infiltrate, or filter the amount of storm water runoff produced by all storms up to and including the 85th percentile, 24-hour storm event for volume-based BMPs, and/or the 85th percentile, 1- hour storm event (with an appropriate safety factor of 2 or greater) for flow-based BMPs. The plan shall include provisions for long term maintenance to ensure that the BMPs will continue to provide water quality protection for the life of the development; and</li> <li>C. A plan for the management and/or disposal of soils at the project site identified as contaminated with Aerially Deposited Lead (ADL), prepared in accordance with the 2016 DTSC-Caltrans Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils.</li> </ul> The Permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to the CDP unless the Executive Director determines that no amendment is legally required.

**TABLE ES-1 (CONTINUED)  
RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
<b>4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)</b>		
<b>Coastal Waters and Wetlands (cont.)</b>		
<b>WET-5</b>	<b>Frac-Out Contingency Plan</b>	<p>Not less than ninety (90) days prior to the anticipated commencement of construction of a given project segment, the Permittee shall submit to the Executive Director for review and approval a Frac-Out Contingency Plan. The plan shall include, at a minimum:</p> <ol style="list-style-type: none"> <li>1. An evaluation of a worst-case spill volume;</li> <li>2. A commitment to use water as a drilling fluid for the last 60-100 feet of the HDD bore before the drill punches out into the exit pit if soil conditions allow.</li> <li>3. Measures describing training of personnel, monitoring procedures, equipment, materials and procedures in place for the prevention, containment, clean up, and disposal of released drilling muds, and agency notification protocols;</li> <li>4. Methods for detecting the accidental release of drilling fluids that may include:               <ol style="list-style-type: none"> <li>a. Continuous monitoring of drilling fluid, bore path, and water bodies by a qualified drilling monitor during the entire duration of HDD construction activities;</li> <li>b. monitoring by a minimum of one biological monitor throughout drilling operations to ensure swift response if a release (i.e., frac-out) occurs;</li> <li>c. continuous monitoring of drilling pressures to ensure they do not exceed those needed to penetrate the formation;</li> <li>d. continuous monitoring of mud returns at the exit and entry pits to determine if total fluid volume in circulation has been lost;</li> <li>e. continuous monitoring by spotters to follow the progress of the drill bit during the pilot hole operation, and reaming and pull back operations;</li> <li>f. protocols the Permittee will follow if there is a loss of circulation or other indicator of a release of fluids;</li> <li>g. protocols the Permittee will follow if there is a fluid release on beach or other onshore habitat (e.g., isolating the area through construction of temporary berms/dikes and use of silt fences, straw bales, absorbent pads, straw wattles, and plastic sheeting);</li> <li>h. protocols the Permittee will follow if there is a fluid release in open coastal waters (e.g., immediately erect an isolation/containment environment (underwater boom and curtain)); and/or</li> <li>i. Protocols for halting work if a frac-out and fluid release occurs and notifying and consulting with the staffs of the Coastal Commission, CDFW's Office of Spill Prevention and Response, and National Oceanic and Atmospheric Administration Fisheries, as appropriate, regarding incident-specific actions to be undertaken before HDD activities can begin again.</li> </ol> </li> </ol>
<b>Coastal Waters/Wetlands/ESHA</b>		
<b>BIO-5</b>	<b>Coastal Waters/Wetlands/ESHA</b>	<p>A qualified biologist or resource specialist shall establish a construction exclusion buffer of 200 feet around aquatic (wetland and open water) resources and/or ESHA based on the results of the pre-construction survey (BIO-1). The biologist shall demarcate the boundaries of ESHA and delineate aquatic resources (riparian, wetland, and open waters) within and adjacent to the project area, and routinely inspect the integrity of those boundaries, to ensure that they are visible for construction personnel. Any fencing that is used shall be properly installed. If any fencing is removed, damaged, or otherwise compromised during the construction period, the Permittee shall cease construction activities until the fencing is repaired or replaced.</p>



**TABLE ES-1 (CONTINUED)**  
**RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)		
<i>Coastal Waters/Wetlands/ESHA (cont.)</i>		
BIO-5 (cont.)		<p>1) If construction must occur within 200 feet of aquatic resources/ESHA, but direct impact to the aquatic resource/ESHA can be avoided, a suitable exclusion area (as determined by a qualified biologist) shall be demarcated for avoidance during construction activities to avoid degradation of the aquatic resource or ESHA. When working within 200 feet of aquatic resources/ESHA, appropriate best management practices shall be implemented as described in <b>WET-1, WET-2, WET-3, and WET-4</b>, such as erosion control measures and secondary containment for all vehicles, mechanical equipment and construction material, to prevent construction-generated runoff into aquatic resources and/or ESHA.</p> <p>2) If the project alignment traverses aquatic resources/ESHA, the following shall be implemented to avoid or minimize impacts to these resources:</p> <p>a) Where plow or trench method installation of conduit is proposed in locations identified as aquatic resources/ESHA and adjacent to asphalt or concrete pavement within the right-of-way, the Permittee shall implement the following to avoid or minimize impacts to aquatic resources/ESHA:</p> <p>i) If asphalt is present adjacent to the aquatic resource/ESHA, utilize open-cut-trench methods to install the conduit within the asphalt pavement.</p> <p>ii) If concrete is present adjacent to the aquatic resource/ESHA, utilize HDD installation methods. Site bore entrance and exit pits outside of aquatic resources/ESHA in accordance with BIO-5, Part 1), but no less than 100-feet from the edge of the aquatic resource/ESHA, unless a reduced buffer distance, that ensures no adverse effect on the resource, is recommended by the qualified biologist and approved by the Executive Director. See <b>WET-5</b> for frac-out plan requirements associated with HDD installation.</p> <p>If the project alignment would occur directly above aquatic resources/ESHA (e.g., on a viaduct crossing freshwater/saline marsh ESHA-wetlands), the following shall be implemented to avoid or minimize impacts to these resources:</p> <p>b) The Permittee shall implement the following to avoid or minimize conduit construction impacts on aquatic resources/ESHA at surface drainages:</p> <p>i) Install the fiber optic conduit within or attach it to existing bridge infrastructure, if present; or</p> <p>ii) Utilize HDD installation. Site bore entrance and exit pits outside of aquatic resources/ESHA in accordance with BIO-5, Part 1), but no less than 100-feet from the edge of the aquatic resource/ESHA, unless a reduced buffer distance, that ensures no adverse effect on the resource, is recommended by the qualified biologist and approved by the Executive Director. See <b>WET-5</b> for frac-out plan requirements associated with HDD installation.</p>
<b>Plants</b>		
BIO-6	Plants	If special-status plant species are documented in CNDDB within potential ESHA that could be directly impacted by the project, a qualified biologist/botanist shall conduct a pre-construction botanical survey for special-status plant species within 50 feet of the project area within the potential ESHA. The focused surveys shall be conducted during the appropriate blooming period for each species(s) and in accordance with CDFW's <i>Protocols for Surveying and Evaluating Impacts to Special Status Native Plant</i>

**TABLE ES-1 (CONTINUED)  
RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
<b>4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)</b>		
<b>Plants (cont.)</b>		
<b>BIO-6</b> (cont.)		<i>Populations and Sensitive Natural Communities.</i> <sup>8</sup> If special-status plants are detected within 50 feet of the project impact area, a suitable exclusion area (as determined by a qualified biologist) shall be demarcated to avoid impacts to special-status plants. Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.
<b>BIO-7</b>	<b>Invasive Species Control</b>	Construction equipment shall be cleaned prior to use on the project to minimize the potential for the transport, introduction or spread of non-native vegetation through seeds or other plant material (e.g., nodes, roots, etc.). Rock, sand, or any material used for soil erosion control shall originate from a certified weed-free source to avoid the inadvertent introduction of non-native plant species to surrounding environmentally sensitive areas.
<b>Invertebrates</b>		
<b>BIO-8</b>	<b>Invertebrates</b>	A qualified biologist shall conduct a pre-construction survey for special-status terrestrial invertebrates documented in potential ESHA identified as suitable habitat within 100 feet of the project area. If protocol survey procedures have been established or adopted by resource agencies for the invertebrate species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within two weeks prior to initiation of ground disturbance and/or vegetation removal for a given project segment, when ambient temperatures are 60° Fahrenheit (F) or greater, to maximize the likelihood of detection. If any special-status invertebrates are observed within the project area, a qualified biologist shall relocate the individual(s) to suitable habitat outside of the project disturbance area to ensure that construction-related impacts are avoided. Survey results shall be documented and provided to Coastal Commission Executive Director and appropriate resource agencies within 48 hours of receipt of request.  If an active nest of any special-status invertebrate is inadvertently excavated during or prior to construction activities for a given project segment, it shall be carefully replaced to minimize impact to eggs or larvae and remain undisturbed until the biologist determines the nest is inactive.
<b>BIO-9</b>	<b>Bumble Bees</b>	A qualified biologist shall conduct presence/absence surveys for bumble bees documented in potential ESHA identified as suitable habitat within 100 feet of the project area. If protocol survey procedures have been established or adopted by resource agencies for the bumble bee species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within two weeks prior to initiation of ground disturbance and/or vegetation removal for a given project segment, when ambient temperatures are 60° Fahrenheit (F) or greater, to maximize the likelihood of detection. If a bumble bee nest is detected within 50 feet of the project impact area, a suitable exclusion area (as determined by a qualified biologist) shall be demarcated to avoid impacts to the nest. Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.
<b>BIO-10</b>	<b>San Diego Fairy Shrimp</b>	A biologist possessing an Endangered Species Act section 10(a)(1)(A) scientific research permit for listed large branchiopods shall conduct focused surveys (both wet and dry season) for the San Diego fairy shrimp within potential ESHA identified as suitable habitat and containing previous CNDDDB occurrence records within 500 feet of the project area. The survey shall be conducted in accordance with the U.S. Fish and Wildlife Service <i>Survey</i>

<sup>8</sup> CDFW 2018. Protocols for surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural communities. March 20, 2018. file:///C:/Users/rsweet/Downloads/2018%20Protocols%2013%20rev1.pdf

**TABLE ES-1 (CONTINUED)**  
**RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
<b>4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)</b>		
<b><i>Invertebrates (cont.)</i></b>		
<b>BIO-10</b> (cont.)		<i>Guidelines for the Listed Large Brachiopods.</i> <sup>9</sup> If San Diego fairy shrimp are detected within 50 feet of the project impact area, a suitable exclusion area (as determined by the permitted biologist) shall be demarcated to avoid impacts to the fairy shrimp. Survey results shall be provided to the Executive Director and appropriate resource agencies prior to commencement of construction of each construction phase segment.
<b><i>Birds</i></b>		
<b>BIO-11</b>	<b>Nesting Birds</b>	If project construction activities occur during the bird nesting season (generally defined as January 1 through September 1), a qualified biologist shall conduct a pre-construction survey within 30 days of the anticipated start date, and no less than 3 days prior to vegetation removal or ground disturbance of a given project segment, to identify any active nests within 500 feet of the project impact area. If protocol survey procedures have been established or adopted by resource agencies for the sensitive avian species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. Active nest(s) shall be avoided, and a suitable no disturbance buffer zone shall be established around the nest until a qualified biologist determines the nest is no longer active. No disturbance buffers shall be 300 feet around for passerine nests, 500 feet around for raptor nests, and up to 1,000 feet around nests of state or federally listed species. Avoidance buffers may be reduced from these distances at the discretion of a qualified biologist who will monitor bird behavior associated with work within the buffer to assess the respective species tolerance to human presence and construction-related noises and vibrations associated with the work. Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.
<b><i>Amphibians and Reptiles</i></b>		
<b>BIO-12</b>	<b>Amphibians and Reptiles</b>	A qualified biologist shall conduct a pre-construction survey for special-status amphibians and reptiles documented in potential ESHA identified as suitable habitat within 100 feet of the project impact area. If protocol survey procedures have been established or adopted by resource agencies for the sensitive amphibian or reptile species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within 3 days prior to vegetation removal or ground disturbance and immediately prior to initiation of construction activities for project segments, when ambient temperatures are 60° Fahrenheit (F) or greater, to maximize the likelihood of detection. If any special-status amphibians and reptiles are observed within the project area, a qualified biologist shall relocate the individual(s) to suitable habitat outside of the project site to ensure that construction-related impacts are avoided. If a species listed as endangered or threatened under the federal Endangered Species Act or California Endangered Species Act is detected during the survey, the Permittee shall coordinate with the jurisdictional regulatory agency regarding species relocation. Only biologists possessing an Endangered Species Act section 10(a)(1)(A) scientific research permit for that species shall handle individual(s). Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.  Any project excavation (e.g., conduit trench or HDD entrance/exit pits) shall be filled or covered at the end of the day/overnight/when work is not occurring to prevent animal entrapment and mortality. If excavations cannot be filled or covered, escape ramps with a 3:1 rise shall be installed every 25 feet to allow exit.

<sup>9</sup> U.S. Fish and Wildlife Service (USFWS). 2017. Survey guidelines for the Listed Large Brachiopods. November 13, 2017. <https://www.fws.gov/sites/default/files/documents/survey-guidelines-for-large-brachiopods.pdf>

**TABLE ES-1 (CONTINUED)  
RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

<b>Measure ID</b>	<b>Measure Title</b>	<b>Measure Text</b>
<b>4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)</b>		
<b><i>Amphibians and Reptiles (cont.)</i></b>		
<b>BIO-12 (cont.)</b>	<b>Amphibians and Reptiles</b>	If an active nest of any special-status reptile or amphibian is inadvertently excavated during construction activities, it shall be carefully replaced to minimize impact to eggs or larvae and remain undisturbed until the qualified biologist determines the nest is inactive.
<b><i>Mammals</i></b>		
<b>BIO-13</b>	<b>Mammals</b>	A qualified biologist shall conduct a pre-construction survey for special-status mammals documented in potential ESHA identified as suitable habitat within 500 feet of the project area. If protocol survey procedures have been established or adopted by resource agencies for the sensitive mammal species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within 3 days prior to vegetation removal or ground disturbance and immediately prior to initiation of construction activities for a given project segment, when ambient temperatures are 60° Fahrenheit (F) or greater, to maximize the likelihood of detection. If any special-status mammals are observed within the project area, they shall either be allowed to disperse of their own accord, or a qualified biologist shall attempt to capture the species for relocation. Any captured individuals shall be relocated to suitable habitat outside of the project impact area to ensure that construction-related impacts are avoided. If a species listed by the CDFW or USFWS is detected during the survey, the individual(s) will be relocated by a biologist permitted to handle the species. Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.
<b>BIO-14</b>	<b>Burrowing Small Mammals</b>	<p>A qualified biologist shall conduct small mammal trapping for special-status ground-dwelling mammals documented in potential ESHA identified as suitable habitat within 3 days prior to vegetation removal or ground disturbance and immediately prior to initiation of construction activities for a given project segment. If protocol survey or trapping procedures have been established or adopted by resource agencies for the sensitive small mammal species with potential to occur, they shall be implemented by the qualified biologist. The trapping effort shall be conducted within 100 feet of the project area, during the appropriate time of year, and under appropriate weather conditions to maximize the likelihood of detection. The qualified biologist shall implement best management practices to avoid inadvertent mortality of captured individuals. Any individuals captured shall be relocated to suitable habitat at least 500 feet from the project area ahead of initiation of vegetation removal or ground disturbance. If a species listed as endangered or threatened under the federal Endangered Species Act or California Endangered Species Act is captured during the trapping effort, the individual(s) shall be relocated by a biologist permitted to handle the species. Any individuals observed in the project impact area after the trapping effort is complete shall either be allowed to disperse of their own accord, or a qualified biologist shall attempt to capture for relocation outside of the project impact area. Trapping results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.</p> <p>Any project excavation (e.g., conduit trench or HDD entrance/exit pits) shall be filled or covered at the end of the day/overnight/when work is not occurring to prevent animal entrapment and mortality. If excavations cannot be filled or covered, escape ramps shall be installed with a 3:1 rise every 25 feet to allow exit.</p>

**TABLE ES-1 (CONTINUED)**  
**RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)		
<b>Mammals (cont.)</b>		
BIO-15	Bats	<p><b>In potential ESHA identified as suitable habitat for special-status bats</b> within 500 feet of the project area, a qualified biologist shall conduct a pre-construction survey for active bat roosts. If protocol survey procedures have been established or adopted by resource agencies for the sensitive bat species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within two weeks prior to initiation of ground disturbance and/or vegetation removal for a given project segment and include both a visual (habitat assessment and nighttime emergence survey) and acoustic survey component. If bats are detected during the nighttime emergence survey or active bat roosts are identified within 500 feet of the project area or, the qualified biologist will determine whether the roost is a maternity roost (hosting lactating females and dependent young), hibernation roost (hosting bats in a state of torpor) or day roost (hosting bachelors). Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.</p> <ul style="list-style-type: none"> <li>• If a non-maternity, day roost is detected, the qualified biologist shall ensure that direct mortality to roosting individuals is avoided by preventing disturbance to the roost site while bats are present. <ul style="list-style-type: none"> <li>– A no disturbance buffer shall be established around roost sites until the qualified biologist determines they are no longer active. The size of the no-disturbance buffer shall be determined by the qualified biologist and would depend on the species present, roost type, and existing screening around the roost site (such as dense vegetation or a building), as well as the type of construction activity that would occur around the roost site.</li> <li>– If removal or trimming of any trees supporting a day roost is necessary, the qualified biologist shall ensure that all roosting individuals disperse from the roost site prior to disturbance to prevent direct mortality.</li> <li>– The qualified biologist shall be present during tree/vegetation removal if potential bat roosting habitat or active bat roosts are present and roosts do not contain young. Trees with active roosts shall be disturbed only under clear weather conditions when precipitation is not forecast for three days and when daytime temperatures are at least 50 degrees Fahrenheit.</li> <li>– Removal of trees/vegetation containing or suspected to contain active bat roosts shall be dismantled under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Trees shall be partially limbed to significantly change the roost conditions, causing bats to abandon and not return to the roost.</li> </ul> </li> <li>• If a maternity or hibernation roost is detected, appropriate species- and roost-specific avoidance and protection measures shall be developed by the qualified biologist in consultation with the appropriate regulatory agency. Such measures may include postponing the removal of occupied trees or other structures, establishing exclusionary work buffers while the roost is active (e.g., 100-foot no-disturbance buffer), or other avoidance measures depending on the species present, their protection status, and roost type. If a maternity roost of any size supporting any bat species is detected during surveys, an avoidance buffer, as determined by the qualified biologist, shall be maintained until the young bats are flying. The qualified biologist shall determine the extent of protective buffers, and buffer placement would depend on: the species' sensitivity to disturbance, which can vary among species; the level of noise or construction disturbance; the line-of-sight between the</li> </ul>

**TABLE ES-1 (CONTINUED)  
RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
<b>4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)</b>		
<b>Mammals (cont.)</b>		
<b>BIO-15</b> (cont.)		roost and the disturbance; ambient noise (baseline noise) and other disturbances under existing conditions; and consideration of other topographical or artificial barriers.
<b>BIO-16</b>	<b>Woodrats</b>	<p>A qualified biologist shall conduct a pre-construction survey for San Francisco dusky-footed or San Diego desert woodrat middens where these species are documented in potential ESHA identified as suitable habitat within 500 feet of the project area. If protocol survey procedures have been established or adopted by resource agencies for San Francisco dusky-footed woodrat or San Diego desert woodrat, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within two weeks of initiation of ground disturbance and/or vegetation removal. If active woodrat middens are observed within the project area, they shall be dismantled by hand under the supervision of the biologist, prior to initiation of construction activities for a given project segment. If young are encountered during the dismantling process, the material shall be replaced and the midden shall remain undisturbed until determined by the biologist to be inactive and the young dispersed. After this period, the midden may be dismantled, material relocated, and construction can commence. Midden material shall be relocated to nearby suitable habitat at least 500 feet from the project impact area. Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.</p> <p>Any project excavation (e.g., conduit trench or HDD entrance/exit pits) shall be filled or covered at the end of the day/overnight/when work is not occurring to prevent animal entrapment and mortality. If excavations cannot be filled or covered, escape ramps shall be installed with a 3:1 rise every 25 feet to allow exit.</p>
<b>Compensatory Measures</b>		
<b>BIO-17</b>	<b>Compensation for Impacts to Coastal Waters/Wetlands/ESHA</b>	<p>If direct impacts to aquatic resources/ESHA are proposed and avoidance is infeasible, compensatory mitigation is required, based on the following:</p> <p><b>Short-Term Temporary Impacts</b> – Short-term temporary impacts to aquatic resources/ESHA consist of activities that do not involve ground disturbance or vegetation removal such that the disturbed vegetation can be restored to similar size and maturity within 12 months of initial construction activity disturbance. These impacts shall be mitigated at a 1:1 impact to replacement ratio at the impact site.</p> <p><b>Long-Term Temporary Impacts</b> – Long-term temporary impacts to aquatic resources/ESHA are those described above that may extend over 24 months of construction but require no more than 12 months from the conclusion of the construction activity disturbance to fully recover (collective disturbance not exceeding 36 months in total). These impacts shall be mitigated at a 1:1.5 impact to replacement ratio and shall require partial off-site implementation.</p> <p><b>Permanent Impacts</b> – Permanent impacts to aquatic resources/ESHA include those that involve ground disturbance and vegetation removal which prevent vegetative recovery within the timelines described for temporary impacts, or involves a location where permanent infrastructure replaces aquatic resources/ESHA (e.g., a hub site). Permanent impacts to upland ESHA shall be mitigated at a 3:1 ratio when the mitigation is creation or significant restoration and will require partial off-site implementation. Permanent impacts to aquatic resources (which may also be ESHA) require a 4:1 impact to replacement ratio when the mitigation is creation or significant restoration. When the proposed mitigation is enhancement, the ratio is doubled. When the proposed mitigation is preservation, the ratio is tripled.</p>

**TABLE ES-1 (CONTINUED)**  
**RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)		
<b>Compensatory Measures (cont.)</b>		
<b>BIO-17</b> (cont.)		<p>Mitigation may include payment into a mitigation bank or through an in-lieu fee process; or on/off-site restoration. If restoration is chosen, a Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared and submitted to the Executive Director for review and approval, no less than 60 days prior to commencement of vegetation removal/impact to ESHA or aquatic resources.</p> <ol style="list-style-type: none"> <li>1. <b>Habitat Mitigation and Monitoring Plan.</b> The permittee shall carry out/undertake development in accordance with the approved HMMP. Any proposed changes to the approved plan shall be submitted to the Executive Director for approval. The HMMP shall include, at a minimum, details regarding the following: <ol style="list-style-type: none"> <li>a) <b>Impact Validation</b> – The HMMP shall include a requirement to conduct pre-construction surveys within all areas directly impacted by the project to document the character and extent of the aquatic resource/ESHA being impacted and the extent of the impacts once they occur. This could include impacts to an ESHA vegetation community or special-status plants populating the ESHA, impacts to ESHA occupied by or providing valuable habitat for a special-status animal such as San Diego fairy shrimp, or fill of an aquatic resource. Within 90 days following the impact, post-construction surveys must be completed to document the extent of the impacts, the type of activities that occurred, and identification of the impact type (i.e., short-term temporary, long-term temporary, or permanent). If either short- or long term temporary, additional information, such as the dates of initial and final project related disturbance, species diversity within each aquatic resource/ESHA type, relative cover of dominant plant species, and age classes/size structure distributions. If special-status plants are impacted, an inventory of the population shall be performed. The results of the impact validation must be documented in a standalone report and submitted to the Executive Director.</li> <li>b) <b>Temporary Impacts</b> – The HMMP shall include details regarding the mitigation of temporary impacts. Revegetation of temporary impact areas shall include, at a minimum, replanting with locally and genetically appropriate native species and control of California Invasive Plant Council-listed species. A restoration report must be prepared within 30 days of the revegetation that documents the results of the effort. Short-term and long-term temporary surveys must be completed within twelve months of the initial disturbance and conclusion of the disturbance, respectively. The results of the surveys must be detailed in a report documenting whether the revegetation was successful, and whether the impacts are short-term temporary, long-term temporary, or permanent. The report shall be submitted to the Commission for review by the Executive Director.</li> <li>c) <b>Additional Plan Elements</b> – The HMMP shall incorporate the following: <ol style="list-style-type: none"> <li>i. Description and extent of aquatic resources/ESHA impacted by construction activities; proposed restoration methods for each aquatic resource/ESHA category (i.e., each vegetation/habitat type, quantity and special-status plant species affected, extent of vernal pools filled, etc.), including a distinction between on- and off-site</li> </ol> </li> </ol> </li> </ol>

**TABLE ES-1 (CONTINUED)  
RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
<b>4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)</b>		
<b>Compensatory Measures (cont.)</b>		
<b>BIO-17</b> (cont.)		<p>restoration, enhancement and/or creation, applicable seed collection or salvage and propagule transplanting methods, non-native species removal/control, planting design and implementation schedule, irrigation schedule, erosion control, and exclusionary fencing; restoration success criteria, monitoring and reporting requirements; and funding source(s) and responsible parties, adaptive management strategies, maintenance schedule, and details regarding long-term preservation or management of restored areas.</p> <ul style="list-style-type: none"> <li>ii. A set of interim and final success criteria for restored sites that shall serve as benchmarks and guide adaptive management and that shall include, at a minimum: (a) a minimum of 80% survival of replacement plantings (a combination of living installed, volunteer, and/or resprouting native woody plants) of trees and large shrubs at the end of five years; and (b) for all areas disturbed during construction activities, equal to or less than 5% cover of invasive plants rated “Moderate” and “High” by the California Invasive Plant Council except for nonnative annual grasses.</li> <li>iii. A performance monitoring plan that provides for monitoring, maintenance, and remediation activities of the restored areas. The Permittee shall submit monitoring reports prepared by a qualified restoration ecologist to the Executive Director for review and approval six months after planting and at the end of Years 1, 3, and 5 after planting. Each report shall document the condition of the revegetation and invasive species removal with photographs taken from the same fixed points in the same directions; a “performance evaluation” section where monitoring results are used to evaluate the status of the revegetation and invasive species removal efforts in relation to the interim and final success criteria in the final approved HMMP; and recommendations for work for the subsequent year needed to improve mitigation success.</li> <li>iv. Provisions for a final monitoring report for Year 5 shall be submitted for the review and approval of the Executive Director at the conclusion of all onsite mitigation efforts consistent with the monitoring schedule in the final approved HMMP. The final monitoring report shall evaluate whether the restoration areas conform to the goals, objectives, and success criteria set forth in the approved final HMMP. The final monitoring report shall summarize prior reports and provide a timeline of the overall progress and success and include sufficient detail to evaluate comprehensive mitigation compliance with the mitigation program and specified goals and success criteria set forth in the approved final HMMP.</li> <li>v. In the event actual impacts in the final “as-built” onsite habitat impact report exceed the estimates in the Final HMMP submitted prior to construction of a given project segment, the Permittee shall submit an updated HMMP that provides additional mitigation sufficient to compensate for the additional final impacts.</li> </ul>



**TABLE ES-1 (CONTINUED)**  
**RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
<b>4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas (cont.)</b>		
<b>Compensatory Measures (cont.)</b>		
<b>BIO-17</b> (cont.)		<p>vi. If the final monitoring report indicates that the restoration efforts have been unsuccessful, in part or in whole, based on the approved success criteria, the Permittee shall submit within 90 days a revised or supplemental HMMP for the review and approval of the Executive Director to compensate for those portions of the original program which did not meet the approved success criteria. The revised or supplemental HMMP shall be prepared by a qualified restoration ecologist and shall specify measures to remediate those portions of the original approved HMMP that have failed or have not been implemented in conformance with the original approved HMMP.</p> <p>vii. The Permittee shall undertake development in accordance with the approved final HMMP. Any proposed changes to the approved final plan shall be submitted to the Executive Director for approval.</p>
<b>4.3 Visual and Scenic Resources</b>		
<b>VIS-1</b>	<b>Minimize Construction Disturbance</b>	Construction and staging areas shall be the minimum size necessary to feasibly implement the project while having the least impact on coastal resources. Staging and equipment storage areas shall be limited to paved areas or previously disturbed areas where vegetation removal and grading are not required. Staging areas shall be sited where there will be the fewest impacts on visual, biological, and other coastal resources. Project grading and vegetation removal shall be limited to the minimum necessary to construct the project, unless such limitation would result in a greater net environmental effect. All construction disturbance areas beyond the project's aboveground footprints, including access areas, staging areas, and other temporary use areas, shall be recontoured and revegetated to match their approximate original, pre-construction condition or better. Site restoration for sensitive habitat impacts, if approved, shall be conducted in accordance with Avoidance and Minimization Measure BIO-17, as applicable.
<b>VIS-2</b>	<b>Facility Siting and Surface Treatments</b>	<p>The Permittee shall ensure all visual elements of the project, including design, colors, and other aesthetic treatments of the marker postings, hubs, and any other visual elements of the development are sited and designed to protect views to and along the ocean and scenic coastal areas, minimize the alteration of natural land forms, and are visually compatible with the character of surrounding areas through measures such as (but not limited to) visually permeable design, minimizing reflective surfaces, and use of colors that blend in hue and brightness with the surroundings. Accordingly, the Permittee shall incorporate the following scenic and visual quality protection measures into the project design:</p> <p><i>Conduit on Bridges:</i> In accordance with the Encroachment Permit Manual, install the fiber optic cable or conduit in areas where it will not be visible to the public. Whenever possible, install the fiber optic cable in the interior of the bridge (e.g., within existing conduit, between the girders). Where interior installation is not possible, enclose the conduit to look like an integral part of the bridge. Exterior finishes including coating or painting shall be used in order to ensure any enclosures match the materials and/or visual character of the bridge.</p> <p><i>Aboveground Cables:</i> Use underground installation methods wherever feasible; or, where underground installation is not feasible or would cause greater environmental impacts, aboveground installation shall utilize existing utility infrastructure. Visual impact analyses with project renderings shall be prepared and submitted to the Executive Director for review and approval prior to construction of project segments where aboveground</p>

**TABLE ES-1 (CONTINUED)  
RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
4.3 Visual and Scenic Resources (cont.)		
VIS-2 (cont.)		<p>cable is proposed within or visible from a designated scenic area.</p> <p><i>Markers:</i> Utilize the disk marker instead of vertical markers wherever feasible. Where disk markers are not feasible, install fiber optic markers on pre-existing signs, guard rails, or other transportation system infrastructure where available.</p> <p><i>Network Hub Shelters:</i> Utilize exterior finishes for Tier 1 Major Environmental or Aesthetic Issues, as provided in the Middle-Mile Broadband Network Design Guidelines. The network hub shelter designs shall incorporate aesthetic treatments, such as architectural styling, colorization and other design options for the fence, shelter structure, and any other above-ground infrastructure to be visually compatible with the surrounding community character. Native, drought tolerant vegetation shall be incorporated into the site design where feasible to screen the hub site from public view, outside of the 30-foot perimeter fuel break or as otherwise approved by Caltrans under a design exemption. Other alternative screening should be proposed when no vegetation screening is feasible. Visual impact analyses with project renderings shall be prepared and submitted to the Executive Director for review and approval prior to construction of project segments where hub shelters are proposed.</p>
4.4 Cultural and Paleontological Resources		
CUL-1	<b>Protection of Cultural Resources</b>	<p>The Permittee shall undertake development in compliance with the following measures:</p> <ul style="list-style-type: none"> <li>A. Ensure that tribal consultations are timely and coordinated with Coastal Commission staff, and that results of those consultations inform appropriate best management practices for constructing in or near areas of known or potential cultural resources.</li> <li>B. Ensure cultural resource awareness training with construction crews occurs prior to commencement of construction of project segments in or near such resource areas.</li> <li>C. Prior to construction of project segments, complete cultural “clearance” surveys for sensitive archaeological and tribal resources by qualified cultural resources professionals and flag off the boundaries of any identified resource areas with temporary construction fencing, flags, or similar means. Exact installation locations or methods may need to be adjusted to avoid these areas accordingly.</li> <li>D. Avoid ground-disturbing activities in areas that contain known cultural resources to the extent feasible. A cultural monitor should be present in areas of known or potential cultural resources if avoidance is not feasible. If cultural resources would be impacted, additional treatment measures such as data recovery may be required.</li> <li>E. Should any cultural resources be encountered during ground-disturbing work, the Permittee shall cease all project activities in the immediate vicinity and immediately notify representatives of all potentially relevant Native American Tribes. The permittee shall retain a qualified archaeologist to analyze the significance of the find in consultation with all potentially relevant Tribal Representatives. An “exclusion zone” where unauthorized equipment and personnel are not permitted shall be established (e.g., taped off) in an area not less than a 50-foot-wide buffer around the discovery. Construction may continue outside of the exclusion zone area.</li> <li>F. If the Permittee seeks to recommence project activities within the sensitive area following discovery of cultural resources, the Permittee shall submit written documentation to the Commission’s Executive Director, in consultation with all potentially relevant Tribal Representatives, of any proposed measures or changes to construction activities to address the discovery. The Executive Director will review the proposed changes and/or additional measures for conformance with the</li> </ul>

**TABLE ES-1 (CONTINUED)**  
**RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

Measure ID	Measure Title	Measure Text
4.4 Cultural and Paleontological Resources (cont.)		
CUL-1 (cont.)		Coastal Act. Implementation of the changes or additional measures and commencement of construction in the sensitive area shall not occur until the Executive Director provides written notice that no amendment to the CDP is legally required, or the Commission approves an amendment to the CDP.
4.5 Hazards		
HAZ-1	<b>Assumption of Risk, Waiver of Liability, and Indemnity Agreement</b>	Require, as a special condition of permit approval, that the Permittee acknowledge and agree (A) that the site may be subject to hazards from waves, storms, flooding, erosion, groundwater, earth movement, and other natural hazards, many of which will worsen with future sea-level rise; (B) to assume the risks to the Permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (C) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (D) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.
HAZ-2	<b>Siting and Design to Avoid and Minimize Hazard Risk</b>	The Permittee shall avoid placing project facilities within areas of high fire, flood, geologic, or other environmental hazards, including areas where these hazards will be exacerbated by sea-level rise, to the maximum extent feasible. Where hazard areas cannot be avoided, provide appropriate design features to minimize hazards risks and support safe, on-going operations of the coastal MMBN project, based upon site conditions and the recommendations of a qualified professional. Examples of appropriate design features may include, but not be limited to: <ol style="list-style-type: none"> <li>1. waterproofing project elements that could be subject to flood, tidal inundation, groundwater infiltration, or tsunami hazard</li> <li>2. elevating aboveground structures that may be subject to flood exposure</li> <li>3. locating conduit as landward as possible or increasing placement depth to avoid coastal erosion hazards</li> <li>4. strengthening the conduit or network hub shelter to reduce potential damage from earthquake hazards</li> <li>5. fireproofing project elements that would be at- or above ground level within areas of high or very high fire hazard severity.</li> </ol>
HAZ-3	<b>Waiver of Right to Future Shoreline Protective Devices</b>	Require, as a special condition of permit approval, that the Permittee acknowledge and agree that the development approved in the CDP is not entitled to shoreline protection under the Coastal Act, and the Permittee waives, on behalf of itself and all successors and assigns, any rights to construct a shoreline protective device to protect the development that may exist under the Coastal Act, certified Local Coastal Program, or other applicable laws.
HAZ-4	<b>Wildfire Hazard Prevention</b>	The Permittee shall require its contractors to develop and implement a wildfire hazard prevention plan to prevent and address wildfires. The plan shall address the following at a minimum: <ol style="list-style-type: none"> <li>(1) Training of construction personnel in fire safety, including how to extinguish small fires to prevent them from growing into more serious threats.</li> <li>(2) The types and locations of fire-fighting equipment to be present onsite.</li> <li>(3) Requirement that internal combustion engines, stationary and mobile, shall be equipped with spark arresters, and that spark arresters shall be maintained in good working order.</li> </ol>

**TABLE ES-1 (CONTINUED)  
RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES**

<b>Measure ID</b>	<b>Measure Title</b>	<b>Measure Text</b>
4.5 Hazards (cont.)		
<b>HAZ-4</b> (cont.)		(4) Restrict equipment staging areas to those that are cleared of flammable materials. (5) Prohibitions on smoking and other activities involving ignition sources in vegetated areas. (6) Restrictions on work during periods of high fire threat, such as red flag warnings issued by the National Weather Service.
4.6 Agriculture		
<b>AG-1</b>	<b>Avoidance of Agricultural Land</b>	The Permittee shall avoid development on prime agricultural lands in active agricultural production. This includes any lands in production designated as Prime Farmland by the Farmland Mapping and Monitoring Program, zoned by Del Norte County as Agricultural Exclusive (AE), and zoned by Humboldt County as Prime Agriculture areas.
<b>CUL-1</b>	<b>Protection of Cultural Resources</b>	Please refer to CUL-1, above, for the text of this measure.

# CHAPTER 1

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## Introduction

### 1.1 Introduction

Millions of Californians currently lack or have only limited access to high-speed internet. The COVID-19 pandemic highlighted the importance of internet connectivity for the public's everyday healthcare, employment, and educational needs. To help provide affordable high-speed internet access to unserved and underserved communities, the State of California is undertaking a statewide initiative to build a critical fast-speed internet network. The Middle-Mile Broadband Network (MMBN) would use high-capacity fiber optic cable lines to carry large amounts of data at higher speeds over longer distances between local networks. The MMBN would provide the virtual backbone for an open broadband internet network that prioritizes connectivity for disadvantaged, low-income, and under-resourced communities that lack adequate internet access. In order to facilitate rapid build-out throughout the state, the MMBN would be installed along state highways in state right-of-way. Senate Bill (SB) 156, supported by Executive Order (EO) N-73-20, directs the State Department of Technology (CDT) to oversee and manage the development, implementation, and operation of the MMBN; however, the bill also requires all State agencies to work in cooperation to expedite delivery and permitting.

Approximately 460 miles of broadband infrastructure will be installed within the California coastal zone. Since the broadband infrastructure will be placed within the State Highway System right-of-way, the California Department of Transportation (Caltrans) is responsible for the project's planning, designing, and construction activities within the coastal zone. Caltrans will divide the project into numerous individual project segments that will be constructed by contractors on individual timelines. Caltrans is responsible for obtaining coastal development permits (CDPs) (whether as permittee or agent for the CDT) from the California Coastal Commission (Coastal Commission), or from local governments with certified Local Coastal Programs (LCPs) pursuant to the California Coastal Act.

As discussed below, SB 156 provides a statutory exemption from the California Environmental Quality Act (CEQA) for deployment of MMBN project elements in existing road rights-of-way that meet certain requirements, including that the project complies with all applicable state laws. Because the project follows existing coastal highways and is intended to connect coastal communities with high-speed internet, the network is subject to a wide range of coastal issues that need analysis. However, Caltrans is not preparing an environmental analysis for the project pursuant to CEQA that the Coastal Commission or local governments could use to support CDP review. Therefore, to facilitate expedited review and permitting in accordance with SB 156 requirements and timelines, the Coastal Commission has commissioned a statewide environmental

assessment of the project’s potential coastal resources impacts and Coastal Act policy consistency issues.<sup>1</sup>

## 1.2 Background

The State of California is undertaking a statewide initiative to build a critical fast-speed internet middle-mile network that would connect the large core internet pipelines (termed the first-mile broadband network) to homes and communities (termed the last-mile broadband infrastructure), with an emphasis on reaching unserved and underserved communities. Last-mile infrastructure relies on the middle-mile to provide service to residents, large and small businesses, schools, government offices, public safety agencies, and libraries; yet middle-mile networks, especially in underserved communities and more rural areas of the state, often remain unbuilt.<sup>2</sup> In July 2021, Governor Gavin Newsom signed SB 156 into law to create an equitable, high-speed, open-access, MMBN that would use high-capacity fiber-optic cable lines to carry large amounts of data at higher speeds over longer distances between local networks. The MMBN is intended to address inequities in access to internet connection options, the importance of which has been magnified through the COVID-19 pandemic, as Californians are more reliant on remote connectivity for healthcare, education, and employment than ever before.

SB 156 aims to bridge the digital divide, increase equity, and provide reliable and affordable internet access to all Californians. The law calls for expanding the state’s broadband fiber-optic infrastructure and increasing internet connectivity for families and businesses. SB 156 establishes the framework for planning, design, construction, operation, and maintenance of the statewide network, and allocates \$3.25 billion from the federal American Recovery Plan Act of 2021 (ARPA) to build out a critical network statewide. The funds must be allocated by December 2024 (contract award) and construction completed by December 2026. The project sponsor and permit applicant is the California Department of Technology (CDT). Caltrans would be responsible for implementing the majority of the MMBN, including segments within the California coastal zone.

### 1.2.1 California Environmental Quality Act

SB 156 amended the California Environmental Quality Act (CEQA) (Public Resources Code section 21080.51) to specify that linear broadband deployment in a right-of-way is exempt from CEQA under the following conditions:

- The project is located in an area identified by the California Public Utilities Commission (CPUC) as a component of the statewide MMBN pursuant to Government Code section 11549.54.
- The project is constructed along, or within 30-feet of, the right-of-way of any public road or highway.

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<sup>1</sup> However, Caltrans will prepare natural environment studies and habitat mitigation monitoring plans for individual project segments, if needed, which can also be used to support CDP application review.

<sup>2</sup> California Department of Transportation (Caltrans) and California Department of Technology (CDT), 2023. Middle-Mile Broadband Network Design Guidelines. April 2023.

- The project is either deployed underground where the surface area is restored to a condition existing before the project or placed aerially along an existing utility pole right-of-way.
- The project incorporates, as a condition of project approval, measures developed to address potential environmental impacts.
- The project shall be required to include monitors during construction activities and measures to avoid or address impacts to cultural and biological resources.
- The project applicant agrees to comply with applicable local, state, and federal laws.

Caltrans considers SB 156 to apply to all elements of the MMBN project and therefore will not be preparing accompanying CEQA documentation prior to or concurrent with the CDP applications. Such documentation is typically used to support CDP applications for purposes of analyzing project impacts and consistency with the Coastal Act or a certified LCP. The CEQA process may also facilitate coordination between various permitting entities and streamline the decision-making process.<sup>3</sup>

### 1.3 Purpose of this Document

The project traverses lands under the retained jurisdiction of the Coastal Commission and under the jurisdiction of multiple local coastal governments with certified local coastal programs (LCPs). As a result, the project would require a CDP from the Coastal Commission and each local government with a certified LCP. Pursuant to Coastal Act section 30601.3, where a project requires a CDP from both a local government with a certified LCP and the Coastal Commission, the Coastal Commission may process and act upon a consolidated CDP, provided that all parties agree (i.e., the applicant, the appropriate local government, and the Coastal Commission).

Coastal Commission staff and Caltrans staff have worked with local governments to develop a consolidated permit approach in which a consolidated CDP would be issued for an entire Caltrans and Coastal Commission district, across multiple LCP jurisdictions and Commission retained jurisdiction areas. For most coastal areas of the MMBN project, all parties have agreed, or are expected to agree, to the consolidation approach, and the Coastal Commission is expected to process and act upon consolidated CDP applications from most Caltrans districts (whether as permittee or agent for the CDT) within the coastal zone. Under section 30601.3(b), the standard of review for a consolidated CDP application is the Coastal Act (chapter 3), with the appropriate LCP used as guidance.

The purpose of this document is to enable Coastal Commission staff's review of MMBN CDP applications in alignment with the expedited coastal MMBN project timeframes and in the absence of other comprehensive environmental analysis, such as would typically be provided in a prior or concurrent CEQA analysis. This document contains a description of the coastal MMBN project and study areas; summaries of environmental resources and hazards; analyses of potential temporary and permanent effects; assessments of potential project consistency with the Coastal

<sup>3</sup> See, for example, California Coastal Commission CDP Application Guidance: Aquaculture and Marine Restoration, December 2020. [https://documents.coastal.ca.gov/assets/cdp/CDP%20Application%20Guidance\\_12.08.20.pdf](https://documents.coastal.ca.gov/assets/cdp/CDP%20Application%20Guidance_12.08.20.pdf)

Act and relevant certified LCP policies; and recommendations for avoiding, minimizing, or mitigating potential coastal resource and hazards impacts.

The project sponsor is CDT's Office of Broadband and Digital Literacy. SB 156 established the Office of Broadband and Digital Literacy (Office) and required the Office to oversee and manage the development, construction, maintenance, and operation of a statewide open-access MMBN. The Office is authorized to assign and design construction activities to Caltrans, or other entities, as required to effectuate the MMBN project. Caltrans is partnering with CDT, CPUC, and a third-party administrator (TPA – GoldenStateNet) to plan for and carry out the MMBN effort.

Therefore, this document provides significant elements of the necessary environmental analysis to support Coastal Commission staff's CDP application review for coastal MMBN project segments, consistent with the approach directed by Coastal Act section 30601.3. In addition, this document provides preliminary policy consistency analysis to facilitate an expedited review by the Coastal Commission in order to meet the SB 156 timelines of obtaining CDPs in 2024 and completing construction by 2026.

However, this assessment does not represent the findings of the Commission, and nothing in this document limits the Commission or its staff from relying on other evidence or coming to other conclusions regarding the proposed project's impacts or its consistency with the Coastal Act.



# CHAPTER 2

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## Project Description

### 2.1 Introduction

This chapter describes the coastal Middle-Mile Broadband Network project (the project or coastal MMBN project) proposed by the California Department of Technology (CDT) and California Department of Transportation (Caltrans). Chapter 1, *Introduction*, provides relevant project context and background information. This chapter reviews the project’s location, components, construction methods, operations details, and best management practices.

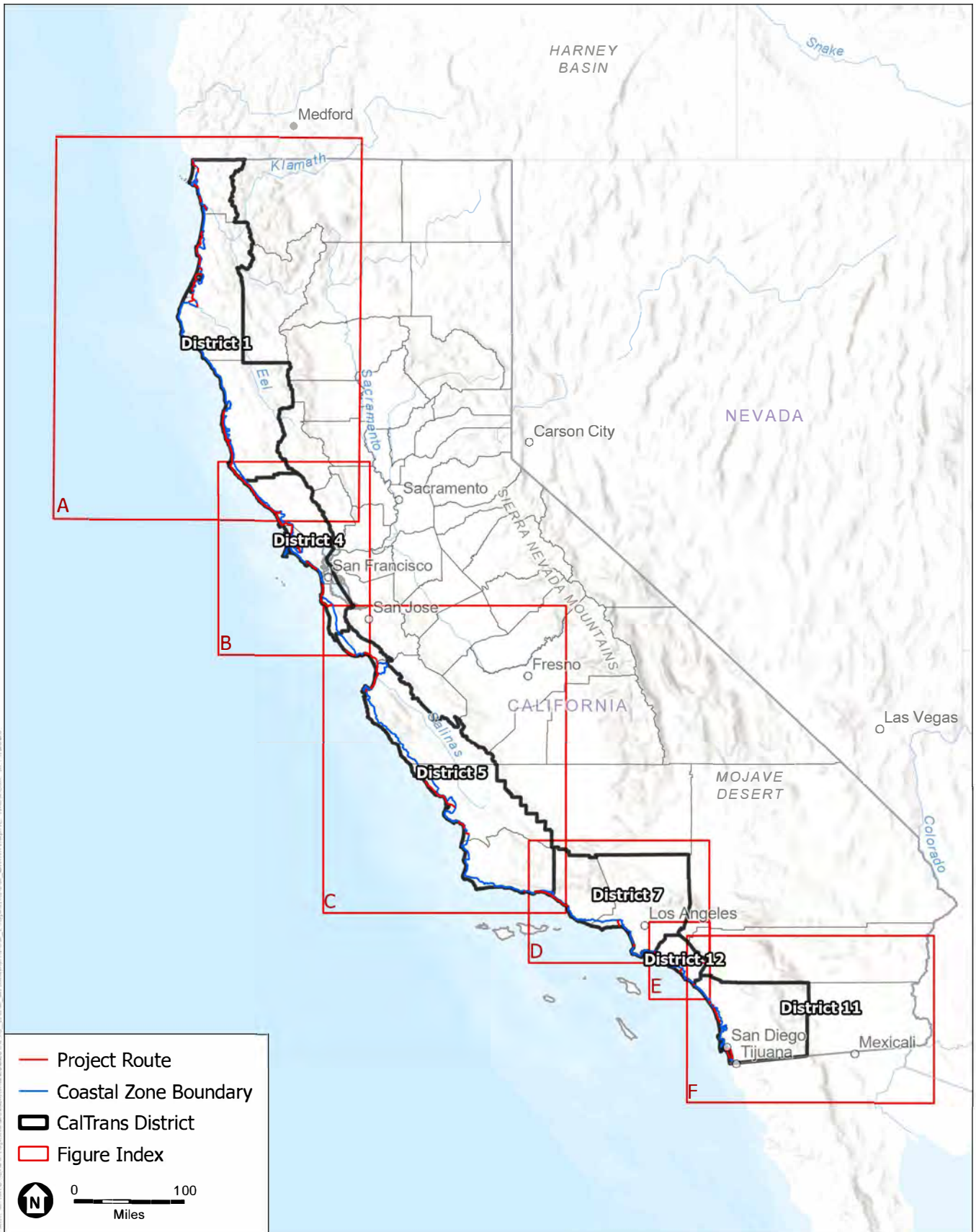
### 2.2 Project Location

A portion of the MMBN would be constructed within the California coastal zone, including fiber optic cable conduit, vaults, cable and vault markers, paved maintenance pullouts, and network hub shelters, along approximately 460 miles of State Highway System right-of-way (referred to herein as “the coastal MMBN” or “the project”). The project would include elements in Caltrans Districts 1, 4, 5, 7, 11, and 12 as shown in **Figure 2-1** and supporting **Figures 2-1A through 2-1F**. **Table 2-1** presents the corresponding location (i.e., city or county) for each Caltrans district and the length of project proposed within each jurisdiction. Within each Caltrans district, the district has identified distinct project “segments” to implement the project overall. Each segment would be constructed by Caltrans contractors as distinct projects and may be phased as needed to complete construction by 2026. While the highway segments for MMBN are determined, the exact location of the project elements in or adjacent to the highway for each segment has not yet been determined. Nonetheless, according to Caltrans, all construction activity for the coastal MMBN components would occur within the State Highway System right-of-way, which is termed the “project footprint.” Parameters for determining the location of coastal MMBN facilities are summarized below in Section 2.5, and detailed in the *Middle-Mile Broadband Network Design Guidelines*.<sup>1</sup> The final siting of coastal MMBN elements will be determined as Caltrans develops project plans, in consultation with Coastal Commission and other resource agency staffs, and will be dependent on geography, the presence of coastal resources or coastal hazards, and the potential for impacts to those resources (including the potential need for mitigation), with an overarching goal of avoiding all impacts to natural and tribal resources.<sup>2</sup>

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<sup>1</sup> California Department of Transportation (Caltrans) and California Department of Technology (CDT), 2023. *Middle-Mile Broadband Network Design Guidelines*. April 2023.

<sup>2</sup> Caltrans, 2022. *Middle-Mile Broadband Network Coastal Zone Guidelines for Programmatic Permitting*. December 2022.

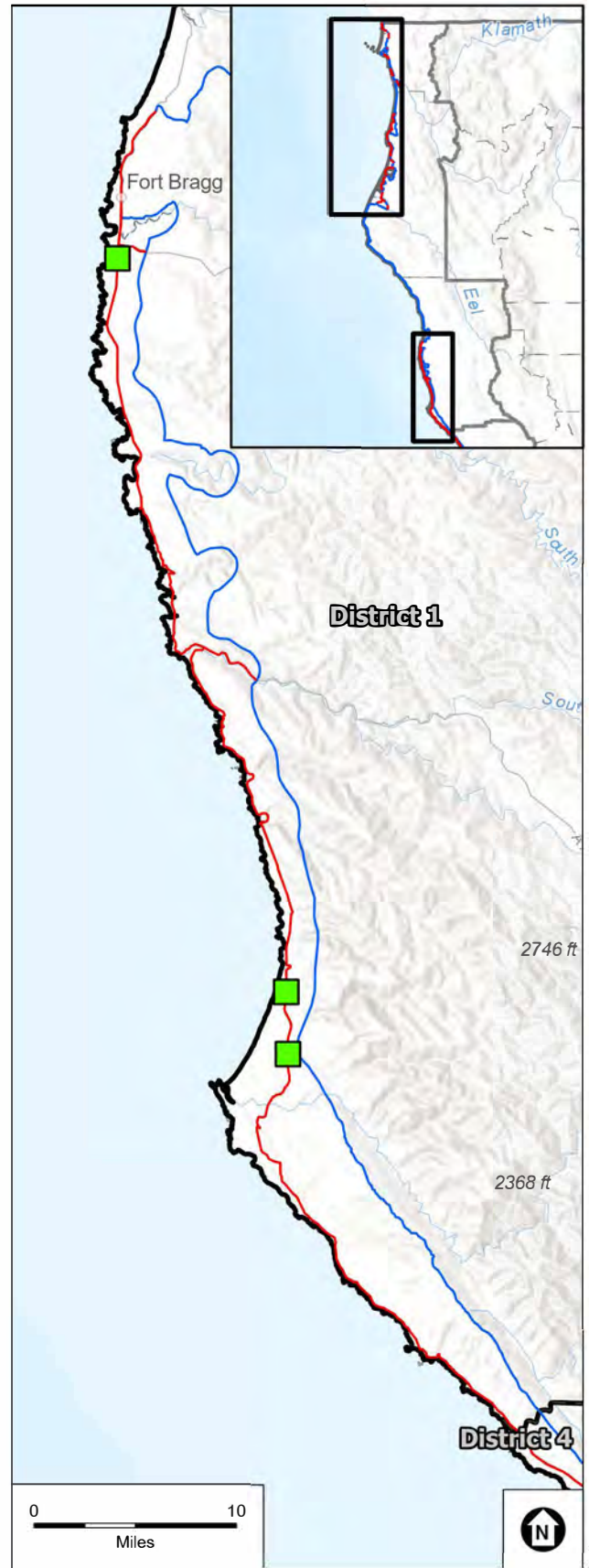
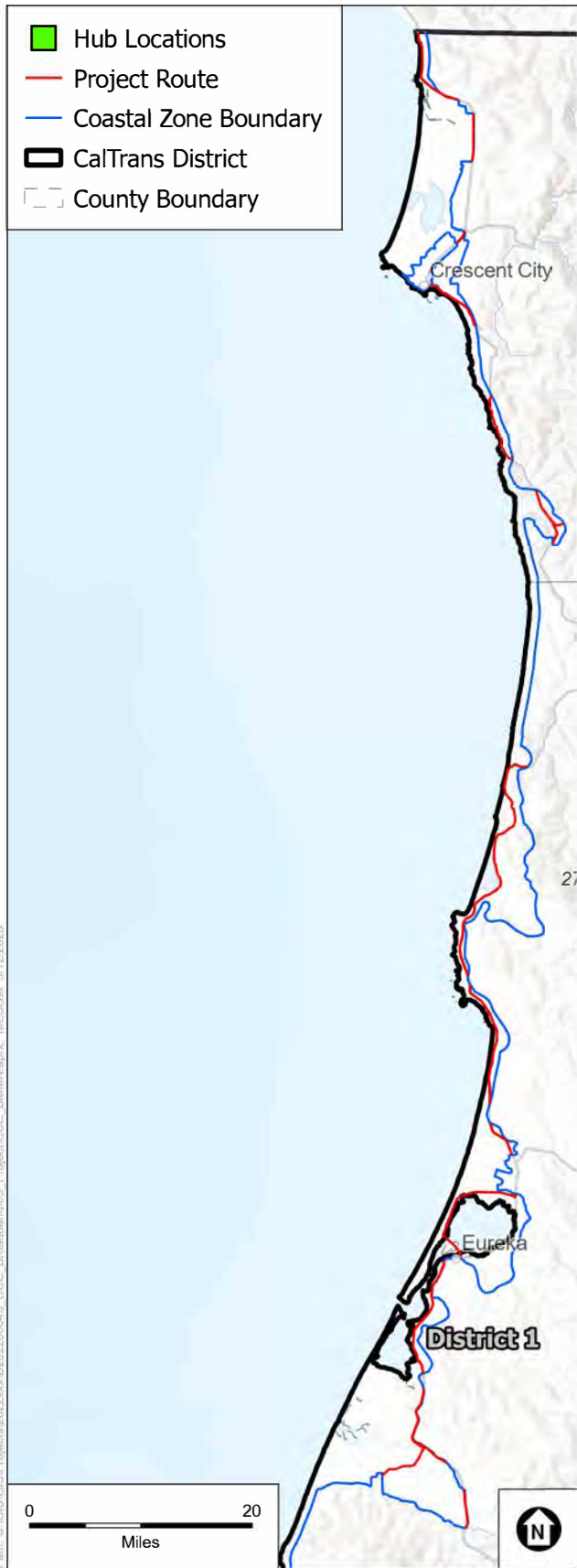


SOURCE: CCC; ESA, 2023

Coastal Middle Mile Broadband Network

**Figure 2-1**  
Project Overview





SOURCE: CCC; ESA, 2023

Coastal Middle Mile Broadband Network



**Figure 2-1A**  
 Project Areas in  
 CalTrans District 1  
 Exhibit 6  
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SOURCE: CCC; ESA, 2023

Coastal Middle Mile Broadband Network



**Figure 2-1B**  
 Project Areas in  
 CalTrans District 4  
 Exhibit 6  
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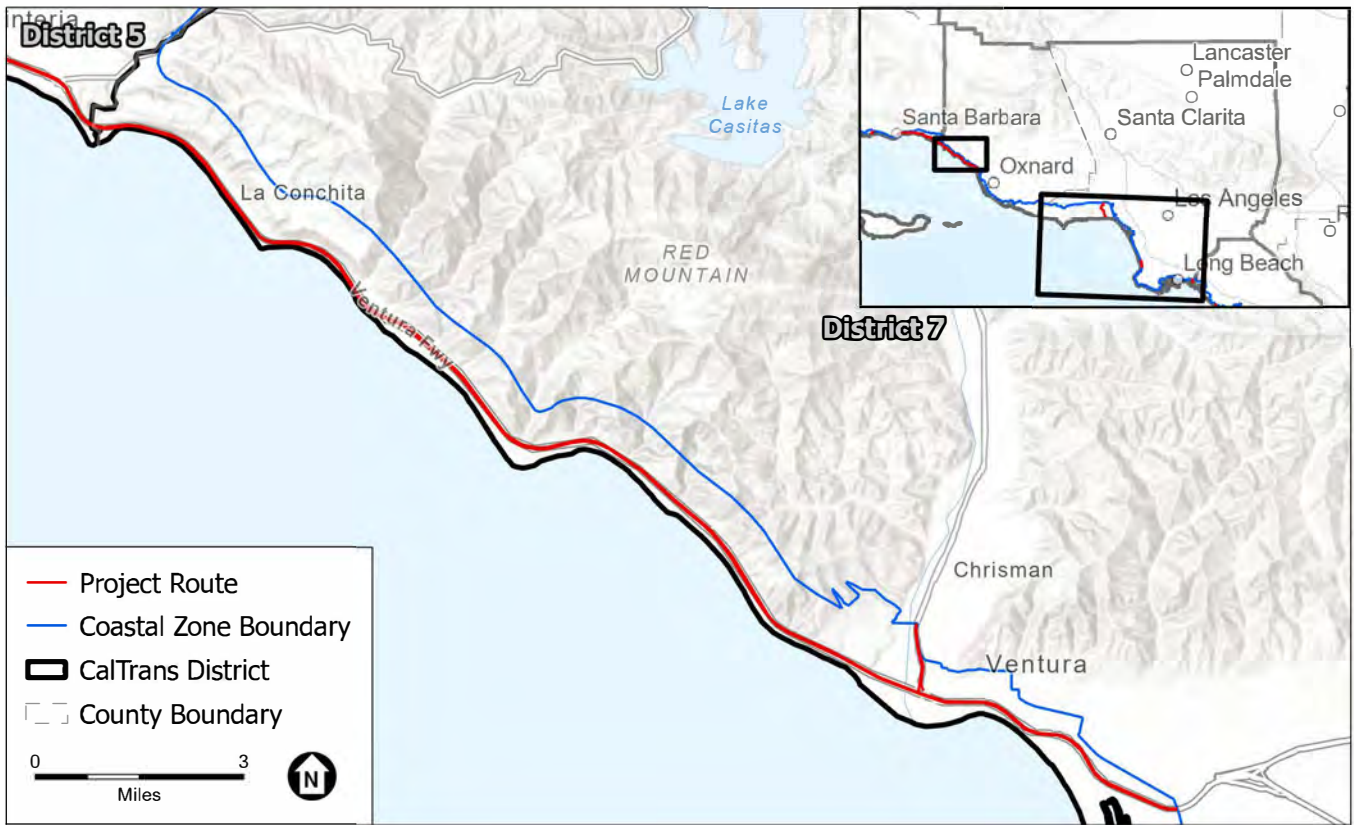


SOURCE: CCC; ESA, 2023

Coastal Middle Mile Broadband Network



**Figure 2-1C**  
 Project Areas in  
 CalTrans Districts 5  
 and 6  
 Exhibit 6  
 2-24-0002  
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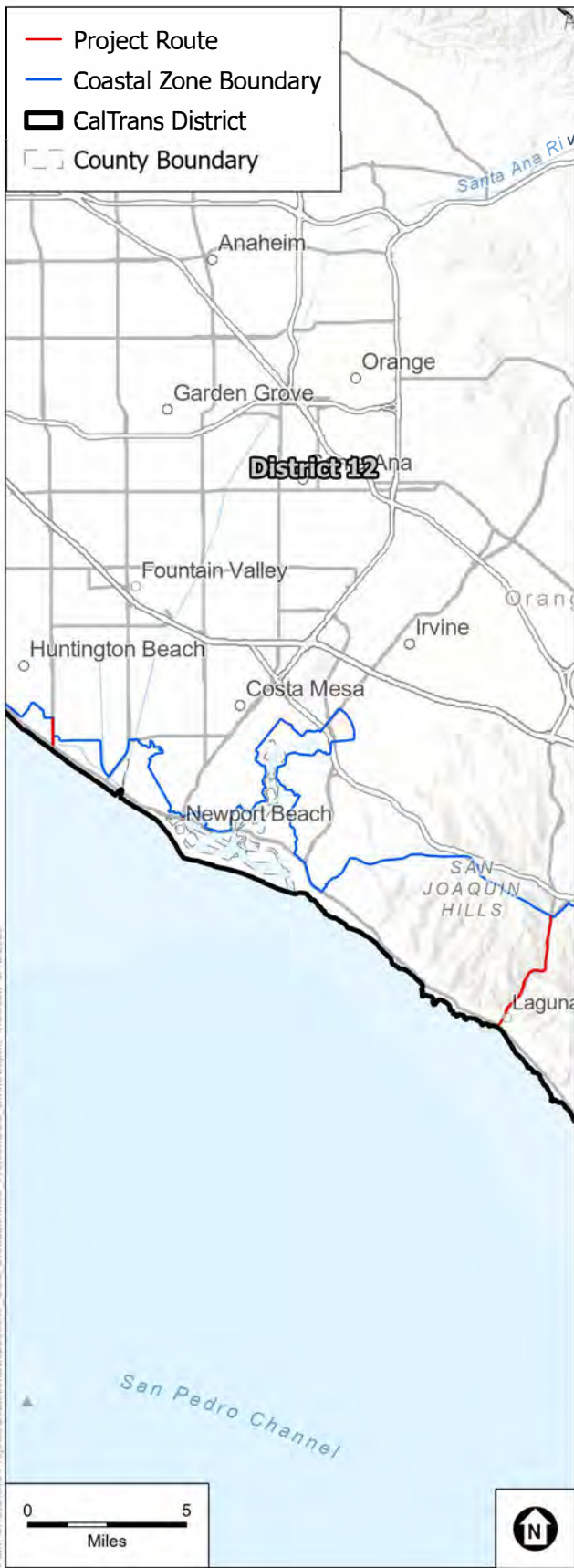


SOURCE: CCC; ESA, 2023

Coastal Middle Mile Broadband Network

**Figure 2-1D**  
 Project Areas in  
 CalTrans District 7  
 Exhibit 6  
 2-24-0002  
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SOURCE: CCC; ESA, 2023



Coastal Middle Mile Broadband Network

**Figure 2-1E**  
 Project Areas in  
 CalTrans District 12  
 Exhibit 6  
 2-24-0002  
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SOURCE: CCC; ESA, 2023



Coastal Middle Mile Broadband Network

**Figure 2-1F**  
 Project Areas in  
 CalTrans District 11  
 Exhibit 6  
 2-24-0002  
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**TABLE 2-1  
COASTAL MMBN LENGTHS WITHIN CALTRANS DISTRICTS AND LOCAL JURISDICTIONS**

<b>District</b>	<b>County</b>	<b>City or Unincorporated Area</b>	<b>Project Mileage</b>	
District 1	Del Norte County	Crescent City	0.89	
		Unincorporated county	23.88	
		<b>TOTAL</b>	<b>24.77</b>	
	Humboldt County	Arcata	1.12	
		Eureka	5.21	
		Trinidad	0.19	
		Unincorporated county	54.28	
		<b>TOTAL</b>	<b>60.81</b>	
	Mendocino County	Fort Bragg	3.69	
		Point Arena	1.48	
		Unincorporated county	62.11	
		<b>TOTAL</b>	<b>67.27</b>	
	<b>District 1 Total</b>			<b>152.85</b>
District 4	Marin County	Unincorporated county	37.06	
		<b>TOTAL</b>	<b>37.06</b>	
	San Francisco County	San Francisco	0.01	
		<b>TOTAL</b>	<b>0.01</b>	
	San Mateo County	Daly City	3.01	
		Half Moon Bay	3.19	
		Pacifica	5.97	
		Unincorporated county	13.54	
		<b>TOTAL</b>	<b>25.72</b>	
	Sonoma County	Unincorporated county	61.82	
		<b>TOTAL</b>	<b>61.82</b>	
	<b>District 4 Total</b>			<b>124.61</b>
	District 5	Monterey County	Marina	3.72
Monterey			1.64	
Pacific Grove			0.34	
Sand City			1.17	
Seaside			2.71	
Unincorporated county			15.49	
<b>TOTAL</b>			<b>25.17</b>	
San Luis Obispo County		Grover Beach	1.02	
		Morro Bay	5.05	
		Pismo Beach	7.18	
		Unincorporated county	32.07	
		<b>TOTAL</b>	<b>45.32</b>	
Santa Barbara County		Carpinteria	3.95	
		Goleta	0.58	
		Santa Barbara	3.45	
		Unincorporated county	7.23	
		<b>TOTAL</b>	<b>15.21</b>	

**TABLE 2-1 (CONTINUED)**  
**COASTAL MMBN LENGTHS WITHIN CALTRANS DISTRICTS AND LOCAL JURISDICTIONS**

District	County	City or Unincorporated Area	Project Mileage
District 5 (cont.)	Santa Cruz County	Capitola	0.45
		Santa Cruz	0.49
		Unincorporated county	18.90
		Watsonville	1.12
		<i>TOTAL</i>	<b>20.97</b>
<b><i>District 5 Total</i></b>			<b>106.67</b>
District 7	Los Angeles County	Long Beach	1.51
		Los Angeles	0.77
		Redondo Beach	2.54
		Torrance	0.07
		Unincorporated county	5.72
		<i>TOTAL</i>	10.61
	Ventura County	San Buenaventura (Ventura)	5.38
		Unincorporated county	11.57
		<i>TOTAL</i>	16.95
<b><i>District 7 Total</i></b>			<b>27.56</b>
District 12	Orange County	Dana Point	0.77
		Huntington Beach	0.73
		Laguna Beach	2.68
		Newport Beach	0.05
		San Clemente	1.52
		Seal Beach	0.00
		Unincorporated county	0.85
		<i>TOTAL</i>	6.60
<b><i>District 12 Total</i></b>			<b>6.60</b>
District 11	San Diego County	Carlsbad	5.86
		Chula Vista	3.79
		Coronado	8.476
		Encinitas	5.82
		National City	3.00
		Oceanside	2.27
		San Diego	4.76
		Solana Beach	1.20
		Unincorporated county	2.93
		<i>TOTAL</i>	38.09
<b><i>District 11 Total</i></b>			<b>38.09</b>
<b>Grand Total</b>			<b>456.374</b>

## 2.3 Project Elements

The project involves installing fiber-optic cable conduit, vaults, and network hub shelters. The majority of infrastructure would be placed belowground, except for network hub shelters and certain segments of conduit for which underground siting is not feasible. Each of the main project elements, including project staging, is described below.

### 2.3.1 Fiber-Optic Conduit

In most situations, the coastal MMBN infrastructure, to be placed within the State Highway System right-of-way, would consist of three two-inch conduits (with the potential for four two-inch conduits in certain cases). Each conduit would be made of flexible high-density polyethylene (HDPE). The HDPE conduits would have a pressure durability rating of SDR11 (standard dimension ratio) and have smooth inner and outer walls. When the horizontal directional drilling (HDD) method of installation is needed, the three two-inch conduits would be enclosed in a six-inch casing (see Section 1.6.1 for additional details on HDD). When the conduit crosses a structure such as a bridge, three separate rigid two-inch conduits can be placed, or the three two-inch HDPE flexible conduits can be encased in a single steel outer conduit.

Fiber optic conduit would be installed within Caltrans right-of-way. While the exact location of the cable path has not been determined, construction would either occur within unpaved portions of the right-of-way, or within existing asphalt pavement or conduit.<sup>3</sup> In unpaved areas, the depth of fiber optic conduit path must be a minimum of 42 inches below ground surface. In paved areas, the conduit must be a minimum of 24 inches below the pavement surface. In some areas, the fiber optic conduit may need to be placed above ground on bridges or other structures. Specific construction methods and site restoration are discussed in Section 2.6, below.

The conduit would be installed under, over, or along drainage features such as culverts and channels in some areas. Conduit installation methods would be determined based upon site conditions and would avoid impacting the functionality of the drainage features. The *Design Guidelines* encourage incorporation of drainage considerations in the design process to avoid impacting drainage features and to safely remove runoff from project areas, while maintaining the original line and grade, hydraulic capacity, or original purpose of drainage features with the goal of perpetuating natural drainage patterns.<sup>4</sup> For lined culverts and channels, the conduit would be placed at least 12 inches below the feature. For unlined channels or ditches, the conduit would be placed at a minimum of 24 inches below the feature. In some cases, conduit could be attached to culverts with clamps.

Intersection with railroads would be avoided wherever possible. All conduit paths within two miles of the railroad right-of-way would require prior review and approval by the associated railroad. All existing landscape infrastructure such as irrigation systems, access controllers, or need for tree removal would need to be considered during the design stage. A utilities

<sup>3</sup> The conduit cannot be placed within concrete pavement.

<sup>4</sup> Caltrans and CDT, 2023. Middle-Mile Broadband Network Design Guidelines. April 2023.

investigation would be performed by Caltrans prior to ground disturbing activities to identify any conflicts with existing utilities.

### 2.3.2 Vaults

The project includes underground vaults, which would assist with fiber optic cable installation and provide long-term maintenance access for the conduit and cable. Two kinds of vaults would be installed along the network: splice vaults and pull vaults, both of which would be installed at or below existing ground surface. Each type of vault is discussed further below. Caltrans has not yet identified specific vault locations, although there are specific criteria that will determine vault locations.

#### Pull Vaults

Pull vaults allow for installation of fiber optic cable within the conduit over long distances. These vaults are required to be installed at the end of structures (e.g., bridges) to allow for conduit transitions and in certain situations where the conduit bends to allow for easier installation of fiber optic cable. Pull vaults also provide drainage for the conduit system so that freezing water does not damage either conduit or cable. Once cables are installed, pull vaults provide access to the system for maintenance. Pull vaults would be located approximately every 2,400 feet along the fiber optic conduit path, except where a splice vault is otherwise located, but may be adjusted 500 feet to allow for installation at a convenient location. The external dimensions of pull vaults are 30 inches long by 48 inches wide by 36 inches tall. **Figure 2-2** shows a photograph of a pull vault being installed.



**Figure 2-2**  
Pull Vault Installation

#### Splice Vaults

Splice vaults perform all of the functions of pull vaults but also allow for the splicing of the fiber optic cable segments based on the maximum spool length and serve as demarcation points for MMBN trunk cable. A demarcation point is the physical point at which a local last mile broadband provider is able to connect to the statewide MMBN. Splice vaults would be installed every 12,000 feet, replacing a pull vault in that location, and may be adjusted up to 500 feet to allow local providers easy access to the MMBN. Splice vaults would generally be located where last mile network providers could easily connect to the middle mile network (e.g., within the limits of cities and towns along the fiber optic network). The external dimensions of splice vaults are approximately 48 inches long by 48 inches wide by 48 inches tall.

### 2.3.3 Network Hub Shelters

Network hub shelters are above-ground modular facilities required for fiber optic cable signal regeneration and hosting of electronic network equipment. These precast concrete shelters would be located where buried fiber optic cable is transferred above ground to boost and enhance data signals. The network hub shelters allow various broadband providers the ability to connect to the fiber optic network backbone to ultimately deliver enhanced broadband communications and internet to both commercial and residential end users.

Network hubs would measure up to 12 feet by 20 feet by 10 feet tall within a 50-foot by 50-foot fenced site. Each network hub shelter would contain two splice vaults. Hubs would also house an optical amplifier, which is used to extend the reach of optical communication links by overcoming loss due to attenuation of the optical signal. In addition to the network hub shelter, each fenced site would contain a standby generator and fuel tanks. A photograph and conceptual rendering of a network hub shelter are shown in Figure 2-3.

Network hub shelters need to be located approximately every 50 miles along the MMBN. However, for the coastal MMBN project, after extensive coordination between Caltrans and Commission staff, all but five would be located outside of the coastal zone. Commission and Caltrans staff worked closely together to find specific locations for these final hub locations that would minimize visual or other coastal resource impacts, while still providing the necessary network connection and meeting other Caltrans siting location needs, such as right-of-way concerns. The siting considerations included leveraging existing state and federal facilities, such as Caltrans excess lands and non-highway operating right of way, highway rest area locations, maintenance yards, park and ride lots, California Department of Forestry fire stations, State agricultural stations, and existing Caltrans network hub locations. The preliminary hub locations within the coastal zone are described below and shown in **Figures 2-4A through 2-4F**, in descending order from north to south.

#### **Hub Site #107 (District 1, Mendocino County)**

Hub site #107, shown in Figure 2-4A, is located at postmile MEN 59.237, on the west side of Highway 1, southwest of the traffic circle of Old Coast Highway, Highway 1, and Simpson Road, in unincorporated Mendocino County. This hub site is located within a ruderal grassland, adjacent to commercial and low-density residential development, approximately 0.5 miles south of Boatland Shopping area and is approximately 0.3 miles east of the Pacific Ocean coastline.

#### **Hub Site # 20 – Option 1 (District 1, Mendocino County)**

Hub site #20 – Option 1 (north), shown in Figure 2-4B, is located at postmile MEN 23.295, on the west side of Highway 1, approximately 2.5 miles north of the community of Manchester, in unincorporated Mendocino County. This hub site is located along an unmaintained frontage road that runs parallel to State Route 1, behind an approximately 20-foot-tall shrub-covered berm, surrounded by grazing lands, just south of Owl Creek Road and is 0.45 miles east of the Pacific Ocean coastline.



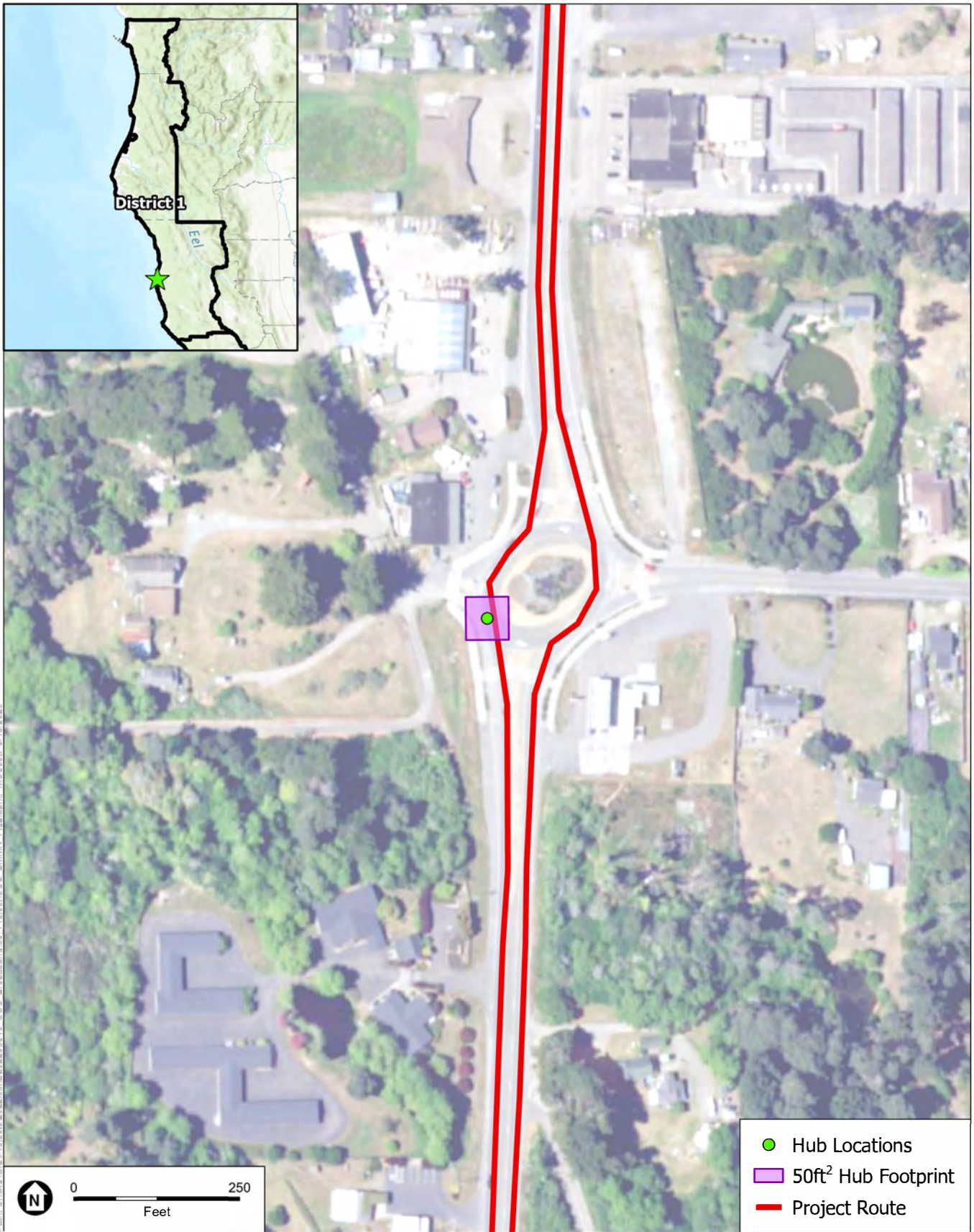
2022/07/20/202200843.00 - Broadband Middle Mile Network/05\_Graphics-GIS-Modeling-USE\_AZURE/Illustrator

SOURCE: Caltrans 2022

Coastal Middle Mile Broadband Network

**Figure 2-3**  
Photograph and Conceptual Rendering of Network Hub



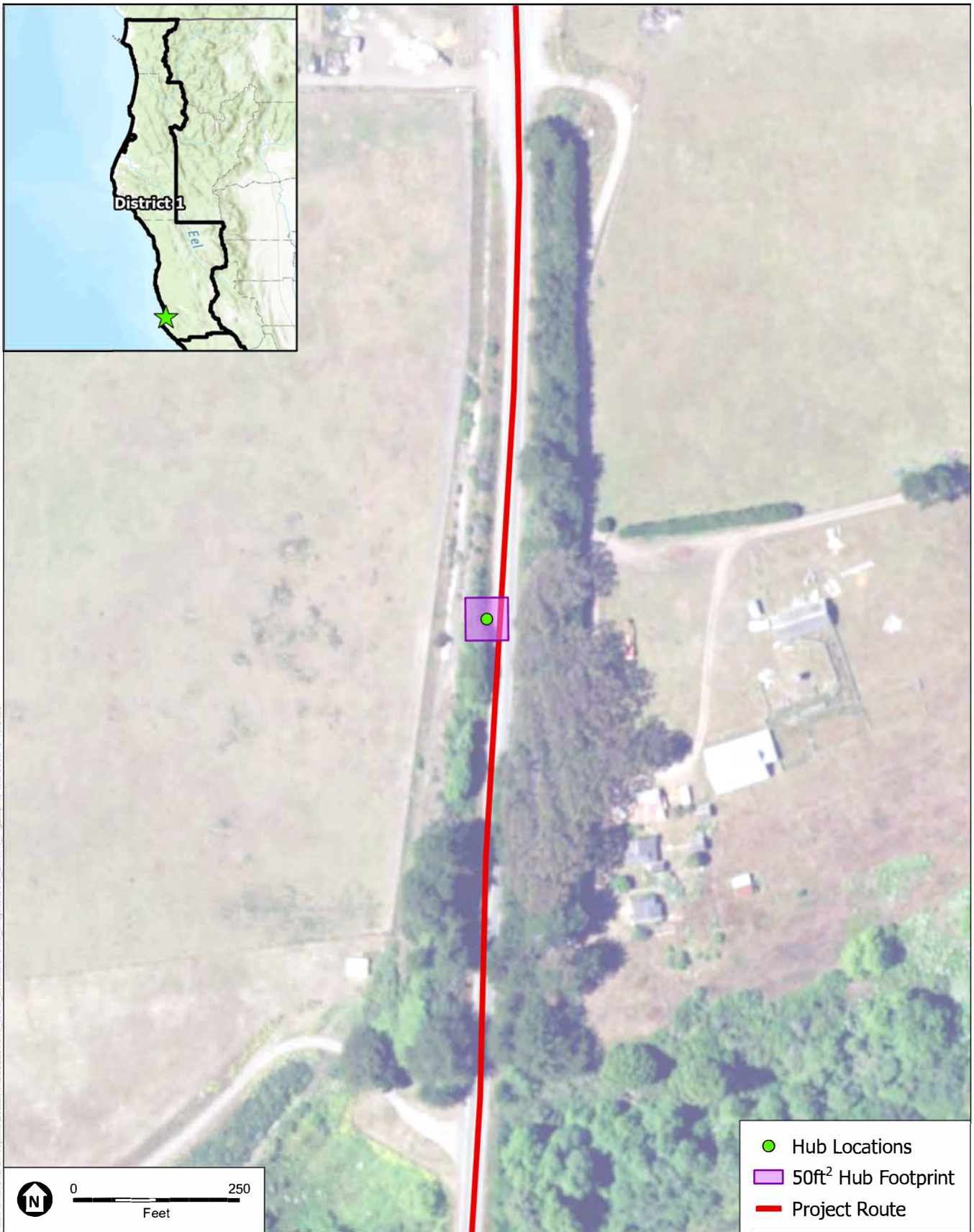


SOURCE: Caltrans, 2023; ESA, 2023; NAIP 2020

Coastal Middle Mile Broadband Network

**Figure 2-4A**  
 Hub Site #107  
 (District 1, Mendocino County) 6  
 2-24-0002  
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SOURCE: Caltrans, 2023; ESA, 2023; NAIP 2020

Coastal Middle Mile Broadband Network

**Figure 2-4B**  
 Hub Site # 20 - Option 1  
 (District 1, Mendocino County)  
 2-24-0002  
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### **Hub Site # 20 – Option 2 (District 1, Mendocino County)**

Hub site #20 – Option 2 (south), shown in Figure 2-4C, is located at postmile MEN 20.818, on the west side of Highway 1, in the community of Manchester, in unincorporated Mendocino County. This site is located in an undeveloped pullout, adjacent to grazing land and low-density residential development, just south of Brush Creek and is 1.5 miles east of the Pacific Ocean coastline.

### **Hub Site # 23 (District 4, Sonoma County)**

Hub site #23, shown in Figure 2-4D, is located on the inland (northeast) side of Highway 1, in the community of Jenner, in unincorporated Sonoma County. The site is located at postmile SON 35.327, an existing Caltrans maintenance yard, approximately 200 feet northwest of Rossen Road, across from the Timber Cove Boat Landing, and 0.05 miles east of the Pacific Ocean coastline.

### **Hub Site #135 (District 4, Sonoma County)**

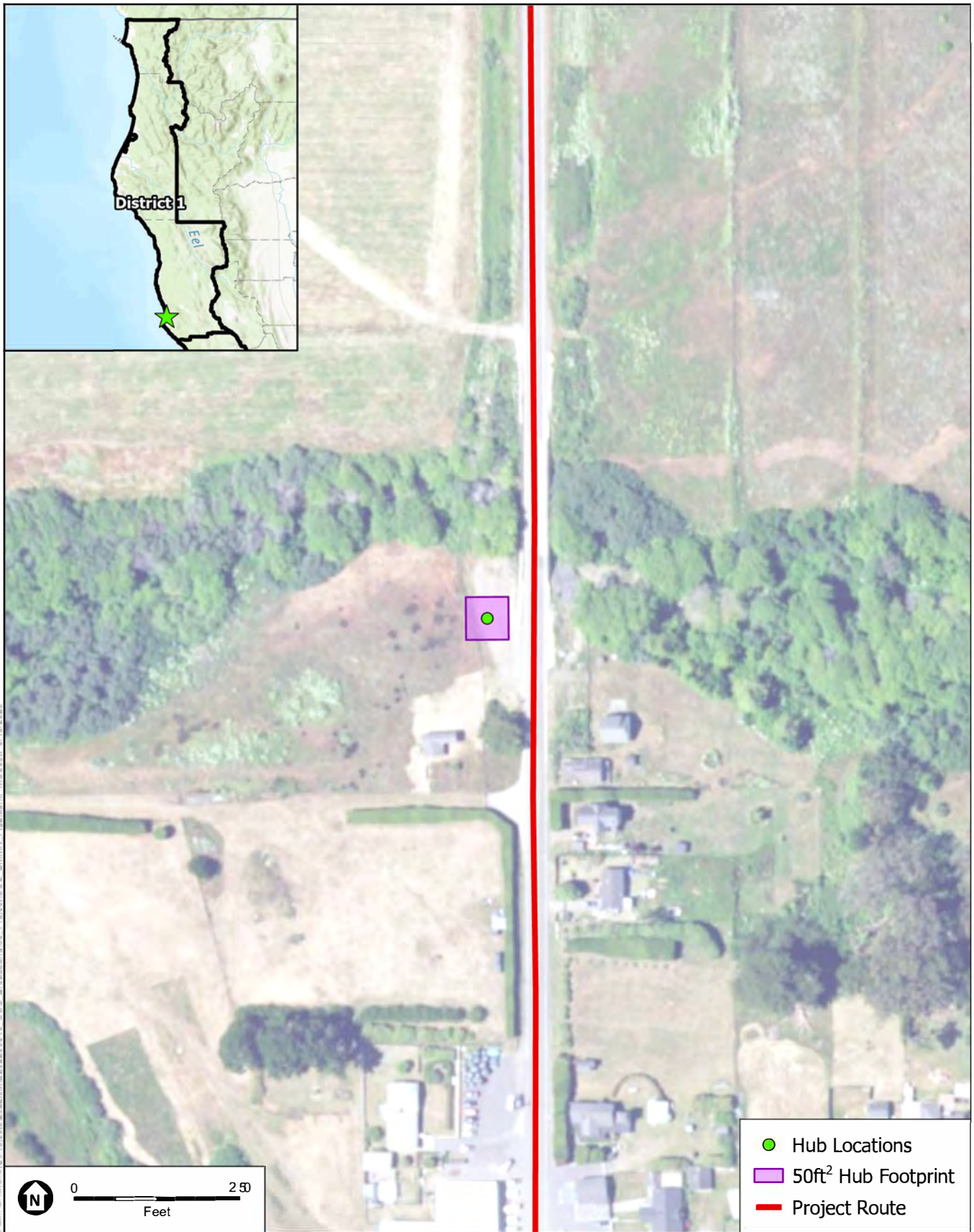
Hub site #135, shown in Figure 2-4E, is located on the east side of Highway 1, at postmile SON 11.585, an existing Caltrans maintenance yard, between Bodega Dunes Campground and Bay Hill Road/Ranch Road in the community of Bodega Bay, in unincorporated Sonoma County. This hub site is located 0.66 miles north of Bodega Bay shoreline and 1 mile east of the Pacific Ocean coastline.

### **Hub Site #136 (District 4, Marin County)**

Hub site #136, shown in Figure 2-4F, is located on the west side of Highway 1, at postmile MRN 28.039, an existing Caltrans maintenance yard in the community of Point Reyes Station, in unincorporated Marin County. This hub site is located 0.6 miles southeast of the Tomales Bay shoreline and 4 miles northeast of the Pacific Ocean coastline.

Each network hub shelter would require electricity to operate, which would require connection outside of the shelter site to the nearest electrical service point. Where possible, network hub shelters have been sited near an existing electrical power source. Trenching or new overhead power connections could be required to connect each hub to the electrical service point. To provide continued power during an electricity outage, a standby generator (60 kW) and fuel tanks (500-gallon sub-base diesel fuel with secondary containment) would also be stored for use at each network hub shelter. In situations where a liquid propane generator is required, a 1,000-gallon aboveground or underground propane tank would be installed onsite. Exterior lighting would be installed at each network hub shelter.

The area within 30 feet of each network hub shelter would be maintained to be devoid of vegetation for fire protection purposes. The ground surrounding the hub would be treated to prevent vegetation growth. Within the fenced area, the ground would be covered with gravel to allow parking for support vehicles and to prevent erosion. The chain-linked fence erected around each hub shelter would be at least eight feet tall and have razor ribbon or barbed wire at the top.

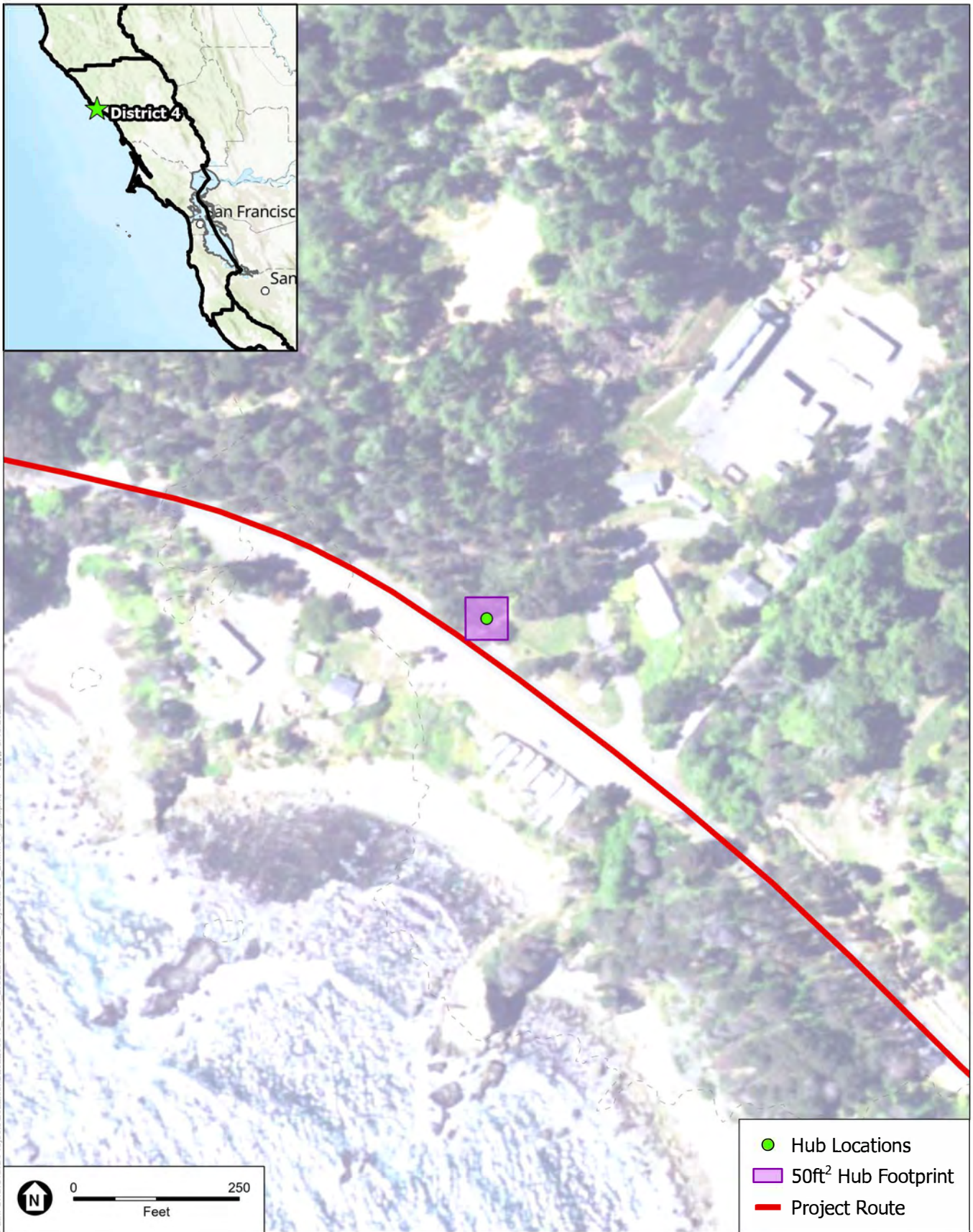


SOURCE: Caltrans, 2023; ESA, 2023; NAIP 2020

Coastal Middle Mile Broadband Network

**Figure 2-4C**  
 Hub Site # 20 - Option 2  
 (District 1, Mendocino County)  
 2-24-0002  
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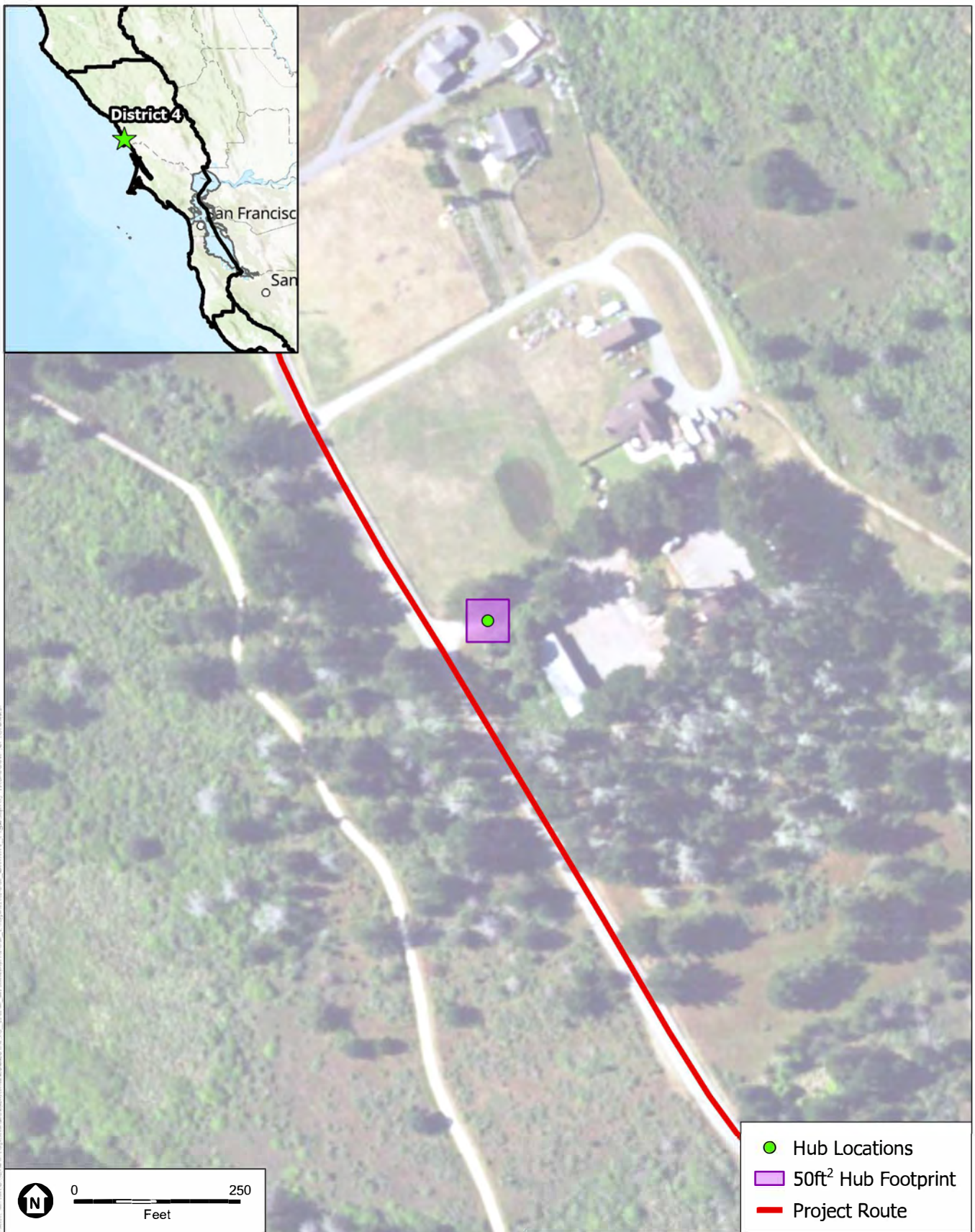
Path: U:\GIS\GIS\Projects\2022\202200843\_CCC\_Broadband\03\_Project\CCC\_BMMN\_Fig2.aprx, MCC:Scott, 5/18/2023

SOURCE: Caltrans, 2023; ESA, 2023; NAIP 2020

Coastal Middle Mile Broadband Network



**Figure 2-4D**  
 Hub Site # 23  
 (District 4, Sonoma County) 6  
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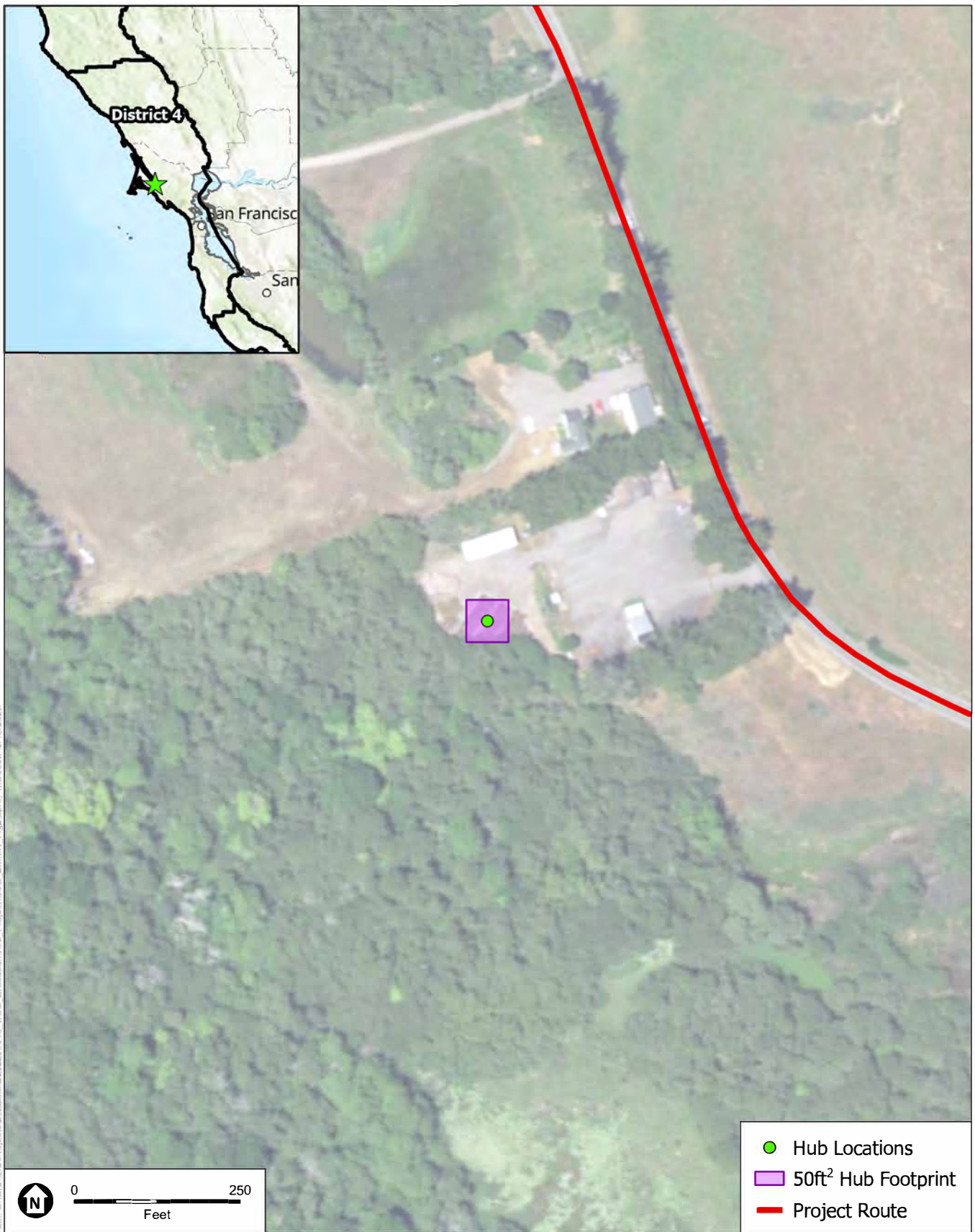


SOURCE: Caltrans, 2023; ESA, 2023; NAIP 2020

Coastal Middle Mile Broadband Network



**Figure 2-4E**  
 Hub Site #135  
 (District 4, Sonoma County)  
 2-24-0002  
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SOURCE: Caltrans, 2023; ESA, 2023; NAIP 2020

Coastal Middle Mile Broadband Network

**Figure 2-4F**  
 Hub Site #136  
 (District 4, Marin County)  
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### 2.3.4 Staging Areas

Staging areas for construction equipment, materials, fuels, lubricants, and solvents would be established along the coastal MMBN project routes before and/or during construction to allow more efficient use and distribution of materials and equipment. Staging areas are typically locations where materials or equipment are stored for more than two days. Temporary staging areas may also be established to park vehicles and equipment during the workday or overnight. All staging areas would be located in existing contractor yards; existing commercial areas used for storing and maintaining equipment; previously cleared, graded, or paved areas; or other level areas where grading and vegetation clearing are not required. No new staging areas would be established in undisturbed areas. Caltrans has not yet identified specific staging areas for each project segment.

### 2.3.5 Maintenance Vehicle Pullouts

Paved maintenance vehicle pullouts of varying dimensions would be constructed to provide parking for maintenance workers and field personnel after construction is complete. These pullouts would be constructed adjacent to existing pavement, within the existing unvegetated road shoulder. Typical maintenance vehicle pullouts would measure approximately 12 feet wide and 85 feet long. Caltrans has not yet identified specific vehicle pullout locations.

### 2.3.6 Object Markers and Delineators

Vertical object markers would be required at splice vaults and pull vaults. The object markers would measure approximately 3 inches wide and rise to heights of approximately 2 feet in paved areas and 4 feet tall in unpaved areas. Similarly, flexible post delineators would be required every 500 feet along the fiber optic cable path in areas where the splice vaults or pull vaults are farther than 500 feet apart. Flexible post delineators are required for horizontal curves in the fiber optic cable path. The delineators would be approximately 3 inches diameter and rise to a height of approximately 4 feet. Metallic disk markers would also be installed in the pavement.

## 2.4 Construction Methods

As discussed previously, exact construction locations and methods are not fully identified for each specific broadband project segment at this time, but would be determined in the actual construction phase in consultation with Caltrans' contractors. This section presents anticipated construction methods, based upon the *Design Guidelines*. Caltrans would be required to provide Commission staff with notice of specific construction methods and locations prior to construction of each specific segment as well as reports on site restoration.

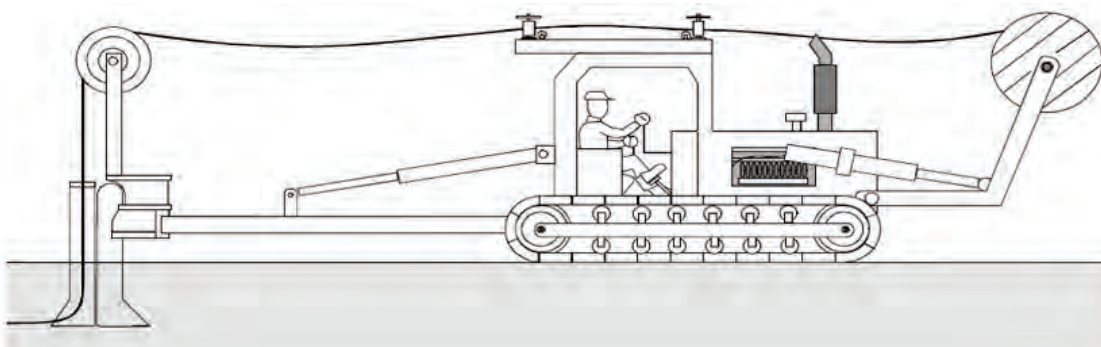
### 2.4.1 Conduit Installation

Coastal MMBN conduit would be installed using the following methods: plowing, trenching, horizontal directional drilling, jack and drill casing, or bridge mounting. Caltrans has not yet identified the locations where these methods would be employed; such determinations are expected to be dependent upon site conditions, including terrain, ground condition and obstacles. Construction method selection will be guided by the overall goal of avoiding impacts to natural and cultural resources. The *Design Guidelines* includes non-binding guidelines meant

to inform the design and installation of MMBN infrastructure. Specifications included within that document are summarized below to inform an understanding of project construction methods. The total width of the active work zone may vary depending upon the type of conduit installation method employed and the site conditions within a project segment. The maximum construction footprint along the active work zone would be 40 feet in width, to allow construction vehicles to pass each other if necessary.

### Plow Method

The plow method uses a plow system to excavate and bury conduit within unpaved areas. To install conduits, a dozer pulls the plow blade through the ground as the conduit is being installed. As illustrated in **Figure 2-5**, a reel carrier is mounted on the front of the tractor or on a separate vehicle to feed the cable. The reel passes through the fairlead system and into the chute, which is located on the back of the blade, and the conduit is placed at the desired depth. The total width of plowing equipment, including the tires, is approximately 12 feet.



**Figure 2-5**  
Plow Method

Plowing is most suitable for long, straight runs on a flat terrain where there is plenty of room for equipment and where there are few or no buried utilities. The rate of installation using the plowing process is similar to the trenching method for unpaved areas; however, the amount of surface disturbed by plowing is typically less than with the trenching method. Horsepower and weight are the primary factors affecting production speeds. On many projects, two pulling tractors work in tandem to form the plow train. **Table 2-2** presents the typical rate of plowing installation for one typical work crew, depending on the soil type.

**TABLE 2-2**  
**PLOW INSTALLATION DURATION**

Description	Quantity Per Day (Linear Feet)
Plow – Soil	2,500
Plow – Cobbles	1,500

SOURCE: Caltrans, 2023

## Trench Method

The trench method of installation involves digging open trenches. Traditional trenchers with rock-wheel blades or similar are employed during construction, as shown in **Figure 2-6**. Trenched installations typically involve a rubber-tired backhoe or an excavator digging a trench approximately 12 inches wide by 48 inches deep. Typically, no more than 1,000 feet of trench would be exposed by a crew at any time during construction. Trenches would be filled at the end of each day.

This method is most suitable for rural to sub-urban locations with long and relatively flat terrain. It is unfavorable for highly developed locations where there can be many obstacles such as underground utilities, sidewalks, and road crossings. **Table 2-3** presents the typical rate of trench installation within unpaved areas for one typical work crew, depending on the soil type.

**TABLE 2-3**  
**TRENCH METHOD INSTALLATION DURATION – UNPAVED SURFACE**

Description	Quantity Per Day (Linear Feet)
Trench Method – Soil	900
Trench Method – Cobbles	575
Trench Method – Boulders	325
Trench Method – Rock	250

SOURCE: Caltrans, 2023

## Trench in Pavement Method

The trench in pavement method (micro-trenching) is only allowed in asphalt pavement and not in concrete pavement. As shown in **Figure 2-7**, equipment consists of a specially designed saw blade for cutting into the asphalt, connected to a vacuum truck or trailer that removes spoils and dust. The conduits are placed into a trench from three to six inches wide. A colored cementitious slurry backfill is required as part of the installation. The trench in pavement method can be used within roadway shoulders and within a traveled lane. To restore the pavement surface, the existing asphalt must be removed at a thickness adequate enough to create a smooth surface (e.g., by asphalt milling or cold planing) above the trench and the hot mix asphalt placed and compacted. The cold planing and paving would be required on an approximately two-foot-wide area surrounding the trench. Detailed specifications for installation within different roadways are discussed in the *Design Guidelines*, section 5.1.2.<sup>5</sup> **Table 2-4** presents the typical rate of trench installation within paved areas for one typical work crew, depending on the soil type.

<sup>5</sup> Caltrans and CDT, 2023. Middle-Mile Broadband Network Design Guidelines. April 2023.





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SOURCE: Caltrans 2022

Coastal Middle Mile Broadband Network

**Figure 2-6**  
Open Trench Methods and Conduit Placement



**TABLE 2-4  
TRENCH METHOD INSTALLATION DURATION – PAVED SURFACE**

Description	Quantity Per Day (Linear Feet)
Trench Method in Pavement – Soil	725
Trench Method in Pavement – Cobbles	425
Trench Method in Pavement – Boulders	250
Trench Method in Pavement – Rock	350

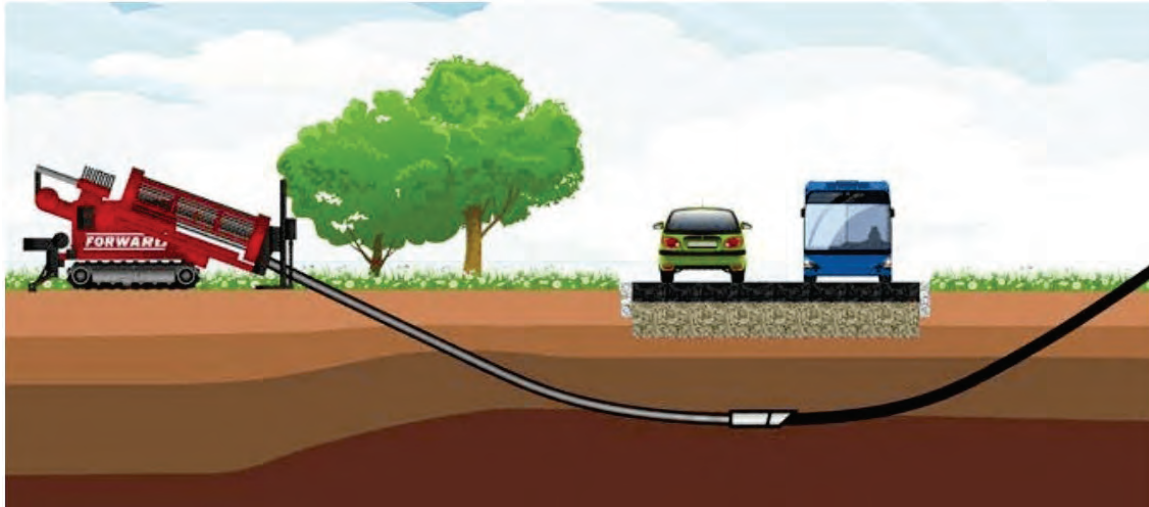
SOURCE: Caltrans, 2023



**Figure 2-7**  
Trench in Pavement Method

### Horizontal Directional Drilling

As illustrated in **Figure 2-8**, horizontal directional drilling (HDD) allows the installation of conduit under obstacles that do not allow convenient plowing or trenching installations, including roadways, channels, levees, railroads, and environmentally sensitive habitat areas or wetlands. However, for streams and rivers, HDD would generally occur if the conduit could not be constructed within or attached to a structure. Horizontal directional bores are accomplished by using a steerable drill stem. To complete the bore, a work area is established on each side of the crossing. Each work area would measure approximately seven feet wide by seven feet deep; however, larger equipment, and a correspondingly larger work area, is needed for longer bores. One work area would contain the entry pit and drilling equipment. The other work area would contain the exit pit, where the drill stem emerges. Once the drill stem reaches the exit pit, a reamer (used to enlarge the pilot hole) is attached, along with the conduit, and the drilling machine uses the reamer to create an approximately 12-inch diameter hold back toward the entry pit, while pulling the conduit at the same time.



**Figure 2-8**  
Horizontal Directional Drilling Method

Drilling equipment most suitable for site-specific conditions would be used for each bore. For relatively short or simple bores, the drilling contractor often determines the appropriate bore depth based on professional experience and site-specific conditions. For longer or more complex bores, a geotechnical engineer is often used to evaluate soil conditions and determine a minimal bore depth. If necessary, the geotechnical engineer would order site-specific soil borings to determine subsurface soil conditions.

During the boring process, a bentonite slurry is typically pumped through the bore hole to help lubricate the drill bit, prevent the bore tunnel from collapsing, and carry drill cuttings to the surface. Bentonite is a naturally occurring Wyoming clay known for its hydrophilic characteristics. The slurry is pumped through the bore hole, collected at the surface, passed through machinery to remove the bore cuttings, and then recirculated through the hole. The slurry is stored in tanks at the drill site when not in use. Any excess slurry remaining after the bore is complete would be removed from the site and either reused by the drilling contractor or discarded at an appropriate location.

The depth and direction of the boring can be controlled by the equipment operator. Generally, the objective is to keep the bore as straight as possible. HDD is not recommended when conditions include cobbles greater than 4 inches or boulders. **Table 2-5** presents the typical rate of HDD installation for one typical work crew, depending on the soil type.

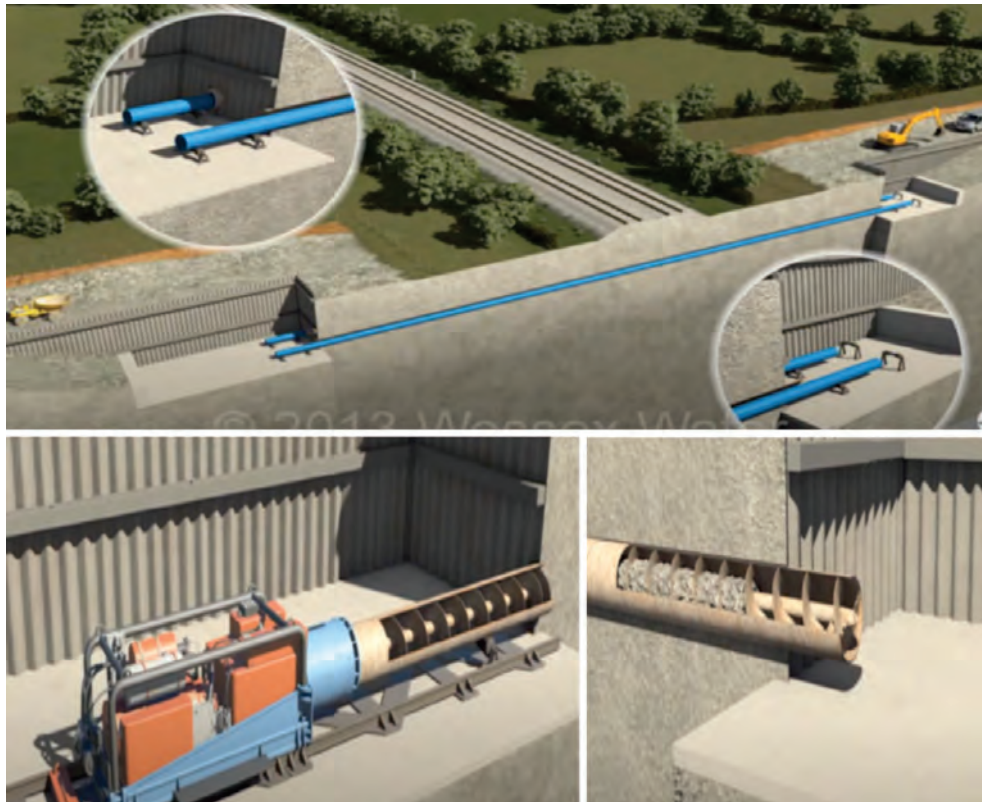
**TABLE 2-5  
HORIZONTAL DIRECTIONAL DRILLING INSTALLATION DURATION**

Description	Quantity Per Day (Linear Feet)
HDD – Soil	1,500
HDD – Cobbles	500
HDD – Boulders	200
HDD – Rock	200

SOURCE: Caltrans, 2023

### Jack and Drill Casing

Jack and drill installation of a casing is typically required under railroads and roadways to prevent soil subsidence. Diagrams of this method are shown in **Figure 2-9**. Jack and drill installation involves the cutting of the soil, generally 6 inches to 8 inches in diameter, ahead of the pipe being jacked simultaneously by an auger that is placed within the encasement. Typical operations involve the excavation of entrance and exit pits, cutting of the pilot hole, casing and site restoration. The depth of the boring is preplanned based on depth of the pits. The depth of cover for conduit in roadway crossing operation is typically a minimum of 4 feet for a 6-inch diameter or less hole, and 6 feet for an 8-inch to 14-inch diameter hole.



**Figure 2-9**  
Jack and Drill Method

## Bridge Mounting

In some areas, the fiber optic conduit may need to be placed aboveground on bridges or other structures. Under this method, conduits would be placed within existing unused conduit passages (if available) or within the bridge structure cells, attached underneath the structure, hung underneath the structure, or attached to the exterior of the structure. Bolts, clips, hangers, and/or anchors may be used to attach the conduit. When installing conduit on a bridge, an approximately 30-inch-wide by 48-inch-long by 36-inch-deep pit would be excavated at either end of the bridge to allow for pull vault installation. Any mounting of conduit on bridges must comply with Caltrans' *Guidance for Broadband Installation on Bridges*<sup>6</sup> and the *Encroachment Permits Manual*. The latter directs that utility facilities on bridges must be located between girders whenever possible and such encroachments must be installed out of sight. The manual states further that a utility, such as a fiber optic conduit, may be attached to the exterior of the bridge, but must be enclosed to look like an integral part of the bridge.<sup>7</sup> In some cases, conduit may need to be painted or covered with an approved coating to match the color of the structure.

### 2.4.2 Vault Installation

Vaults would be installed flush to original surface whenever possible. When vaults are required to be buried underground, they would be buried a minimum of 6 to 8 inches below the surface. When it is necessary to bury a vault, a locational marker would be placed at the location of the buried vault. A pull box would be placed at the ground surface with the tracer wire from the vault for locating the fiber optic conduit. Up to six vaults can be installed in one day by one work crew.

### 2.4.3 Network Hub Shelter Installation

Network hub shelter construction would entail site clearing/preparation, grading and excavation, facility installation, start up, and testing. The buildings would be prefabricated, steel reinforced concrete set in place on new concrete slabs. Facilities would include underground entry points to cable, electrical connections, and telecommunications. Each network hub shelter would have an exposed aggregate finish as the standard default. In instances where surrounding aesthetics resources are a concern, the *Design Guidelines* provide for alternative finishes, such as brick, stone, and custom exterior paint colors to reduce visual impacts.<sup>8</sup> Each network hub shelter would be expected to take two to four months to install.

### 2.4.4 Project Area Restoration

Restoration of disturbed areas would be the final step in the project construction process. The short-term objectives of restoration are to control potential accelerated erosion and sedimentation and minimize impacts on adjacent waters, land uses, and other sensitive resources. Long-term

<sup>6</sup> Caltrans, 2022. Middle-Mile Broadband Network Design Guidelines, Appendix D. October 2022.

<sup>7</sup> Caltrans, 2022. Encroachment Permits Manual, Chapter 600 – Utility Permits. Table 6.4 Additional requirements for utility facilities located on bridges or other structures. July 2022.

<sup>8</sup> Caltrans and CDT, 2023. Middle-Mile Broadband Network Design Guidelines. April 2023.

objectives include erosion and sedimentation control, as well as reclamation of topography to preinstallation conditions.

For conduit installed within paved areas, the trenched area would be graded to pre-installation grades and contours, and repaved. For conduit installed within unpaved areas, the excavated area would be backfilled. In sensitive biological areas such as wetlands, topsoil would be preserved and placed on top of the backfill material. Revegetation may be required depending on habitat type.

## 2.5 Operation and Maintenance

Once installed, the majority of the coastal MMBN components would be buried below ground surface. Operation and maintenance of these facilities would be CDT's responsibility and would typically occur via access facilities designed into the project. Ground-disturbing activities associated with ongoing operation and maintenance of telecommunications projects are normally minor to nonexistent. However, any maintenance activities that require ground disturbance beyond that described herein, or that go beyond in-kind repairs, could require a permit amendment.

## 2.6 Best Management Practices

Caltrans, in coordination with Coastal Commission staff, has prepared guidance to support the Caltrans District Project Development Teams (PDTs) in complying with the Coastal Act. The document, *Middle-Mile Broadband Network Coastal Zone Guidelines for Programmatic Permitting*, outlines best management practices for planning, siting, designing, and constructing the MMBN in ways to conform to Coastal Act policies.<sup>9</sup> The project's *Design Guidelines* reference the *Coastal Zone Guidelines* and state they should be considered for project elements in the coastal zone to avoid and minimize coastal resource and public access impacts associated with project components. While the *Coastal Zone Guidelines* are not design requirements, it is expected that District PDTs will incorporate relevant best management practices into their coastal project designs.

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<sup>9</sup> Caltrans, 2022. Middle-Mile Broadband Network Coastal Zone Guidelines for Programmatic Permitting. December 2022.

# CHAPTER 3

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## Approach to Analysis

### 3.1 Introduction

As discussed in Chapter 1, *Introduction*, the State of California is undertaking a statewide initiative to build a critical fast-speed internet middle-mile broadband network (MMBN), including approximately 460 miles within California's coastal zone. Senate Bill (SB) 156 dedicates funding and establishes an aggressive timeline for project implementation. SB 156 also states that it exempts the project from the California Environmental Quality Act (CEQA); however, it does not provide exemption from other environmental laws, including the Coastal Act's coastal development permit requirements. This document has been prepared to support Coastal Commission staff's review of MMBN coastal development permit (CDP) applications in alignment with the expedited MMBN project timeframes and in the absence of a CEQA analysis.

As also explained in Chapter 1, the California Department of Transportation (Caltrans) is responsible for the planning, designing, permitting, and construction activities within the coastal zone. Caltrans will divide the project into numerous individual project segments that will be constructed by contractors on individual timelines. At the time of this report's drafting, the MMBN project is undergoing design by the individual Caltrans districts and specific details regarding the types, locations, methods, and timing of construction for most project elements have not been finalized. In the absence of specific design information, this document employs a project design envelope approach to analysis, relying primarily upon the general project information contained within the April 2023 draft *Middle-Mile Broadband Network Design Guidelines*. As described in Chapter 2, *Project Description*, with the exception of identified network hub shelter sites, the project description analyzed herein assumes project elements, including conduit, vaults, markers, and paved pullouts, could be sited anywhere within identified segments of the State Highway System right-of-way, and that underground conduit could be installed using a number of methods.

Given the scale of the project, lack of specific design detail at the time of this report's drafting, and expedited timeline, this report relies almost entirely upon existing available geospatial data for project area characterization and impacts analyses. As discussed below, some limited field studies for environmentally sensitive habitat area analysis were completed. The approach to analysis included a robust literature review and geospatial data compilation effort, a gap analysis of the compiled information, a field study to address identified data gaps, and development of a geospatial database containing project description and coastal resource and hazard information compiled during the literature review and field study. Chapter 4 presents for each of the main Coastal Act environmental topics, the relevant Coastal Act and local coastal program (LCP)

policies, a description of the environmental setting, a discussion of the project’s potential coastal resource or hazard impacts, analysis of project consistency with relevant Coastal Act and LCP policies, and recommended avoidance and minimization measures to address potential coastal resource impacts or policy conflicts. Summaries of the literature review, gap analysis, geospatial database, and consistency analysis are presented below, and further discussed in **Appendices A through D** and Chapter 4, *Environmental Setting, Impacts, Minimization Measures, and Policy Consistency*.

## 3.2 Literature Review

A literature review was conducted for this analysis. The literature review involved the compilation and review of existing, available information on public access and recreation; biological resources; visual and scenic quality; archaeological and historic architectural resources; paleontological resources; and tsunami, flood, geologic, and related sea-level rise hazards; environmental justice communities, and agricultural lands. This information, most of which comprised geospatial (GIS) data, was obtained primarily from federal, state, and local government agency sources, and supplemented by data from other, non-governmental sources. The literature review also involved obtaining and reviewing copies of the Coastal Act and LCPs applicable within the project area. A memorandum detailing the literature review is included as **Appendix A** of this report.

## 3.3 Gap Analysis

The literature review utilized all known existing online data sets, GIS data, LCP information, and other online tools to develop information about potentially impacted coastal resources. This information was reviewed, and a gap assessment was performed to identify any remaining unavailable, outdated, or inaccurate environmental information of critical importance to the Coastal Act analysis. The gap analysis was guided by Coastal Act resource protection policies, familiarity with Commission staff’s preferences when reviewing CDP applications, the likelihood of potential project effects on those resources, and focused primarily on data availability and completeness. A memorandum describing the gap analysis is included as **Appendix B** of this report. The memorandum also presents recommendations for obtaining missing information through field studies or other methods and addressing any unavailable or otherwise unattainable information required for the Coastal Act analysis. The memorandum recommends the following actions to address the data gaps found in four resource topics:

- **Biological Resources:** *San Luis Obispo County may require field verification due to the low accuracy of vegetation data. Additionally, as the ESHA analysis proceeds, ESA’s biological resources team may identify additional areas that require field verification.*
- **Cultural Resources:** *Once provided by Caltrans, ESA will review Caltrans’ geoarchaeological sensitivity GIS dataset for accuracy and completeness<sup>1</sup>.*

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<sup>1</sup> Or, if provided after completion of the Coastal Resources Assessment, Coastal Commission staff will review Tribal consultation materials and archeological surveys provided by the Caltrans districts



- **Aesthetics:** *Further assessment of local coastal plan and other scenic vista information will be needed once the location of aboveground structures have been identified.*
- **Agriculture:** *ESA or Coastal Commission staff will contact Del Norte and Humboldt County staff to inquire about an agricultural land use map that will be used in conjunction with the project area to identify any conflicts with farmland resources.*

Following completion of the gap analysis, a biological resources field study was performed, as described in Sections 3.4. The geoarchaeological sensitivity data was obtained from Caltrans but was determined to be of insufficient coverage to support the Coastal Act analysis. The potential hub site locations were obtained, and scenic and visual quality information was compiled and is evaluated in Section 4.3. Agricultural land information was obtained from Del Norte and Humboldt counties and is evaluated in Section 4.6.

### 3.4 Field Study

Based upon the results of the gap analysis, portions of the biological resources study area (the project area and surrounding 500-foot buffer) were identified as requiring field observation to further assess whether they might contain environmentally sensitive habitat. Reconnaissance surveys of the subject portions of the project biological resources study area were conducted over several days between March 13 and March 17, 2023, and included portions of the biological resources study area in Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, and Ventura counties. A memorandum describing the field study is included as **Appendix C** of this report.

### 3.5 Geospatial Analysis

The geospatial data obtained during the literature review and field study were used to represent the project design envelope described in Chapter 2, and to support the environmental setting characterizations and impact analyses presented in Chapter 4. Data sets for each Coastal Act topic evaluated were compiled and compared against the project area. For certain environmental topics, including biological resources, visual resources and coastal access, relevant environmental data were compared against the project area plus an additional 500-foot buffer beyond the project area, referred to the resource “study area.” Intersection queries were performed to evaluate the extent of the resource or hazard intersecting the project area or study area (e.g., acres of sensitive habitat within the project area). The queries were performed for the project overall and by district. The results of the queries are presented Chapter 4 and certain appendices. A memorandum describing the geospatial analysis is included as **Appendix D** of this report.

### 3.6 Consistency Analysis

The project traverses lands under the retained jurisdiction of the Coastal Commission and under the jurisdiction of multiple local coastal governments with certified LCPs. As a result, the project would require a CDP from the Coastal Commission and each local government with a certified LCP. Pursuant to Coastal Act section 30601.3, where a project requires a CDP from both a local government with a certified LCP and the Coastal Commission, the Coastal Commission may

process and act upon a consolidated CDP, provided that all parties agree (i.e., the applicant, the appropriate local government, and the Coastal Commission). Under section 30601.3(b), the standard of review for a consolidated CDP application is the Coastal Act (chapter 3), with the appropriate LCP used as guidance. For most areas of the coastal MMBN project, all parties have agreed, or are expected to agree, to the consolidation approach, and the Coastal Commission is expected to process and act upon consolidated CDP applications from most Caltrans districts (whether as permittee or agent for the CDT) within the coastal zone. Therefore, the consistency analysis contained within Chapter 4 of this document treats the Coastal Act's chapter 3 policies as the standard of review and includes consideration for relevant LCPs as guidance. Relevant LCP land use plan policies are summarized in **Appendix E** and include but may not be limited to those which contain information specific to the site in question or that further elaborate on the requirements of the Coastal Act. CDP applications for a few of the project segments may be processed separately by local jurisdictions with certified LCPs, in which case the standard of review is the certified LCP. The analysis contained in this report may be useful for those jurisdictions' permitting analyses, but is primarily intended to support Coastal Commission staff in their review of consolidated CDP applications under the Coastal Act.

## CHAPTER 4

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# Environmental Setting, Impacts, Minimization Measures, and Policy Consistency

This chapter provides descriptions of the coastal MMBN project’s environmental setting with respect to coastal resources and hazards, physical environmental impacts, policy consistency, and avoidance and minimization measures as applicable. The chapter is divided into seven sections, with each section focusing on a pertinent Coastal Act resource topic. Within each section, the document summarizes the project’s existing environmental resources and hazards (i.e., environmental setting) and provides analyses of potential temporary and permanent project effects. The environmental setting and impact analysis discussions describe both statewide and Caltrans district-specific considerations for each coastal resource and hazard topic. Coastal resources and potential impacts are described in as much detail as practicable, given the available project description detail in Chapter 2, *Project Description*. In addition, each section delivers an assessment of the project’s potential Coastal Act and certified LCP policy consistency issues. The document concludes with recommended measures for avoiding or minimizing potential coastal resource and hazards impacts to resolve potential policy issues where feasible.

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## 4.1 Public Access and Recreation

The Coastal Act requires the protection of public access and recreational opportunities within the coastal zone and calls for their expansion where needed and consistent with public safety, military security needs, and the protection of fragile coastal resources. This section summarizes Coastal Act and LCP public access and recreation policies, identifies public access and recreational resources in the project area, and assesses the potential impacts of project activities on these resources. The section concludes with an evaluation of the project's consistency with the Coastal Act and relevant LCP policies, including recommended measures to avoid and minimize identified project impacts.

### 4.1.1 Policy Considerations

The Coastal Act and LCPs place a fundamental and critical emphasis on protecting and maximizing public access to the coast and recreation within the coastal zone. Public access includes a wide range of types and modes of access to and along the shoreline, including from land and sea, by roads or trails, visual access, and to beaches, rocky shorelines, surf spots, bluff top parks, viewpoints, and many other public areas in the coastal zone. Public coastal recreation includes water-oriented recreational activities in the ocean or along the shoreline (e.g., fishing, swimming, boating, tide pooling) or other activities that occur within the coastal zone (e.g., biking, walking, or running on coastal trails or playing at park facilities). Recreation also includes commercial visitor-serving activities, especially lower-cost options, such as camping and other more affordable overnight accommodations. Relevant Coastal Act and LCP policies are summarized below.

### Relevant Coastal Act Provisions

Coastal Act section 30001.5 declares the prioritization of coastal public access and recreation as an essential goal of the state legislature. Public access and recreational opportunities are to be maximized along the coast, in combination with the protection of coastal resources and private property rights.

Coastal Act section 30210 requires that maximum public access and recreational opportunities shall be provided:

*In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Coastal Act section 30211 requires that development activities do not interfere with the public's right of access to the coast:

*Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Coastal Act section 30212, in part, stipulates that coastal public access be provided in new development projects, in balance with other coastal resources and uses:

- (a) *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or (3) agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway. . .*

Coastal Act section 30214, in part, expects consideration of the appropriate time, place, and manner of access:

- (a) *The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:*
- (1) *Topographic and geologic site characteristics.*
  - (2) *The capacity of the site to sustain use and at what level of intensity.*
  - (3) *The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.*
  - (4) *The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter. . .*

Additionally, Coastal Act section 30604(c) requires that coastal development permits issued for development “between the nearest public road and the sea or the shoreline of any body of water located within the coastal zone shall include a specific finding that the development is in conformity with the public access and public recreation policies of [Coastal Act] Chapter 3.” Consideration of this policy applies to coastal MMBN elements proposed for locations on the seaward or bay-ward side of state highways, where there is no other public road between the shoreline and the state highway.

Coastal Act policies also prioritize and protect coastal recreational activities and uses. Coastal Act section 30220 protects water-oriented activities:

*Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

Coastal Act section 30221 identifies oceanfront land as necessary for recreational uses and which therefore require protection:

*Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

To support other coastal recreation policies, Coastal Act section 30223 specifies that upland areas should be reserved to support coastal recreation:

*Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

In addition to the specific access and recreation policies, Coastal Act section 30250 requires that development not result in adverse cumulative impacts to coastal resources:

- (a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.*
- (b) Where feasible, new hazardous industrial development shall be located away from existing developed areas.*
- (c) Visitor-serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction for visitors.*

## Relevant LCP Provisions

Each LCP generally includes land use policies that map to the broad Coastal Act policies discussed above. For example, the LCPs contain policies that either mimic or reflect the section 30210 requirement to maximize and protect public access (e.g., Mendocino County General Plan Coastal Element (Coastal Element) policy 3.6-6 requires that shoreline access points be at frequent intervals and public access facilities shall be distributed throughout the coastal area). Many of the LCPs also include inventories or descriptions of important access and recreation resources in the jurisdiction. This is due in part to the Coastal Act section 30500 requirement that each LCP contain a specific public access component to assure that maximum public access to the coast and public recreation areas is provided. For example, the Sonoma County LCP provides policy recommendations and development priorities for specific recreational assets including county parks, ecological reserves, and trails.

To the extent that LCP policies mirror the Coastal Act and are advisory, no more specific elaboration is warranted here. Because most of the project will ultimately be underground, with disturbed areas restored, only a handful of LCP public access and recreation policies are directly relevant for consideration, and only then as guidance. Public access impacts are only anticipated to be temporary in nature. Relevant LCP policies are those which contain information specific to the site in question or requirements that further elaborate on the requirements of the Coastal Act. The full text of these policies is presented in **Appendix E**. Because hubs are one of the few above-ground permanent structures, this section summarizes public access and recreation LCP policies that relate to those locations where the above-ground hubs are proposed in Mendocino, Sonoma, and Marin counties.

Relevant Mendocino County Coastal Element policies are contained within section 3.6, Shoreline Access and Trail/Bikeway System, and section 3.7, Recreation and Visitor Serving Facilities. The Coastal Element provides relevant policies that specifically speak to Caltrans activities. For

example, policy 3.6-17 requires Caltrans to improve or construct view turnouts as part of highway widening or improvement projects. Policy 3.6-20 requires Caltrans to pave four-foot shoulders along State Route 1 wherever construction is feasible, but without “unacceptable” environmental effects.” More generally, policy 2.6-24 mandates the County to implement the coastal access program in coordination with other agencies and private organizations to allow for the most efficient use of limited fiscal resources, and other Coastal Element policies describe the County’s public access easement procurement and dedication process.

The network hub shelter sites in Mendocino County are within the Noyo Harbor area (hub site #107) and Irish Beach/Manchester Point area (Hub site #20, both options). Section 4.4 of the County’s Coastal Element contains policies relating to Noyo Harbor and nearby Hare Creek. Coastal Element policies prioritize the continuation of commercial fishing in Noyo Harbor and public access to Hare Creek beach. Section 4.11 contains public access and recreation policies relating to the Irish Beach/Manchester area. The Irish Beach/Manchester area policies primarily relate to acquiring additional public access easements and enhancing the existing recreational amenities in the area.

Section V, Recreation, of the Sonoma County Local Coastal Plan (Sonoma County LCP) contains the Access Plan Description and Recommendations for existing and proposed public access and recreation areas. The Sonoma County LCP provides a summary of recommended acquisitions, general recommendations, and specific recommendations for public and private coastal recreation facilities. The eight Access Plan General Recommendations require the County to protect existing public access easements (adopted or prescriptive), and to adopt and implement its Access Plan to establish new and enhanced public coastal access and recreation amenities. General Recommendations relevant to the coastal MMBN project primarily relate to areas where public prescriptive rights may exist (in support of Coastal Act section 30211) and require the County to make a finding that the project would not interfere with established prescriptive rights (Access Plan Recommendations 3 and 4).

Access Plan Recommendations for the Timber Cove area and the Salmon Creek and Bodega Bay areas are relevant to proposed hub sites #23 and #135, respectively. The LCP states that the “Timber Cove Boat Landing and campground is a very intensively used parcel, providing the most comprehensive services to divers on the coast.” South Salmon Creek Beach is “one of the most important and heavily used beach access points on the Sonoma County Coast.” The Bodega Dunes State Campground has developed camping facilities with easy access to trails through the dunes area. Access Plan recommendations support continued operations at all of the Timber Cove Boat Landing, Salmon Creek beach access points, and Bodega Bay recreation amenities, with protection of sensitive coastal resources such as dune vegetation at Bodega Dunes State Campground.

Relevant Marin County Local Coastal Program (Marin County LCP) policies are contained within the Socioeconomic section, which addresses (among other topics) parks, recreation and visitor-serving uses and public coastal access. Policy C-PA-15 requires that siting and design of new development should avoid or minimize impacts to users of public coastal access and recreation areas, and that reduction of public opportunities near beach or park access points be reduced or avoided where possible, or the potential loss of public coastal access be mitigated.



Additionally, policy C-PA-20 stipulates that permits for development that could reduce public parking opportunities near beach access points or parklands must evaluate options to protect public access and mitigate any potential loss of access. Proposed hub site #136 in Marin County would be located within the County LCP's Olema community area. However, the Marin County LCP does not contain policies for the Olema community that are directly relevant to the hub site or construction with respect to public access and recreation.

## 4.1.2 Coastal Resources and Impacts

### Statewide Project Analysis

#### **Resource Summary**

The setting for the coastal MMBN project comprises those segments of the California State Highway System where project elements are proposed. The project area is shown in **Figures 2-4A** through **2-4F**. To aid in assessing potential impacts on public access and recreation resources, a coastal access study area has been defined to include the State Highway System road right-of-way plus an additional 500 feet on either side of the right-of-way boundary. The types of public access and recreational resources within the coastal access study area are described below, both generally and by approximate quantity. **Table 4.1-1** tallies the approximate number of public access and recreation features that intersect the coastal access study area for each Caltrans district and the project overall. The table, which is based upon a desktop analysis and may not be exhaustive, is intended to illustrate the diversity of coastal public access and recreational features existent in the project vicinity. Please see Section 4.1.2, *District Analysis*, for additional detail.

The following public access and recreation resources are found within the coastal access study area and assessed further within this report.

#### **Parks and Beaches**

There are approximately 120 coastal parks and beach access points within 500 feet of the coastal MMBN project boundary. Coastal parks range from small neighborhood parks to large county and state parks. Similarly, beaches within the coastal access study area range from small to large, rural to urban, lightly used to heavily used, groomed to ungroomed, rocky to sandy, accessible by foot only or by adjacent parking, and many other variables. In addition to beaches and parks there are a myriad of other coastal features accessed by the public for enjoyment and recreation, such as boardwalks, historic facilities, interpretative centers, and campgrounds.

#### **Trails**

The coastal access study area considerably overlaps with the California Coastal Trail (CCT). In total, 140 miles of the CCT intersects the study area. The CCT allows for pedestrian and bicycle use depending on the specific trail segment. The miles of CCT that intersect the coastal access study area within each Caltrans district are presented within Section 4.1.2, *Coastal Resources and Impacts*. The coastal zone also contains many local trails, and trails within recreational areas, such as state parks. Desktop analysis identified approximately 27 formal trails with segments that intersect the coastal access study area, which are also identified within the relevant Caltrans districts in Section 4.1.2.

**TABLE 4.1-1  
 PUBLIC ACCESS AND RECREATION FEATURES WITHIN COASTAL ACCESS STUDY AREA  
 (TOTAL BY CALTRANS DISTRICT)**

Feature Type	Caltrans District						Total
	1	4	5	7	12	11	
City/County Park	4		5	1	1	2	13
Town/City Coastal Access Point	3	7	2				12
Historic Feature		2					2
National/State/Regional Park/Beach/Recreation Area	3	10	16			1	30
Nature Preserve/Reserve	2	1	4			1	8
Path/Trail/Drive	8	13	3	3			27
Physical Access Point	22	23	17	11	2	2	77
Recreational Facility	6	5	4	2		1	18
Visual Access / Vista Point	7	4				1	12
Water Feature / Waterbody	1	1	1			1	4
Waterfront Features	1	3	1			1	6
Vista Points	10	1	1			1	13
Other Facility (e.g., RV park, visitor center)	7	3	1		1		12
<b>Totals</b>	<b>74</b>	<b>73</b>	<b>55</b>	<b>17</b>	<b>4</b>	<b>11</b>	<b>234</b>

SOURCE: Caltrans 2022, California Coastal Commission 2022, California Department of Forestry and Fire Protection 2022.

## Transportation Network

### Roads

Many portions of the State Highway System are used by the public to access coastal areas for recreation, education, employment, and enjoyment, particularly where the highway or road is the nearest public road to the coast. The State Highway System is vital to local and regional travel, and is sometimes the primary or only route for emergency vehicles and general vehicular circulation within a community. The coastal MMBN project elements would be primarily placed along the following State Highway System segments:

- Portions of U.S. Highway 101 from the California/Oregon border (Caltrans District 1) south through Caltrans districts 4 and 5 to the City of Ventura (Caltrans District 7),
- Portions of State Route 1 from Fort Bragg (Caltrans District 1) south through Caltrans districts 4, 5, and 7 to the City of Dana Point (Caltrans District 12), and
- Portions of Interstate 5 from the City of Oceanside (Caltrans District 11) south to unincorporated San Diego County, north of the Mexico border (Caltrans District 11).

All three highways are essential transportation corridors along the Pacific coast. State Route 1 is also considered one of the state’s premier recreational travel routes. It is in itself a coastal visitor destination, providing a form of coastal recreation for drivers, cyclists, and general visitors enjoying the views and scenery. For some portions of the coastline, State Route 1 or Highway 101

provide the only feasible route up and down the coast for reaching beaches, coastal trails, and scenic viewpoints.

**Table 4.1-2** provides the total linear miles of coastal MMBN project area along State Route 1, Highway 101, and Interstate 5. The length and location of coastal MMBN project elements along each specific State Highway System segment, including segments other than those shown in Table 4.1-2, are described in Section 4.1.2 within each Caltrans district.

**TABLE 4.1-2  
 COASTAL MMBN PROJECT SEGMENTS BY STATE HIGHWAY NUMBER  
 (LINEAR MILES OF PROJECT AREA)**

State Highway Name/Number	Total Project Area (Linear Miles) <sup>a</sup>
State Route 1	263.32
Highway 101	106.95
Interstate 5	27.00
Other <sup>b</sup>	58.73
<b>Total</b>	<b>456.00</b>

NOTES:

- a Minor discrepancies in the linear mileages, for the total project or by project segment, may occur depending upon which road lane was used in the calculations.
- b The other State Highway System segments are identified within each Caltrans district in Section 4.1-2, as applicable.

SOURCE: Caltrans 2022; California Department of Forestry and Fire Protection 2022; U.S. Census TIGER 2021.

**Bicycle Lanes and Routes**

Bicyclists ride on coastal roads for recreation, exercise, general transportation, and to access the coast for other forms of recreation and enjoyment. Cyclists ride within dedicated bike lanes where available, or on road shoulders if existing and sufficient, and in many sections of Highway 1 with no shoulders, in the roadway.

Many segments of the coastal State Highway System are identified as bicycle routes for local and regional bicycle tourism and recreation. For example, the Pacific Coast Route travels along portions of Highway 101 and State Route 1 along the length of the California coastline.<sup>1</sup> Portions of the CCT also extend along local roads. Many segments are multi-use, providing access for pedestrians and cyclists, while some portions of the CCT only allow for bicycle use.<sup>2</sup>

**Parking lots**

Coastal beaches and parks often have associated parking lots to facilitate user access. Adequate parking at coastal access points contributes to the goal of “maximum access” under Coastal Act

<sup>1</sup> Adventure Cycling Association. “Pacific Coast.” <https://www.adventurecycling.org/routes-and-maps/adventure-cycling-route-network/pacific-coast/> Accessed on February 24, 2023.  
<sup>2</sup> California Coastal Commission Mapping Unit. The California Coastal Trail Interactive Mapping Viewer. <https://the-california-coastal-trail-1-coastalcomm.hub.arcgis.com/apps/2ef96f867a644cdeab90d213b7577ab4/explore> Accessed on February 24, 2023.

section 30210. In total, there are 61 public beaches and 39 parks with dedicated parking that have a portion of the parking area fall within the 500-foot coastal access study area.<sup>3,4</sup>

### Recreational Pullout Locations and Scenic Viewpoints

Portions of State Highway Segments, in and adjacent to the project area, also host hundreds of popular pull-out locations that provide scenic viewpoints, access to trails, or access to pocket beaches or rocky coves. Most of these pullout spots are informal, composed of dirt or gravel. (See also Section 4.3, *Visual and Scenic Resource & Community Character*, for discussion of scenic viewpoints.)

### **Relevant Project Activities and Effects**

All construction activity for the coastal MMBN project elements would occur within the State Highway System right-of-way. The coastal State Highway System is a vital resource for members of the public to access and use coastal scenic and recreational resources. Therefore, this section describes coastal MMBN project elements and construction activities (Chapter 2, Project Description) that may impact the coastal public access and recreational resources summarized in the Resource Summary section above.

### **Construction & Operation of Underground Facilities**

Underground installation of fiber-optic conduit and vaults requires removal of existing surfaces (paved or unpaved), earthwork, and restoring the surface, as needed. Methods for installing underground conduit are described in Section 2.6.1, *Conduit Installation*. Depending on the conduit installation method used and the soil consistency, up to 2,500 linear feet of conduit can be placed per day by one work crew. Vault installation techniques are described in Section 2.5.2, *Vaults*. Road lane closures and any necessary traffic detours would coincide and move with the conduit and vault placement areas in a traveling work area along the State Highway System road corridor. Lane closures can create traffic back-ups that can, when significant, impede coastal public access. Additionally, in some rare cases, the construction activities could possibly require full road closures and route detours.

### **Construction & Operation of Aboveground Facilities**

Aboveground coastal MMBN elements are generally limited to (1) temporary construction staging areas, and (2) installation of the network hub shelters, conduit installation on bridges or other aboveground structures, marker posts, and paved maintenance vehicle pullouts. In rare circumstances, where no other installation method is feasible, the project may require installation of fiber optic cable on existing utility poles.

Per the description of construction staging in Section 2.5.4, *Staging Areas*, staging areas would be located in previously disturbed, graded, or paved areas. This could potentially include roadside

<sup>3</sup> California Coastal Commission, 2022, Coastal Access Points. Available at: <https://services9.arcgis.com/wwVnNW92ZHUIr0V0/arcgis/rest/services/AccessPoints/FeatureServer>

<sup>4</sup> California Department of Transportation, 2022, Caltrans Districts Available at: [https://services9.arcgis.com/wwVnNW92ZHUIr0V0/arcgis/rest/services/CalTrans\\_Districts/FeatureServer](https://services9.arcgis.com/wwVnNW92ZHUIr0V0/arcgis/rest/services/CalTrans_Districts/FeatureServer).

public parking or recreational areas. Temporary State Highway System road lane closures could be required to prepare the construction staging areas, and during equipment ingress and egress.

Construction activities required to install the network hub shelters would be the same for all proposed hub locations, as described in Section 2.6.3, *Network Hub Shelter Installation*. Depending on their location, construction activities required to install the network hub shelters and associated elements as described in Section 2.6.3 (e.g., perimeter fencing, fuel tanks) may require State Highway System road lane closures and potential traffic detours during construction, to provide a buffer around construction activities for safety and for equipment staging, ingress, and egress.

Regarding conduit installation on bridges, pit excavation on either end of a bridge for pull vault installation could require temporary road lane closures. Temporary lane closures would be required to install conduit on highway bridges and to stage the necessary construction equipment. Fiber optic cable marker posts and vault locational markers would be installed along the length of the project area. Aerial fiber optic cable may also be installed within the existing utility pole right-of-way and may require temporary lane closures for line installation and connection. Paved maintenance vehicle pullouts would be constructed within coastal MMBN project segments, as needed, to provide staging for maintenance activities. In addition, temporary or permanent access roads may be needed for construction and installation of network hubs and vaults.

### **Potential Impacts to Coastal Public Access and Recreation**

Impacts to public coastal access and recreation areas would be similar for construction of underground project elements and aboveground structures. In general, construction activity would be contained within a linear route or zone that moves along the corridor daily (“active work zone”). Project construction may require temporary closures of parking lots or roadside parking spaces along the route for staging or actual construction, depending upon the specific locations chosen for installation of coastal MMBN project elements. Temporary closure of parking areas could prevent or limit the public’s use and enjoyment of coastal recreation areas by requiring that users park further away (e.g., by placing hardship on users with mobility restrictions) or by giving the impression that the coastal access or recreation resource itself is closed.

The project could also temporarily impact public access by delaying travel along the coast within the active work zone. Lane closures could constrain automobile traffic flow and potentially block bicycle lanes or pedestrian paths. The lane closures, although temporary, could physically impede users from accessing coastal areas, or could result in traffic delays in the active work zone. Under either situation, there could be a temporary impact to the public due to an inability to access coastal areas in the active work zone for recreation and enjoyment.

Lane closures and resulting delays within the active work zone could lead to more regional traffic impacts depending upon the construction location. Lane closures along a route constrained by high traffic volumes and frequent congestion could result in worsening congestion and delays, which could ripple out from the active work zone and expand the impacted road area. Additionally, lane closures along traffic segments that lack alternate routes could result in congestion and delays since road users could not by-pass the active work zone. Travel delays could delay or prevent the

public from accessing coastal areas outside of the active work zone due to these potential regional effects. The impacts occurring during construction in the traveling work zone would be temporary and would cease when the construction activities are completed in that zone.

Aboveground fiber optic cable and vault locational markers, once installed, would not impact coastal public access or recreation if they are placed outside of travel lanes or paths. Similarly, given the careful siting of their location by Caltrans and Commission staff, the hub shelters, once construction is completed, would not block or impede coastal public access or recreation paths, trails, or facilities.

In sum, State Highway System lane closures could temporarily impact members of the public attempting to access the coast for recreation, employment, leisure, and other uses. Road lane closures could impede coastal access routes and areas, create traffic congestion, close or reroute bicycle lanes, and block or reduce available parking areas, all of which may impact the public's ability to access and use public coastal areas. Travel delays and access impacts could be the highest and most significant during periods of higher public access and recreation use, primarily during the daytime, summer, weekends, and public holidays. However, careful siting of staging areas and construction activities, as well as timing of construction under a traffic management plan, would help avoid or minimize these impacts.

## **District Analysis**

Temporary impacts to public access and recreation resources from construction activities, including temporary lane closures, could occur within each Caltrans district, as described above for all project components. For the purposes of the district analysis, a summary of the total resources is provided below; however, the impact analysis is limited to unique impacts to resources within each district as a result of the location of the aboveground components.

### ***District 1***

#### **Public Access and Recreation Assets**

**Table 4.1-3** lists public access and recreation areas and assets within Caltrans District 1, by county, that are within or partially within the coastal access study area for the project. The list, which may not be exhaustive, is representative of the types of coastal public access and recreational features existent in the project vicinity. Due to limitations in the geospatial data used to generate the list, Table 4.1-3 may not identify public access and recreation assets where the majority of the asset is outside of the study area, or where an access point to a recreation asset is outside of the study area, such as Sue-meg State Park or Humboldt Bay National Wildlife Refuge in Humboldt County, or MacKerricher State Park or Manchester Beach State Park in Mendocino County.

The eight identified assets within Del Norte County include two overnight facilities, one trail, one park, and other beach access points. The 11 sites within Humboldt County include two local parks, boat launching facilities, and coastal vista points. Mendocino County has 42 access and recreation assets that fall within the coastal access study area, including campgrounds, visitor centers, trails, state parks, and many beach access points.

The coastal access study area intersects with 15 public beaches and 7 parks that have dedicated parking areas. The actual project area, once defined by Caltrans, could impact some of the public parking areas or lots by temporarily closing the access road or temporarily closing/impeding access to parking spaces. Closure of recreational area access roads and parking areas may directly impact the public’s ability to access coastal recreational areas. Regardless, travel lanes could be closed or restricted within the active work zone, which would impact the public as described in Section 4.1.2, *Statewide Project Analysis*.

**Transportation Network**

The project area primarily follows Highway 101 and State Route 1 within Caltrans District 1. However, project elements would be installed along segments of other state routes within the coastal zone, as well. **Table 4.1-4** describes the state highway segments within the project area, by county, and provides the linear miles of project area by highway segment. Assuming that up to 1,500 – 2,500 linear feet of conduit could be placed per day (Section 2.6.1), and assuming only one work crew, it could take roughly 320 to 540 days to install all of the conduit within District 1. In order to work effectively and efficiently on the project and to meet the 2026 construction deadline, several conduit installation crews may be deployed for each segment.

**TABLE 4.1-3  
 CALTRANS DISTRICT 1 PUBLIC ACCESS AND RECREATION ASSETS WITHIN COASTAL ACCESS STUDY AREA**

Facility Name by County	Type of Feature	Access Type
<b>Del Norte</b>		
Clifford Kamph Memorial Park	City/County Park	Beach Access
Crescent Beach (Crescent City)	Physical Access	Beach Access
Crescent City Coastal Trail	Path/Trail/Drive	Natural Resource
Lagoon Creek Access	Physical Access	Natural Resource
Pelican State Beach	Physical Access	Beach Access
Redwood National Park Hostel	Facility	Visitor Accommodations
Shoreline Campground	Recreational Facility	Campground
Wilson Creek Beach	Physical Access	Beach Access
<b>Humboldt</b>		
Clam Beach County Park	City/County Park	Beach Access
Freshwater Lagoon	Water Feature	Beach Access
Humboldt Coastal Nature Center	Facility	Natural Resource
Ma-Le'l Dunes South	National Natural Landmark	Beach Access
Manila Community Park	City/County Park	Park
McKinleyville Vista Point	Visual Access	Visual Access
Redwood Creek Beach Picnic Area	Recreational Facility	Beach Access
Samoa Bridge Launching Facility	Waterfront Features	Boat Access
Stone Lagoon Visitor Center	Facility	Boat Access
Trinidad Roadside Rest Northbound	Facility	Natural Resource
Trinidad Roadside Rest Southbound	Facility	Natural Resource
<b>Mendocino</b>		
Albion River Beach	Physical Access	Beach Access
Albion River Campground	Recreational Facility	Campground
Big River Beach	Physical Access	Beach Access

**TABLE 4.1-3 (CONTINUED)**  
**CALTRANS DISTRICT 1 PUBLIC ACCESS AND RECREATION ASSETS WITHIN COASTAL ACCESS STUDY AREA**

Facility Name by County	Type of Feature	Access Type
<b>Mendocino (cont.)</b>		
Bonham Trail to Cook's Beach	Physical Access	Beach Access
Bowling Ball Beach	Physical Access	Beach Access
Caspar Creek Vista Point	Visual Access	Visual Access
Collins Landing	Physical Access	Beach Access
Dark Gulch Beach	Physical Access	Beach Access
Fish Rock Beach	Physical Access	Beach Access
Fort Bragg Coastal Parkland	City/County Park	Natural Resource
Greenwood Beach Visitor Center and Museum	Facility	Historic/Cultural Site
Greenwood State Beach	Physical Access	Beach Access
Gualala Bluff Trail	Path/Trail/Drive	Visual Access
Haul Road Access	Physical Access	Beach Access
Hearn Gulch	Physical Access	Beach Access
Jug Handle State Natural Reserve	Nature Preserve/Reserve	Beach Access
Jughandle Creek Farm and Nature Center	Facility	Historic/Cultural Site
Kinney Road	Recreational Facility	Campground
Little River Blowhole Trail	Path/Trail/Drive	Natural Resource
Mallo Pass Creek Vista Point	Visual Access	Visual Access
Mendocino Bay Overlook	Visual Access	Visual Access
Mendocino Bay Viewpoint	Visual Access	Visual Access
Mendocino Campground	Recreational Facility	Campground
Mendocino Coastal Preserve	Nature Preserve/Reserve	Natural Resource
Navarro Beach	Physical Access	Beach Access
Navarro Blufflands Trail	Path/Trail/Drive	Natural Resource
Overlook (Hwy. One milepost 10.52)	Visual Access	Visual Access
Overlooks (Schooner Gulch)	Visual Access	Visual Access
Path to Beach (Ocean Dr.)	Path/Trail/Drive	Beach Access
Path to Shoreline (Peterson-Headlands Lane)	Physical Access	Beach Access
Paths to Shoreline / Van Damme State Park	Path/Trail/Drive	Beach Access
Peg and John Frankel Trail	Path/Trail/Drive	Natural Resource
Pelican Bluffs Preserve	Path/Trail/Drive	Natural Resource
Point Arena-Stornetta Unit (South Entrance)	Physical Access	Beach Access
Pudding Creek Beach	Physical Access	Beach Access
Rollerville Junction Campground	Recreational Facility	Visitor Accommodations
Ross Creek Beach Access	Physical Access	Beach Access
Russian Gulch State Park	State Park	Beach Access
Schooner Gulch State Beach	Physical Access	Beach Access
St. Orres Creek	Physical Access	Beach Access
Stoneboro Road	Physical Access	Beach Access
Van Damme State Park	State Park	Beach Access

SOURCES: California Coastal Commission 2022; California Department of Forestry and Fire Protection 2022; California Department of Transportation 2022



**TABLE 4.1-4  
 CALTRANS DISTRICT 1 – PROJECT AREA (LINEAR MILES) BY COUNTY AND STATE HIGHWAY**

County and State Highway Name/Number	Local Road Name / Location (if applicable)	Project Area (Linear Miles)
<b>Del Norte</b>		
Highway 101	Several segments throughout unincorporated county	23.82
State Route 169	Klamath Glen Road, Klamath	0.89
U.S. Route 199	Redwood Highway, Crescent City	0.05
<b>Humboldt</b>		
Highway 101	Several segments in between Orick and Alton	47.73
State Route 211	Fernbridge Drive to Main Street in Ferndale	4.31
State Route 255	New Navy Base Road and Samoa Bridge, Arcata and Eureka	8.74
<b>Mendocino</b>		
State Route 1	From Cleone to Gualala	63.38
State Route 128	Along Navarro River, connecting Navarro Beach and Navarro River Redwoods State Park	2.65
State Route 20	Fort Bragg – Willits Road, Noyo / Fort Bragg	1.13
<b>Total</b>		<b>152.68</b>

SOURCES: California Department of Transportation 2022; California Department of Forestry and Fire Protection 2022; U.S. Census TIER 2021

**Proposed Network Hub Shelters**

There are three originally recommended potential network hub shelter sites in District 1, but after careful discussions between Commission and Caltrans staff, only two hubs are proposed and the final locations have been refined to minimize impacts. At the time of this report, there are two potential sites for hub #20 in Mendocino County, on the coastal (southbound) side of State Route 1, which Caltrans and Commission staff are still refining. Hub site #20 – option 1 is located at postmile MEN 23.295 and hub site #20 – option 2 is at postmile MEN 20.818. Neither of the #20 options are within 500 feet of mapped public access/recreation assets or CCT trail segments. The entrance road to Alder Creek Beach is approximately 0.7 miles south of proposed hub site #20 – option 1. The entrance to Manchester State Park is between the two proposed hub site locations. Travel to nearby Manchester State Park could be slowed for visitors traveling south (hub site #20 – option 1) or north (hub site #20 – option 2) to the park if the southbound lane is closed during construction activities or to accommodate construction equipment moving on or offsite, particularly if closure of the southbound lane means that both south and northbound travelers must alternate to allow both directions of travel. Travelers heading south to Alder Creek Beach may also be impacted by southbound lane closures during construction of hub site #20 – option 1. However, through examining aerial imagery, it does not appear that hub site #20 – option 1 could impede any established paths to nearby Irish Beach, nor does it appear that hub site #20 – option 2 would impede any established paths to Brush Creek.

Hub site #107, also in Mendocino County (postmile MEN 59.237), is not within 500 feet of mapped public access/recreation assets or CCT trail segments. It is approximately one mile south of the mouth of the Noyo River, where there are day use areas and boating/fishing access points, and approximately 0.5 miles south of Hare Creek public access areas. The proposed hub site #107

would be at the intersection of State Route 1 and Old Coast Highway, on the coastal (southbound) side of State Route 1. Temporary lane closures along this intersection, to accommodate construction activities and equipment, could slow travel times of southbound travelers to the nearby Mendocino Coast Botanical Gardens (approximately 0.25 miles to the south). Temporary southbound lane closures could affect northbound travelers to the Hare Creek and Noyo River areas if north and southbound traffic must be alternated to allow vehicular throughput. Hub site #107 does not appear to impede any established recreational paths or trails at its proposed location once construction is complete.

**District 4**

**Public Access and Recreation Assets**

**Table 4.1-5** lists public access and recreation areas and assets within Caltrans District 4, by county, that intersect the coastal access study area. The list, which may not be exhaustive, is representative of the types of coastal public access and recreational features existent in the project vicinity. Due to limitations in the geospatial data used to generate the list, Table 4.1-5 may not identify public access and recreation assets where the majority of the asset is outside of the study area, or where an access point to a recreation asset is outside of the study area, such as Gualala Point Regional Park or Fort Ross State Historic Park in Sonoma County, Tomales Bay Ecological Reserve in Marin County, or Longview Park in San Mateo County.

The 17 assets within Marin County include portions of state beaches, boat launching facilities, trails, and other coastal access points. The 35 assets within Sonoma County include campgrounds, trails, vista points, and beach access areas. San Mateo County’s 14 identified assets include a recreational vehicle (RV) resort, golf course, state beaches, and coastal trails. No public access and recreation assets were identified within San Francisco County.

The coastal access study area intersects with 23 public beaches and 8 parks that have dedicated parking areas. The actual project area, once defined by Caltrans, could impact public parking areas or lots by temporarily closing access roads or by closing/impeding access to parking spaces. Closure of recreational area access roads and parking areas could directly impact the public’s ability to access coastal recreational areas. Regardless, travel lanes may be closed or restricted within the active work zone, which would impact the public as described in Section 4.1.2, *Statewide Project Analysis*.

**TABLE 4.1-5  
 CALTRANS DISTRICT 4 PUBLIC ACCESS AND RECREATION ASSETS WITHIN COASTAL ACCESS STUDY AREA**

Facility Name	Type of Feature	Access Type
Marin		
Audubon Canyon Ranch	Nature Preserve/Reserve	Historic/Cultural Site
Bivalve Overlook	Visual Access	Visual Access
Keys Creek Fishing Access	Physical Access	Beach Access
Lagunitas Creek	Water Feature	Natural Resource
Marconi Conference Center	Facility	Historic/Cultural Site
Miller Park Launching Facility	Waterfront Features	Boat Access

**TABLE 4.1-5 (CONTINUED)**  
**CALTRANS DISTRICT 4 PUBLIC ACCESS AND RECREATION ASSETS WITHIN COASTAL ACCESS STUDY AREA**

Facility Name	Type of Feature	Access Type
<b>Marin (cont.)</b>		
Muir Overlook	Visual Access	Visual Access
Nick's Cove	Waterfront Features	Beach Access
Olema Ranch Campground	Recreational Facility	Campground
Red Rock Beach	State Park	Beach Access
Slide Ranch	Recreational Area	Beach Access
Steep Ravine Beach	Recreational Area	Beach Access
Tomales Bay State Park – Marshall	State Park	Natural Resource
Tomales Bay State Park – Millerton Point	State Park	Beach Access
Tomales Bay State Park – Tomasini Point	Physical Access	Natural Resource
Tomales Bay Trailhead	Path/Trail/Drive	Natural Resource
Walker Creek Delta	Physical Access	Beach Access
<b>Sonoma</b>		
Bird Walk Coastal Access	Path/Trail/Drive	Visual Access
Black Point Beach	Path/Trail/Drive	Beach Access
Carmet Beach	Physical Access	Beach Access
Coastal Prairie Trail	Path/Trail/Drive	Natural Resource
Coleman Beach	Physical Access	Beach Access
Duncans Landing	Physical Access	Beach Access
Duncans Mills Camping Club	Recreational Facility	Beach Access
Fisk Mill Cove	Physical Access	Beach Access
Gleason Beach	Visual Access	Visual Access
Jenner Visitor Center	Facility	Visual Access
Kruse Ranch (Salt Point State Park)	Historic Feature	Beach Access
Lucas Wharf	Waterfront Features	Visual Access
Marshall Gulch	Physical Access	Beach Access
North Horseshoe Cove	Physical Access	Beach Access
North Jenner Beaches	Physical Access	Beach Access
North Salmon Creek Beach	Physical Access	Beach Access
Ocean Cove	Physical Access	Campground
Pebble Beach (Sonoma County)	Path/Trail/Drive	Beach Access
Portuguese Beach	Physical Access	Beach Access
Rivers End	Physical Access	Natural Resource
Salal Trail	Path/Trail/Drive	Beach Access
Salt Point State Park	State Park	Beach Access
Schoolhouse Beach	Physical Access	Beach Access
Shell Beach (Sea Ranch)	Path/Trail/Drive	Beach Access
Sonoma Coast State Park	State Park	Beach Access

**TABLE 4.1-5 (CONTINUED)**  
**CALTRANS DISTRICT 4 PUBLIC ACCESS AND RECREATION ASSETS WITHIN COASTAL ACCESS STUDY AREA**

Facility Name	Type of Feature	Access Type
<b>Sonoma (cont.)</b>		
Stengel Beach	Path/Trail/Drive	Beach Access
Stewarts Point	Historic Feature	Historic/Cultural Site
Stillwater Cove Bluffs	Physical Access	Beach Access
Stillwater Cove Regional Park	State Park	Beach Access
Stump Beach Cove	Physical Access	Beach Access
Timber Cove Campground and Boat Landing	Recreational Facility	Campground
Vista Points (Jenner to Bridgehaven)	Visual Access	Visual Access
Vista Trail	Path/Trail/Drive	Visual Access
Walk-on Beach Trail	Path/Trail/Drive	Beach Access
Wright's Beach	Physical Access	Beach Access
<b>San Mateo</b>		
Blufftop Path (SF RV Resort, Pacifica)	Path/Trail/Drive	Natural Resource
Coastside Trail	Path/Trail/Drive	Beach Access
East Breakwater	Physical Access	Beach Access
GGNRA Visitor Center	Facility	Historic/Cultural Site
Gray Whale Cove State Beach	Physical Access	Beach Access
Linda Mar Beach	Physical Access	Beach Access
Montara State Beach	Physical Access	Beach Access
Point Montara Lighthouse Hostel	Visitor Accommodations	Beach Access
Reina del Mar Trail Access	Path/Trail/Drive	Natural Resource
Rockaway Beach	Physical Access	Beach Access
Rockaway Beach (Old County Road)	Physical Access	Beach Access
San Francisco RV Resort	Recreational Facility	Visitor Accommodations
Sharp Park Golf Course	Recreational Facility	Natural Resource
Thornton Beach Vista	State Park	Visual Access

SOURCE: California Coastal Commission 2022; California Department of Forestry and Fire Protection 2022; California Department of Transportation 2022

### Transportation Network

The project area primarily follows State Route 1 within Caltrans District 4. However, project elements would be installed along segments of other state routes within the coastal zone, as well. **Table 4.1-6** describes the state highway segments within the project area, by county, and provides the linear miles of project area by highway segment. Assuming that 1,500 – 2,500 linear feet of conduit could be placed per day by one work crew (Section 2.6.1), then it could take roughly 265 to 440 days to install all of the conduit within District 4. Much of Highway 1 in the project area is rural, but parts are more urban and congested, with significant potential traffic impacts from lane closures. This particularly includes the area around Pacifica, for example.

**TABLE 4.1-6  
 CALTRANS DISTRICT 4 – PROJECT AREA (LINEAR MILES) BY COUNTY AND STATE HIGHWAY**

County and State Highway Name/Number	Local Road Name / Location (if applicable)	Project Area (Linear Miles)
<b>Sonoma</b>		
State Route 1	Gualala to Valley Ford	57.49
State Route 116	Along Russian River, connecting Duncans Mills and Bridgehaven	4.34
<b>Marin</b>		
State Route 1	Valley Ford to Olema; Woodville to Muir Beach	37.04
<b>San Francisco</b>		
State Route 35	Skyline Boulevard, San Francisco	0.01
<b>San Mateo</b>		
State Route 1	Edgemar to Half Moon Bay	17.48
State Route 35	Skyline Boulevard, Daly City	3.11
State Route 92	San Mateo Road, Half Moon Bay	5.12
<b>Total</b>		<b>124.59</b>

SOURCES: California Department of Transportation 2022; California Department of Forestry and Fire Protection 2022; U.S. Census TIER 2021

**Proposed Network Hub Shelters**

There are three proposed network hub shelters in District 4. Commission staff and Caltrans staff have worked to relocate the hubs from originally proposed locations to minimize impacts. Hub site #23, in Sonoma County at postmile SON 35.327, is within 500 feet of Timber Cove Campground and Boat Landing, and approximately 0.3 miles south of Timber Cove Inn. Hub site #23 is proposed to be located on the inland side (northbound side) of State Route 1, at an existing maintenance yard. Placement of the network hub shelter on the northern side of State Route 1 at this location would not block established paths or trails for coastal access or recreation. Through examining aerial imagery, it does not appear that hub site #23 would impede or encroach upon any informal paths to the coastline at its proposed location. Road users traveling north to the Timber Cove facilities could be impacted by construction activities if closure of the northbound travel lane is required during construction of the hub site, and if traffic flow is temporarily halted while construction equipment moves on and off site. Therefore, if lane closures were required during construction of the network hub shelter, travel to Timber Cove could be delayed for recreationalists traveling north along State Route 1. However, the delay would cease once construction is complete.

Hub site #135, also in Sonoma County (postmile SON 11.575), is proposed for the inland (northbound) side of State Route 1, at an existing maintenance yard. If the location remains as proposed, it would not impede coastal access or recreational use once construction is complete. There appear to be no established coastal access or recreational paths, trails, or assets at that location, nor any informal public paths. However, there are several coastal access and recreational facilities nearby. Salmon Creek State Beach is approximately one mile north on State Route 1. The Bodega Dunes Campground and Bodega Dunes Day Use Area are directly to the west, on the coastal side of State Route 1. Bodega Harbor is approximately 0.5 miles to the south, and the

Coastal Prairie Trail (a 1.1-mile bicycle and pedestrian trail) is approximately 0.25 miles to the south, both on the coastal (southbound) side of State Route 1. During construction, travel northbound may be delayed if the northbound lane is temporarily closed to accommodate construction activities, or if traffic is halted while construction equipment moves on and off site. Travel southbound could be delayed as well, if the northbound lane closure would require that north and southbound traffic alternate traveling past the construction site.

Finally, hub site #136 in Marin County, at postmile MRN 28.039, is not within 500 feet of mapped public access/recreation assets or CCT trail segments. There are public access amenities approximately 0.5 miles to the north, along Olema Creek (south of Point Reyes Station), such as creek and wetlands access points. The entrance to the Olema Creek Campground is approximately 1.2 miles to the south. The entirety of hub site #136 would be located outside of the State Route 1 right-of-way, at an existing maintenance yard. It does not appear the siting of hub site #136 would block any established paths to coastal areas or recreation facilities. Also, inspection of aerial imagery does not identify any informal public use paths that hub site #136 would block or encroach upon. If temporary lane closures of State Route 1 are necessary to move construction equipment on or offsite, temporary travel delays could impact the public traveling to Olema Creek recreation amenities.

## ***District 5***

### **Public Access and Recreation Assets**

**Table 4.1-7** lists public access and recreation areas and assets within Caltrans District 5, by county, that intersect the coastal access study area. The list, which may not be exhaustive, is representative of the types of coastal public access and recreational features existent in the project vicinity. Due to limitations in the geospatial data used to generate the list, Table 4.1-7 may not identify public access and recreation assets where the majority of the asset is outside of the study area, or where an access point to a recreation asset is outside of the study area, such as Fort Ord Dunes State Park in Monterey County.

The five Santa Cruz County assets include one state park and four beach access points. The 11 Monterey County assets include overnight accommodations, boat launch areas, trails, and beaches. There are 27 assets within the San Luis Obispo County coastal access study area, including overnight accommodations, state and local parks, trails, and a boardwalk. The nine Santa Barbara County assets include a zoo, ballfield, nature preserves, county parks, and beach access points within the coastal access study area.

The coastal access study area intersects with 14 public beaches and 15 parks that have dedicated parking areas.<sup>3,4</sup> It is unclear at this time if the actual project area, once defined by Caltrans, could impact any of the public parking areas or lots by temporarily closing the access road or closing/impeding access to parking spaces. Closure of recreational area access roads and parking areas could directly impact the public's ability to access coastal recreational areas. Regardless, travel lanes may be closed or restricted within the active work zone, which could impact the public as described in Section 4.1.2, *Statewide Project Analysis*.

### Transportation Network

The project area primarily follows State Route 1 and Highway 101 within Caltrans District 5. However, project elements would be installed along segments of other state routes within the coastal zone, as well. **Table 4.1-8** describes the state highway segments within the project area, by county, and provides the linear miles of project area by highway segment. Assuming that 1,500 – 2,500 linear feet of conduit could be placed per day by one work crew (Section 2.6.1), then it could take roughly 225 to 375 days to install all of the conduit within District 5.

**TABLE 4.1-7  
 CALTRANS DISTRICT 5 PUBLIC ACCESS AND RECREATION ASSETS WITHIN COASTAL ACCESS STUDY AREA**

Facility Name	Type of Feature	Access Type
<b>Santa Cruz</b>		
Bonny Doon Beach	Physical Access	Beach Access
Davenport Beach	Physical Access	Beach Access
Sharktooth Beach	Physical Access	Beach Access
Wilder Ranch State Park	State Park	Beach Access
Yellow Bank Beach	Physical Access	Beach Access
<b>Monterey</b>		
Asilomar Conference Grounds	Visitor Accommodations	Historic/Cultural Site
Huckleberry Hill Nature Preserve	Nature Preserve/Reserve	Natural Resource
Marina Dunes Open Space Preserve	Nature Preserve/Reserve	Beach Access
Marina Dunes R.V. Park	Recreational Facility	Campground
Marina State Beach (Lake Drive)	Physical Access	Beach Access
Monterey Bay Sanctuary Scenic Trail (North)	Path/Trail/Drive	Natural Resource
Monterey State Beach (Houghton M. Roberts Beach)	National/State/Regional Park/Beach/Rec Area	Beach Access
Moss Landing Harbor - North	Waterfront Features	Boat Access
Roberts Lake	Water Feature	Natural Resource
Seaside Beach	National/State/Regional Park/Beach/Rec Area	Beach Access
Spanish Bay Recreational Trail	Path/Trail/Drive	Natural Resource
<b>San Luis Obispo</b>		
Blufftop Path at Pismo Lighthouse Suites	Path/Trail/Drive	Beach Access
Butterfly Trees	National/State/Regional Park/Beach/Rec Area	Natural Resource
Coastal Dunes RV Park and Campground	Recreational Facility	Campground
Dinosaur Caves Park	City/County Park	Visual Access
Ebb Tide Park and Beach Stairway	Physical Access	Beach Access
Estero Bluffs State Park	State Park	Beach Access
Estero Bluffs State Park (East)	State Park	Beach Access
Estero Bluffs State Park (San Geronimo Road)	State Park	Beach Access
Estero Bluffs State Park (West)	State Park	Beach Access
Harmony Headlands State Park	State Park	Natural Resource

**TABLE 4.1-7 (CONTINUED)**  
**CALTRANS DISTRICT 5 PUBLIC ACCESS AND RECREATION ASSETS WITHIN COASTAL ACCESS STUDY AREA**

<b>Facility Name</b>	<b>Type of Feature</b>	<b>Access Type</b>
<b>San Luis Obispo (cont.)</b>		
Hearst San Simeon State Park	State Park	Beach Access
Leffingwell Landing	State Park	Beach Access
Moonstone Boardwalk	Physical Access	Beach Access
Morro Strand State Beach (Torro Creek Road)	Physical Access	Beach Access
Morro Strand State Beach Campground	State Park	Campground
North Point Natural Area	Physical Access	Beach Access
Path to Beach (Toro Lane)	Physical Access	Beach Access
Pismo Beach (Wadsworth Avenue)	Physical Access	Beach Access
Pismo Beach (Wilmar Avenue)	Physical Access	Beach Access
Pismo Coast Village R.V. Resort	Recreational Facility	Low-Cost Overnight Accommodations
Pismo State Beach North Beach Campground	State Park	Campground
San Simeon Creek Access	State Park	Beach Access
Stairway at Cliffs Resort	Physical Access	Beach Access
Stairway at Sea Crest Hotel	Physical Access	Beach Access
Stairway at Shelter Cove Lodge	Physical Access	Beach Access
Stairway at Shore Cliff Lodge	Physical Access	Beach Access
Vista Point (Moonstone Beach Drive)	Physical Access	Visual Access
<b>Santa Barbara</b>		
Andree Clark Bird Refuge	Nature Preserve/Reserve	Natural Resource
Carpinteria Bluffs Nature Preserve	Nature Preserve/Reserve	Natural Resource
Dwight Murphy Field	Recreational Facility	Natural Resource
Goleta Beach County Park	City/County Park	Beach Access
Lookout County Park	City/County Park	Beach Access
Loon Point Beach Path	Physical Access	Beach Access
Oceanview Park	City/County Park	Visual Access
Rincon Beach County Park	City/County Park	Beach Access
Santa Barbara Zoo	Facility	Natural Resource

SOURCE: California Coastal Commission 2022; California Department of Forestry and Fire Protection 2022; California Department of Transportation 2022



**TABLE 4.1-8  
 CALTRANS DISTRICT 5 – PROJECT AREA (LINEAR MILES) BY COUNTY AND STATE HIGHWAY**

County and State Highway Name/Number	Local Road Name / Location (if applicable)	Project Area (Linear Miles)
<b>Santa Cruz</b>		
State Route 1	Davenport to Santa Cruz; Capitola to Watsonville	20.97
<b>Monterey</b>		
State Route 1	Watsonville to Monterey	22.23
State Route 68	Holman Highway, Monterey	2.57
State Route 183	Merritt Street, Castroville	0.18
<b>San Luis Obispo</b>		
State Route 1	San Simeon to Morro Bay; Grover Beach; Callender to Bromela	39.84
Highway 101	Pismo Beach	5.48
<b>Santa Barbara</b>		
Highway 101	Santa Barbara to Rincon Point	13.81
State Route 217	Ward Memorial Boulevard, Goleta	1.39
<b>Total</b>		<b>106.47</b>

SOURCES: California Department of Transportation 2022; California Department of Forestry and Fire Protection 2022; U.S. Census TIER 2021

**Proposed Network Hub Shelters**

There are no proposed network hub shelter locations within Caltrans District 5.

***District 7***

**Public Access and Recreation Assets**

Table 4.1-9 lists public access and recreation areas and assets within Caltrans District 7, by county, that intersect the coastal access study area. The list, which may not be exhaustive, is representative of the types of coastal public access and recreational features existent in the project vicinity. Due to limitations in the geospatial data used to generate the list, Table 4.1-9 may not identify public access and recreation assets where the majority of the asset is outside of the study area, or where an access point to a recreation asset is outside of the study area, such as the San Buenaventura State Beach Park in Ventura County and Santa Monica Mountains Recreation Area and Topanga State Park in Los Angeles County.

The 16 identified areas within Ventura County are primarily beach access points, with other recreational facilities such as campgrounds and piers within the project vicinity as well. Los Angeles County has only one recreational facility, Jack Nichol Park, that intersects the coastal access study area.

**TABLE 4.1-9  
 CALTRANS DISTRICT 7 PUBLIC ACCESS AND RECREATION ASSETS WITHIN COASTAL ACCESS STUDY AREA**

Facility Name	Type of Feature	Access Type
<b>Ventura</b>		
Beacon's Beach (Ventura)	Physical Access	Beach Access
Bike Path (Arundell Barranca)	Path/Trail/Drive	Natural Resource
Coastal Trail (Ventura)	Path/Trail/Drive	Natural Resource
Emma Wood Group Camp	Recreational Facility	Campground
Emma Wood State Beach	Physical Access	Beach Access
La Conchita Beach	Physical Access	Beach Access
Mundos	Physical Access	Beach Access
Mussel Shoals Beach	Physical Access	Beach Access
Omer Rains Trail	Path/Trail/Drive	Natural Resource
Promenade Park	City/County Park	Beach Access
Punta Gorda Beach	Physical Access	Beach Access
Rincon Parkway (North)	Physical Access	Beach Access
Rincon Parkway (South)	Physical Access	Beach Access
Solimar Beach (North)	Physical Access	Beach Access
Solimar Beach (South)	Physical Access	Beach Access
Ventura Pier	Physical Access	Pier
<b>Los Angeles</b>		
Jack Nichol Park	Recreational Facility	City Park

SOURCE: California Coastal Commission 2022; California Department of Forestry and Fire Protection 2022; California Department of Transportation 2022

The 500-foot coastal access study area intersects with seven public beaches and four parks that have dedicated parking areas. It is unclear at this time if the actual project area, once defined by Caltrans, could impact any of the public parking areas or lots by temporarily closing the access road or closing/impeding access to parking spaces. Closure of recreational area access roads and parking areas could directly impact the public’s ability to access coastal recreational areas. Regardless, travel lanes could be closed or restricted within the active work zone, which could impact the public as described in Section 4.1.2, *Statewide Project Analysis*.

**Transportation Network**

The project area primarily follows State Route 1 and Highway 101 within Caltrans District 7. However, project elements would be installed along segments of other state routes within the coastal zone, as well. **Table 4.1-10** describes the state highway segments within the project area, by county, and provides the linear miles of project area by highway segment. Assuming that 1,500 – 2,500 linear feet of conduit could be placed per day by one work crew (Section 2.6.1), then it could take roughly 60 to 100 days to install all of the conduit within District 7.

**TABLE 4.1-10  
 CALTRANS DISTRICT 7 – PROJECT AREA (LINEAR MILES) BY COUNTY AND STATE HIGHWAY**

County and State Highway Name/Number	Local Road Name / Location (if applicable)	Project Area (Linear Miles)
<b>Ventura</b>		
Highway 101	Rincon Point to Ventura	16.12
State Route 33	East Ventura	0.84
<b>Los Angeles</b>		
State Route 1	Redondo Beach; Belmont Shore	4.09
State Route 27	South Topanga Canyon Boulevard, Topanga	6.50
<b>Total</b>		<b>27.55</b>

SOURCES: California Department of Transportation 2022; California Department of Forestry and Fire Protection 2022; U.S. Census TIER 2021

**Proposed Network Hub Shelters**

There are no proposed network hub shelter locations within Caltrans District 7.

**District 12**

**Public Access and Recreation Assets**

Table 4.1-11 lists public access and recreation areas and assets within Caltrans District 12 that intersect the coastal access study area. The list, which may not be exhaustive, is representative of the types of coastal public access and recreational features existent in the project vicinity. Due to limitations in the geospatial data used to generate the list, Table 4.1-11 may not identify public access and recreation assets where the majority of the asset is outside of the study area, or where an access point to a recreation asset is outside of the study area, such as Crystal Cove State Park and Laguna Coast Wilderness Park in Orange County.

All four identified sites are within Orange County and include two parks, one beach access point, and one marine mammal center.

**TABLE 4.1-11  
 CALTRANS DISTRICT 12 PUBLIC ACCESS AND RECREATION ASSETS WITHIN COASTAL ACCESS STUDY AREA**

Facility Name	Type of Feature	Access Type
<b>Orange</b>		
Laguna Coast Wilderness Park	Physical Access	Natural Resource
Louise Leyden Park	City/County Park	Visual Access
Main Beach (Laguna Beach)	Physical Access	Beach Access
Pacific Marine Mammal Center	Facility	Natural Resource

SOURCES: California Coastal Commission 2022; California Department of Forestry and Fire Protection 2022; California Department of Transportation 2022

The coastal access study area intersects with one public beach and two parks that have dedicated parking areas. It is unclear at this time if the actual project area, once defined by Caltrans, could impact any of the public parking areas or lots by temporarily closing the access road or closing/impeding access to parking spaces. Closure of recreational area access roads and parking areas may directly impact the public’s ability to access coastal recreational areas. Regardless, travel lanes would be closed or restricted within the active work zone, which could impact the public as described in Section 4.1.2, *Statewide Project Analysis*.

**Transportation Network**

The project area is along approximately 6.62 miles of state and federal highway within District 12. Project elements would be installed along segments of five state routes within the coastal zone. **Table 4.1-12** describes the state highway segments within the project area, by county, and provides the linear miles of project area by highway segment. Assuming that 1,500 – 2,500 linear feet of conduit could be placed per day by one work crew (Section 2.6.1), then it could take roughly 15 to 25 days to install all of the conduit within District 12.

**TABLE 4.1-12  
 CALTRANS DISTRICT 12 – PROJECT AREA (LINEAR MILES) BY COUNTY AND STATE HIGHWAY**

County and State Highway Name/Number	Local Road Name / Location (if applicable)	Project Area (Linear Miles)
Orange		
State Route 1	Newport Beach; Dana Point	0.79
Interstate 5	San Clemente	3.53
State Route 39	Beach Boulevard, Huntington Beach	0.73
State Route 55	Newport Boulevard, Newport Beach	0.05
State Route 133	Broadway Street / Laguna Canyon Road, Laguna Beach	3.53
<b>Total</b>		<b>6.62</b>

SOURCES: California Department of Transportation 2022; California Department of Forestry and Fire Protection 2022; U.S. Census TIER 2021

**Proposed Network Hub Shelters**

There are no proposed network hub shelter locations within Caltrans District 12.

**District 11**

**Public Access and Recreation Assets**

**Table 4.1-13** lists public access and recreation areas and assets within Caltrans District 11 that intersect the coastal access study area. The list, which may not be exhaustive, is representative of the types of coastal public access and recreational features existent in the project vicinity. The list, which may not be exhaustive, is representative of the types of coastal public access and recreational features existent in the project vicinity. Due to limitations in the geospatial data used to generate the list, Table 4.1-13 may not identify public access and recreation assets where the majority of the asset is outside of the study area, or where an access point to a recreation asset is

outside of the study area, such as San Onofre State Beach, San Diego Bay National Wildlife Refuge, and Buena Vista, Agua Hedionda, and San Elijo Lagoons in San Diego County.

The ten assets identified within San Diego County include local parks, state beaches, vista points, and other recreational facilities.

The coastal access study area intersects with one public beach and three parks that have dedicated parking areas. It is unclear at this time if the actual project area, once defined by Caltrans, could impact any of the public parking areas or lots by temporarily closing the access road or closing/impeding access to parking spaces. Closure of recreational area access roads and parking areas may directly impact the public’s ability to access coastal recreational areas. Regardless, travel lanes would be closed or restricted within the active work zone, which could impact the public as described in Section 4.1.2, *Statewide Project Analysis*.

**TABLE 4.1-13  
 CALTRANS DISTRICT 11 PUBLIC ACCESS AND RECREATION ASSETS WITHIN COASTAL ACCESS STUDY AREA**

Facility Name	Type of Feature	Access Type
San Diego		
Batiquitos Lagoon	Waterbody	Natural Resource
Cays Parks	City/County Park	Beach Access
Coronado Aquatics Center	Recreational Facility	Historic/Cultural Site
Coronado Tidelands Regional Park	Regional Park	Beach Access
Crown Cove	Physical Access	Boat Access
Glorietta Bay Marina	Waterfront Features	Boat Access
Glorietta Bay Park	City/County Park	Beach Access
Silver Strand State Beach	Physical Access	Beach Access
South Bay Marine Biological Study Area	Nature Preserve/Reserve	Natural Resource
Vista Point (Cardiff-by-the-Sea)	Visual Access	Visual Access

SOURCE: California Coastal Commission 2022; California Department of Forestry and Fire Protection 2022; California Department of Transportation 2022

**Transportation Network**

The project area is primarily along Interstate 5 and State Route 75 within District 11. Project elements would be installed along segments of three other state routes within the coastal zone. **Table 4.1-14** describes the state highway segments within the project area, by county, and provides the linear miles of project area by highway segment. Assuming that 1,500 – 2,500 linear feet of conduit could be placed per day by one work crew (Section 2.6.1), then it could take between (approximately) 80 to 134 days to install all of the conduit within District 11.

**TABLE 4.1-14  
 CALTRANS DISTRICT 11 – PROJECT AREA (LINEAR MILES) BY COUNTY AND STATE HIGHWAY**

County and State Highway Name/Number	Local Road Name / Location (if applicable)	Project Area (Linear Miles)
San Diego		
Interstate 5	Oceanside; Carlsbad to Solana Beach; San Diego to South San Diego	25.48
State Route 15	Escondido Freeway, San Diego	0.10
State Route 54	South Bay Freeway / Filipino American Highway, Chula Vista	0.52
State Route 75	San Diego Coronado Bay Bridge, 4 <sup>th</sup> Street, Orange Avenue, and Silver Strand Boulevard in Coronado	11.09
State Route 78	Ronald Packard Parkway, Oceanside	0.89
<b>Total</b>		<b>38.08</b>

SOURCES: California Department of Transportation 2022; California Department of Forestry and Fire Protection 2022; U.S. Census TIER 2021

### Proposed Network Hub Shelters

There are no proposed network hub shelter locations within Caltrans District 11.

### 4.1.3 Consistency Analysis

This section provides an assessment of whether any project elements or activities could raise consistency issues with Coastal Act or LCP public access and recreation policies (Section 4.1.1, *Policy Considerations*). Where the analysis finds that project activities could raise such issues, avoidance or minimization measures are recommended to prevent or reduce impacts and address potential policy conflicts. The full text of the recommended measures is presented in Section 4.1.4, *Avoidance and Minimization Measures*.

Project construction activities could result in public access and recreation impacts resulting from temporary road lane or parking area closures during installation of project elements. Impacts associated with installation of conduit, vaults, markers, paved pullouts, and aerial cable would generally be limited to a day to a few days at a given location, as the active work zone moves along the State Highway System road corridor. Impacts associated with the hub sites would be expected to take several weeks to a few months. Road lane and parking closures, though temporary during the construction period, may impact the public’s ability to access and use local, and potentially regional, coastal public areas and recreation resources. Access to coastal areas and recreation resources in the vicinity of the project and with only one access point could be disrupted during construction. Temporary road lane closures could delay the traveling public (whether traveling by vehicle, bicycle, or foot) through the construction work area and could result in local or regional travel delays depending upon the level of existing traffic congestion at that location, and whether travelers have access alternative routes. Additionally, parking area closures may temporarily impact the public’s ability to access and use coastal access points and recreation resources, especially for users who require accessible parking spaces close to the resource. Lane closures or shoulder work could also impact road use by cyclists, if not carefully managed to ensure continued safe passage. Some highway shoulder areas are also used by pedestrians for coastal access, and lane closures or shoulder work could also impact this use.

These road use and parking area-related impacts would be the same for all Caltrans districts and would be greatest during high public use periods, including the daytime, summer, weekends and public holidays.

In the Mendocino County portion of District 1, construction of either hub #20 option could temporarily impact access to Alder Creek Beach (hub site #20 – option 1) and/or Manchester State Beach (hub site #20 – both options) from State Route 1. Additionally, construction of hub site #107 could temporarily impact access to the Hare Creek and Noyo River access points and the Mendocino Coast Botanical Gardens. None of the Mendocino County hub site locations appear to block or encroach upon established recreational paths or trails, or informal public access paths as viewed through aerial imagery.

In the Sonoma County portion of District 4, construction of hub site #135 could impact public access to nearby Salmon Creek State Beach, Bodega Dunes recreational facilities, and a portion of the Coastal Prairie Trail by delaying travel along State Route 1. Construction of hub site #23 could impact public access to nearby Timber Cove facilities and access points by constraining travel along State Route 1, which could delay access to the sites. Neither hub site would block or encroach upon established paths or trails, nor does it appear through aerial imagery that either site would impede informal public paths to the coastline.

In the Marin County portion of District 4, public access points and recreational resources in the Olema area could be impacted by construction of hub site #136 but given the hub site's location entirely off the State Route 1 right-of-way, the hub site construction activities may likely result in fewer road lane closures / travel slowdowns as compared to the other hub sites. The siting of hub site #136 would not block any established paths to coastal areas or recreational facilities, nor does it appear that it would block or encroach upon any informal public paths.

Construction of the coastal broadband elements could raise consistency issues with Coastal Act sections 30210 and 30211 due to travel delays and access/parking impediments during construction activities that could prevent “maximum” access and recreational opportunities or could interfere with the public's right of access to the coast. For these reasons, coastal development permits issued for the proposed project could be considered to have consistency issues with Coastal Act section 30604(c), which requires a finding that development “between the nearest public road and the sea or shoreline” is in conformity with the public access and public recreation policies of Chapter 3.

However, the proposed project would be consistent with Coastal Act section 30212 (of the three proposed hub shelter sites on the coastal side of the State Highway System, adequate access to the shoreline exists nearby at existing coastal access points). It would also be consistent with Coastal Act section 30220 (would not result in conversion of inland water areas that should be protected for recreational activities); section 30221 (would not impact or develop on oceanfront land suitable for recreational use); section 30223 (would not convert or develop on upland areas that should be reserved for coastal recreational uses); and section 30250 (would not result in significant individual or cumulative adverse effects on coastal resources).

With respect to the hub site locations, construction of hub sites #20 and #107 in Mendocino County would not appear to conflict with relevant LCP Coastal Element policies, as the project is not a highway widening or improvement project, would not impact established or informal public access paths or trails, and would not impact commercial fishing in Noyo Harbor. However, it could raise public access policy issues for Hare Creek beach and the Irish Beach/Manchester area.

Construction of hub sites #23 and #135 in Sonoma County would not appear to conflict with relevant Sonoma County LCP prescriptive easement policies as there appear to be no established or informal public access paths at or near the hub site locations. However, the hub sites' construction could raise consistency issues with LCP Access Plan Recommendations supporting continued operations at Timber Cove, Salmon Creek, and Bodega Bay recreation amenities, as travel impacts during construction activities could affect operations at these sites.

Finally, construction of hub site #136 in Marin County could have consistency issues with Marin County LCP policies (e.g., policies C-PA-15 and C-PA-20) requiring that new development avoid impacts to users of public coastal access and recreation areas and that public parking reductions must be mitigated.

Implementation of avoidance and minimization measures during construction activities to limit the closure of road travel lanes and parking areas to the extent feasible and provide travel and parking alternatives would reduce the impacts as summarized above. During construction, implementation of **Avoidance and Minimization Measure PAR-1, Public Access, Traffic, and Parking Management and Notification Plan** would limit temporary construction interference to that necessary for worker and public safety, and public coastal access would be maintained along the project corridor for the duration of the project work. **Avoidance and Minimization Measure PAR-2, Construction Timing**, would prohibit construction during periods of most intensive public coastal access and recreation (e.g., summer weekends and public holidays). Implementation of the two proposed avoidance and minimization measures would ensure that maximum access to public coastal access areas and recreational resources would be provided during construction activities and that periods of peak use would be avoided. With implementation of the proposed measures, the project as proposed would be consistent with applicable Coastal Act policies. After construction is complete, the project would have no impact on public access to or recreation along the coast.

In conclusion, the project may raise Coastal Act and LCP policy consistency issues by temporarily disrupting access along coastal roadways. With implementation of **Avoidance and Minimization Measures PAR-1** and **PAR-2**, the proposed project would maintain and protect public access and recreational opportunities within the project area and along affected coastal routes. Therefore, with implementation of the recommended measures, the project would appear to be consistent with Coastal Act policies 30210, 30211, 30212, 30214, 30221 and 20250, and relevant LCP policies.



## 4.1.4 Avoidance and Minimization Measures

### **PAR-1: Public Access, Traffic, and Staging Management and Notification Plan.**

The Permittee shall prepare and implement a Public Access, Traffic, and Staging Management and Notification Plan for each MMBN project segment where temporary impacts to public access and circulation will occur during project construction. The Plan shall be designed to (1) limit lane closures and the use of public access pull outs for construction staging or operations to the maximum extent feasible; (2) provide for continuous pedestrian, bicyclist, and emergency vehicle access through or around the work corridor; (3) ensure that public parking areas remain accessible or alternative, temporary and equivalent replacement public parking is provided during construction; and (4) provide notice to affected local communities of impending construction with resulting traffic delays and other effects to the traveling and local public, with available alternative routes or detours identified, and messaging and signage in languages used by the local community.

### **PAR-2: Construction Timing.**

Construction is prohibited during weekend days and public holidays from the Saturday of Memorial Day weekend through Labor Day inclusive, unless the Executive Director authorizes such work due to extenuating circumstances. During this timeframe, maintenance of equipment and material storage is permitted during weekends and during non-daytime hours (i.e., from one-hour after sunset to one-hour before sunrise).

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## 4.2 Water Quality, Coastal Waters, Wetlands, and Environmentally Sensitive Habitat Areas

The Coastal Act, LCPs, and Coastal Commission regulations define and establish protective requirements for and allowable uses affecting natural resources in the coastal zone, including coastal waters, wetlands and environmentally sensitive habitat areas.

This section summarizes Coastal Act and LCP policies related to natural resources and water quality, describes the natural resources in the project area, and assesses the potential impacts of project activities on these resources. The section then evaluates the project's consistency with the Coastal Act and applicable LCP policies and identifies avoidance and minimization measures to address potential project impacts and related policy conflicts.

### 4.2.1 Applicable Policies

The Coastal Act and LCPs protect coastal waters and related habitats such as wetlands, located in the vicinity of the proposed project site. The Coastal Act and LCPs also require that any adverse effects to water quality be minimized to protect the biological productivity and health of coastal waters, streams, wetlands, estuaries, and lakes. The Coastal Act and LCPs also protect environmentally sensitive habitat areas (ESHAs) within and around the project area, restrict the types of uses allowed within ESHAs, and require that development within or near ESHAs be compatible with their continuance.

The following subsections list and describe the relevant Coastal Act and LCP provisions that define and protect natural resources. In some cases, certain resources may be protected under multiple Coastal Act provisions. For example, wetlands protected under policies related to coastal waters, wetlands, or water quality may also constitute ESHA if occupied by listed rare plants or animals. This scenario is discussed in further detail throughout section 4.2.2, *Coastal Resources and Impacts*, below.

#### 4.2.1.1 Relevant Coastal Act Provisions

##### 4.2.1.1.1 Water Quality, Coastal Waters, and Wetlands

Coastal Act section 30121 defines wetlands as “lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.”

Section 30108.2 of the Coastal Act defines “fill” as “earth or any other substance or material, including pilings placed for the purposes of erecting structures thereon, placed in a submerged area.” Additionally, the Commission has long found grading, excavating, and other ground-disturbing activities in coastal wetlands to be a form of dredging or fill.

Coastal Act section 30230 states:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Coastal Act section 30231 states:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Coastal Act section 30232 states:

Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Coastal Act section 30233 states:

- (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:
- (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.
  - (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.
  - (3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.
  - (4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.
  - (5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.
  - (6) Restoration purposes.

- (7) Nature study, aquaculture, or similar resource dependent activities.
- (b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.
- (c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game Wildlife, including, but not limited to, the 19 coastal wetlands identified in its report entitled, “Acquisition Priorities for the Coastal Wetlands of California”, shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.

For the purposes of this section, “commercial fishing facilities in Bodega Bay” means that not less than 80 percent of all boating facilities proposed to be developed or improved, where the improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.

- (d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible avoidance and minimization measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for these purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

### ***Environmentally Sensitive Habitat Areas***

Coastal Act section 30107.5 defines ESHA as “areas in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.” ESHAs are specific geographical areas defined by rare natural communities or by habitats occupied by listed rare plants or animals. Plant, animal, or natural community rarity may be characterized in different ways, including absolute rarity (few in the world); globally rare but locally abundant; locally rare but globally abundant; and widespread but nowhere abundant.<sup>1</sup> The Coastal Commission does not determine what is rare, rather they rely on rarity rankings determined by agencies and non-governmental organizations (NGOs) such as the California Department of Fish and Wildlife, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Native Plant Society. Determinations of ‘especially valuable’ natural communities or habitats are made based on best available science, well-supported technical rationale, and expert consultation with a focus on a natural resource’s role or nature in the ecosystem.

Coastal Act Section 30240 requires the protection of identified ESHA:

<sup>1</sup> California Coastal Commission ESHA Workshop, April 2016, <https://www.coastal.ca.gov/meetings/workshops/>.

- a) *Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
- b) *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

For purposes of 30240(a) ‘resource-dependent’ uses are those that are typically related to habitat restoration or maintenance activities, such as interpretive nature trails or accessways, scientific research or education, and wildlife management. Other uses such as residential development are not resource-dependent, regardless of mitigation.

#### **4.2.1.2 Relevant LCP Provisions**

##### ***Water Quality, Coastal Waters, and Wetlands***

Certified LCPs generally reflect the broad Coastal Act mandate to protect the biological productivity and quality of coastal waters and wetlands. For example, LCPs contain policies that either mimic or reflect the section 30233 restrictions on development within wetland areas (e.g., Mendocino County General Plan Coastal Element [Coastal Element] policy 3.1-4; Sonoma County Local Coastal Plan (LCP) policy Wetlands 18; Marin County Local Coastal Program (LCP) policy C-BIO-15). To the extent that LCP policies mirror the Coastal Act and are advisory, no more specific elaboration is warranted here.

Relevant LCP policies are those which contain information specific to the site in question or requirements that more specifically elaborate on the interpretation and application of Coastal Act policies. The full text of these policies is presented in **Appendix E**. This section summarizes LCP water quality, coastal waters, and wetlands policies that relate to those locations where the above-ground hubs are proposed in Mendocino, Sonoma, and Marin counties. These policies are illustrative of the suite of relevant LCP policies from other jurisdictions where project elements are proposed.

The Mendocino County Coastal Element identifies wetlands as ESHA. Coastal Element policy 3.1-7 requires that a buffer be established adjacent to all ESHAs to protect the habitat from significant degradation from any future developments. The policy requires the buffer to be a minimum of 100 feet, unless the applicant can demonstrate that 100 feet is not necessary to protect the habitat in question, but in no case shall it be less than 50 feet. The policy includes standards for development within the buffer area, including appropriate siting and design, compatibility with the continuance of the ESHA, and that development within the buffer only be allowed when there is no other feasible site available on the parcel and when the protective values of the buffer lost from the development are mitigated at a minimum ratio of 1:1. Coastal Element policy 3.1-11 includes similar restrictions for riparian areas.

Sonoma County LCP Wetlands policy 20 restricts wastewater discharges to wetlands, policy 22 prohibits the filling of seasonal wetlands to accommodate development of any kind, and policy 24 prohibits the removal of vegetation from wetlands unless essential for habitat viability. Wetlands

policy 25 prohibits construction of commercial, industrial, and other structures within 100 feet of wetlands, and policy 26 prohibits such developments within 100 and 300 feet of wetlands unless an environmental assessment finds the wetland would not be affected. The Sonoma County LCP contains similar policies for riparian areas. For example, policy Riparian 9 restricts construction within 100 feet of a riparian area, policy 10 requires erosion control for projects affecting a riparian area, policy 11 restricts vegetation removal from a riparian area, and policy 12 restricts work in the water course of a riparian area.

The Marin County LCP includes several policies aimed at improving the protection of coastal waters through all phases of development. For example, policy C-WR-2 calls for siting and designing development and using best management practices (BMPs) to minimize pollutant and stormwater runoff. Policy C-WR-4 requires that development be designed to minimize grading and landform alterations. Policy C-WR-7 requires that site clearing avoid the rainy season (i.e., October 15th through April 15th), and implementation of an erosion control plan that protects against increased sediment discharge from the site where such work cannot be avoided. Policies C-WR-8 and C-WR-9 require stockpiling, stabilizing, and reusing soils removed or exposed during grading. Finally, policies C-WR-15 and C-WR-16 require construction sites be managed to avoid mobilization and runoff of pollutants. The Marin County LCP also includes several policies governing development in and adjacent to wetlands, streams and riparian areas (all three resources identified as ESHA in policy C-BIO-1). Relevant to hub site #136 in Olema, policy C-BIO-3.2 provides for the establishment of buffers for wetlands, streams, and riparian areas, the standards for which are provided in policies C-BIO-18 and C-BIO-23. Policy C-BIO-18 requires that a minimum 100-foot buffer be maintained in a natural condition along the periphery of all wetlands. Policy C-BIO-19 provides that a buffer adjustment to less than 100 feet, but not less than 50 feet, may be considered if it can be demonstrated that the proposed development cannot be accommodated entirely outside of the required buffer or that development outside of the buffer would have greater impacts on wetlands than development within the buffer. LCP policy C-BIO-19 further requires that any development within a reduced buffer incorporate measures to prevent impacts that would significantly degrade the wetland, be compatible with the continuance of the wetland ESHA, and (through permit conditions) include measures that create a net environmental improvement over the existing site condition.

### ***Environmentally Sensitive Habitat Areas***

Certified LCPs generally reflect the broad Coastal Act mandate to protect environmentally sensitive habitat. For example, the LCPs contain policies that either mimic or reflect section 30240 restrictions on development within ESHAs (e.g., Mendocino County LCP policy 3.1-10, Marin County LCP policy C-BIO-2). To the extent that LCP policies mirror the Coastal Act, no more specific elaboration is warranted. However, many LCPs contain more specific definitions or policies for the protection of ESHAs, and many identify some types of ESHAs categorically or on the basis of local significance.

The project is expected to avoid sensitive habitat areas, and most of the project will ultimately be underground. Habitat disturbance would largely be avoided or limited to temporary impacts within a narrow corridor. Any areas permanently affected by the installation of the underground components of the project would be restored.

This section addresses in detail the relevant LCP policies that relate to those locations where the hubs are proposed in Mendocino, Sonoma, and Marin counties; these site locations are known, considerably larger than those where other project elements would occur, would involve work for a longer period of time, and would result in permanent aboveground structures. Relevant LCP policies include but may not be limited to those which contain information specific to the site in question or requirements that further elaborate on the requirements of the Coastal Act.

The policies featured in this section are illustrative of the suite of relevant LCP policies from other jurisdictions where project elements are proposed. Although this section focuses on LCP policies pertinent to hub sites, all relevant ESHA policies would be considered for guidance where project impacts on these resources could occur. **Appendix E** contains the full text of LCP relevant ESHA policies for each LCP jurisdiction within the project area.

The Mendocino County LCP defines ESHAs as anadromous fish streams, sand dunes, rookeries and marine mammal haul-out areas, wetlands, riparian areas, pygmy vegetation containing species of rare or endangered plants, and habitats of rare and endangered plants and animals.<sup>2</sup> LCP policy 3.1-7 requires that a buffer be established adjacent to all ESHAs to protect the habitat from significant degradation from any future developments. The policy requires the buffer to be a minimum of 100 feet, unless the applicant can demonstrate that 100 feet is not necessary to protect the habitat in question, but in no case shall it be less than 50 feet. The policy includes standards for development within the 100-foot buffer area, including appropriate siting and design, compatibility with the continuance of the ESHA, and that development within the buffer only be allowed when there is no other feasible site available on the parcel and when the protective values of the buffer lost from the development are mitigated at a minimum ratio of 1:1.

The Sonoma County LCP establishes and maps Sanctuary Preservation Areas which correspond to ESHAs as defined in the Coastal Act. The maps have recently been revised for a pending update of the LCP; none of the current or draft maps identify the hub sites as ESHA. The LCP defines the habitats that comprise Sanctuary Preservation Areas within each of the LCP's geographic planning areas. Of relevance to the proposed Sonoma County hub site #23 in Fort Ross and #135 in Bodega Bay, Sanctuary Preservation Areas for the corresponding plan areas include "rare and/or endangered plant sites" (i.e., areas supporting populations of rare and/or endangered plants), among several others. The LCP states generally that development within the Sanctuary Planning Areas shall be limited to trails and resource dependent uses, and there shall be no significant disruption of habitat values. Several LCP policies require buffers for development in proximity to ESHA. Riparian policy 9 calls for a 100-foot buffer zone around riparian areas; and Heron Rookeries policy 66 prohibits construction of structures or roads within 600 feet of a rookery. The LCP similarly prohibits pesticide and herbicide use in such areas unless it is necessary to maintain or enhance the functional capacity of the Sanctuary Preservation Area.

The Marin County LCP includes several policies governing development in and adjacent to ESHAs (also referenced as relevant coastal waters and wetlands policies above). Policy C-BIO-1

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<sup>2</sup> Mendocino County. 1991. *Mendocino County Coastal Element*. Revised March 11, 1991, page 43. <https://www.mendocinocounty.org/government/planning-building-services/plans/coastal-element>. Accessed May 2023.



establishes three categories of ESHA: wetlands, streams and riparian vegetation, and terrestrial ESHAs. Relevant to hub site #136 in Olema, policy C-BIO-3.2 provides for the establishment of buffers for wetlands, streams, and riparian areas, the standards for which are provided in policies C-BIO-18 and C-BIO-23. Policy C-BIO-18 requires that a minimum 100-foot buffer be maintained in a natural condition along the periphery of all wetlands (which it considers ESHAs). Policy C-BIO-19 provides that a buffer adjustment to less than 100 feet, but not less than 50 feet, may be considered if it can be demonstrated that the proposed development cannot be accommodated entirely outside of the required buffer or that development outside of the buffer would have greater impacts on wetlands than development within the buffer. LCP policy C-BIO-19 further requires that any development within a reduced buffer incorporate measures to prevent impacts that would significantly degrade the wetland, be compatible with the continuance of the wetland ESHA, and (through permit conditions) include measures that create a net environmental improvement over the existing site condition.

In addition to those of Mendocino, Sonoma, and Marin counties, each of the other LCPs applicable within the project area was reviewed for specific ESHA definitions and relevant policies. As discussed in **Appendix D**, the potential ESHA classification and mapping performed for the analysis that follows reflects for each certified LCP jurisdiction the types of ESHAs that meet the Coastal Act ESHA definition contained within the respective LCP. That is, for each LCP jurisdiction, the potential ESHA classification and mapping reflects any specific ESHA types contained within that jurisdiction's certified LCP. The relevant ESHA policies for each of these LCP jurisdictions was also reviewed and considered in the analysis below. The full text of these policies is presented in **Appendix E**. In the interest of brevity, common themes from LCP ESHA provisions are presented here:

- Protective exclusion buffers, generally ranging between 25 and 250 feet, shall be established and maintained to avoid impact to ESHAs.
- Erosion control measures shall be implemented during excavation, grading and other construction operations to prevent construction-generated runoff from entering ESHAs.
- Exterior, artificial night lighting shall be shielded and directed away from ESHAs to avoid or minimize disturbance to species residing in or otherwise using the ESHAs.
- Native, character-defining, listed or otherwise identified as rare plants and animals and areas that support these natural resources shall be preserved within the LCP areas or mitigated under a conflict resolution or balancing approach.
- Temporary impacts to ESHAs shall be restored in-kind wherever feasible, at a minimum ratio of 1:1 (impact area:restoration area); with permanent impacts to be restored at a higher ratio depending on the type of ESHAs.

## 4.2.2 Coastal Resources and Impacts

### 4.2.2.1 Statewide Project Analysis

The setting for the coastal MMBN project comprises those segments of California State Highway System right-of-way within the coastal zone where project elements are proposed, and coastal waters, wetlands, natural (vegetation) communities, and habitats that support listed rare plants and/or animals within or near the project areas that could be directly or indirectly impacted by project activities. The project area is shown in **Figures 2-4A** through **2-4F**. As summarized in Chapter 3, Approach to Analysis, hydrologic and vegetation data sets were compiled for the biological resources study area, consisting of the project area plus a 500-foot buffer area, using the methods outlined in Section 3.4, Geospatial Analysis and detailed in **Appendix D**. These datasets and how they inform the project environmental setting for coastal waters, wetlands, natural communities and habitats that support listed rare plants and/or animals are described in the subsections that follow.

#### ***Vegetation/Habitat Environmental Setting***

Vegetation mapping data sources VegCamp<sup>3</sup> and Calveg (eveg and fveg)<sup>4</sup> were queried and combined into a single baseline dataset to serve as an environmental setting for the project. Of these three datasets, VegCamp provides higher accuracy information; therefore, it was used wherever available (38 percent of the biological resources study area). The less accurate Calveg data (62 percent of the biological resources study area) completed the dataset wherever VegCamp data was unavailable. The compiled dataset includes 341 distinct vegetation/habitat types which are organized into 12 summary categories based on dominance (i.e., vegetation alliance or association<sup>5</sup>) or another notable characteristic (e.g., type of coastal water) and include both terrestrial and aquatic habitats. The vegetation/habitat dataset, in combination with other datasets, was analyzed further to identify which vegetation/habitat types of the biological resources study area could be characterized as coastal waters/wetlands or as potential ESHA. The results of these evaluations are described below. See Section 3.4, Geospatial Analysis and **Appendix D** for a list and explanation of data sources which informed this analysis.

The summary vegetation/habitat categories comprising the project environmental setting include fresh/marine open water, beach, coastal bluff, dune, freshwater/saline marsh, grasses, forbs and other groundcover, rocky outcrop, scrub, riparian woodland/forest, woodland/forest, developed/agriculture/managed lands and other habitat. **Appendix F** (Tables F-1a and F-1b) provides acreage for each of the 341 unique vegetation/habitat types and summary category within the project area and biological resources study area. Brief descriptions of each category are

<sup>3</sup> California Department of Fish and Wildlife (CDFW), 2013, VegCamp Palos Verdes Data; CDFW, 2015, VegCamp Orange County Data; CDFW, 2018, VegCamp San Diego County Data; CDFW, 2019, VegCamp Mendocino Data. All VegCamp datasets available at: <https://wildlife.ca.gov/Data/BIOS>

<sup>4</sup> California Department of Forestry and Fire Protection, 2015, FVEG. Available at: <https://calfire.app.box.com/s/f3ajflnmj7cd7isjmf52hdxrxtjyoy>

<sup>5</sup> California Native Plant Society (CNPS). 2022. <https://vegetation.cnps.org/overview/descriptions>

presented here, organized by aquatic and terrestrial habitat types, and include examples of the individual vegetation/habitat types within each category.<sup>6</sup>

### **Aquatic Habitat Types (Coastal Waters and Wetlands)**

#### **Fresh/Marine Open Water**

Fresh/marine open water habitat includes areas that support either fresh or marine open water and are characteristically devoid of aquatic and/or emergent vegetation. The exception is eelgrass (*Zostera [marina, pacifica]*) Pacific aquatic alliance, which consists of a submerged seagrass occurring in nearshore marine open waters. Vegetation/habitat types in this category are general and include bay or estuary, brackish water, channel, estuarine, freshwater, among others.

#### **Beach**

Beach habitat is characterized by sandy substrate adjacent to the Pacific Ocean that may be subject to tidal inundation. This habitat type is generally devoid of vegetation. Vegetation/habitat types in this category are general and include beach, beach sand, and beach sand mapping unit.

#### **Freshwater/Saline Marsh**

Freshwater/saline marsh habitat includes areas that exhibit wetland conditions (the Coastal Act wetland definition only requires evidence of one parameter – that is hydrology, hydrophytic vegetation or hydric soils). Examples range from general descriptions to more detailed, species alliance/association level designations and include arid freshwater emergent marsh, arid southwest freshwater marsh group, mudflat/dry pond bottom mapping unit, alkali bulrush (*Bolboschoenus maritimus*) alliance, salt grass (*Distichlis spicata*) alliance, pickleweed – cordgrass (*Salicornia* sp. – *Spartina* sp.), among others. This category primarily contains vegetation/habitat types characterized by a dominance of native species, but also contains those dominated by non-native species, such as giant reed (*Arundo donax*) herbaceous alliance.

### **Terrestrial Vegetation/Habitat Types**

#### **Coastal Bluff**

Coastal bluff habitat includes areas with rocky substrate and sheer cliffs that either support sparse vegetative cover or are devoid of vegetation, typically adjacent to the Pacific Ocean. Vegetation/habitat types in this category are general and include rocky cliff, rocky bluff, California cliff, scree, and other rock vegetation, Californian cliff, scree & rock vegetation group, rocks, rocky bluffs, and rock outcrop.

#### **Dune**

Dune habitat includes areas of sandy substrate in upland areas, often adjacent to beach habitat that exhibits undulating dune topography indicative of sand transport and deposit by wind, dune--associated plant species, or other notable characteristics that would support inclusion. Vegetation/habitat types in this category are general and include California coastal evergreen

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<sup>6</sup> Naming convention used in the summary category descriptions are reflective of the original datasets, standardized for readability.

bluff and dune scrub, dune, southern foredunes, Vancouverian/Pacific dune mat group, Pacific coastal beach and dune mapping unit, and vegetated dune.

#### Grasses, Forbs and Other Groundcover

Vegetation in this category includes areas composed primarily of herbaceous grasses and forbs, or other groundcover types such as ice plant (e.g., *Carpobrotus* sp.). Vegetation/habitat types in this category are general and include annual grasses and forbs, California annual and perennial grassland macrogroup, coastal prairie, among others. This category contains vegetation/habitat types characterized by native and non-native species.

#### Rocky Outcrop

Rocky outcrop habitat inland includes areas with rocky substrate and outcrops that either support sparse vegetative cover or are devoid of vegetation. Vegetation/habitat types in this category are general and include rocky slope, California cliff, scree, and other rock vegetation, Californian cliff, scree & rock vegetation group and rock outcrop mapping unit.

Scrub/Scrub habitat includes areas composed primarily of shrub species characteristic of coastal sage scrub and chaparral communities. Examples of vegetation/habitat types in this category range from general to alliance/association level designations and include coastal scrub, chaparral, coyote brush (*Baccharis pilularis*) alliance, mule fat (*Baccharis salicifolia*), California sagebrush, big pod ceanothus (*Ceanothus megacarpus*) shrubland alliance, among others. This category primarily contains vegetation/habitat types characterized by a dominance of native species, but also contains those dominated by non-native species, such as French broom (*Genista monspessulana*) semi natural association.

#### Riparian Woodland/Forest

Riparian woodland/forest habitat includes areas generally associated with linear aquatic features, with a prominent tree overstory. Vegetation/habitat types in this category range from general to the alliance/association level and include riparian mixed hardwood, riparian mixed shrub, riverine, bigleaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*) alliance, white alder (*Alnus rhombifolia*) woodland/forest alliance, black cottonwood (*Populus trichocarpa*), southern willow scrub, California bay (*Umbellularia californica*) alliance, among others. This category primarily contains vegetation/habitat types characterized by a dominance of native species, but also contain those dominated by non-native species, such as Himalayan blackberry (*Rubus armeniacus*) alliance.

#### Woodland/Forest

Woodland/forest habitat includes upland areas with a prominent tree overstory that are not associated with a linear aquatic feature. Examples of vegetation/habitat types in this category range from general to alliance/association level designations and include closed-cone pine-cypress, coastal mixed hardwood, forest fragment, forest sliver, Bishop pine (*Pinus muricata*) alliance, coast live oak (*Quercus agrifolia*), Monterey pine (*Pinus radiata*) alliance, among others. This category primarily contains vegetation/habitat types characterized by a dominance of native species, but also contains those dominated by non-native species, such as eucalyptus woodland.

### Developed/Agriculture/Managed Lands

Developed/agriculture/managed lands include areas where the use is assumed to have undergone lawful establishment and provides little to no value for biological resources. Roadways, roadside shoulders, and other infrastructure, commercial agriculture, grazing lands, and ornamental vegetation/habitat types are included in this category. Vegetation/habitat types in this category are general and include annual cropland, miscellaneous vegetation, cleared land mapping unit, conifer agriculture, orchard, pasture, developed, among others.

### Other Habitat

Other habitat includes areas that do not fit into the previous categories due to a lack of detail in the vegetation/habitat type description. These include barren, barren and sparsely vegetated, non-native vegetation, and undifferentiated exotic vegetation mapping unit. Based on review of aerial imagery, vegetation/habitat types within this category may be highly disturbed, fragmented, or support little vegetation.

### **Coastal Waters and Wetlands Environmental Setting**

The project area traverses 58 coastal watersheds that ultimately drain to the ocean and contain countless aquatic resources, with many connected to features which intersect the project area.<sup>7</sup> The hydrologic data were mapped and analyzed to determine the number and types of coastal water features that drain the project area. **Table 4.2-1** shows for the project overall and each Caltrans district the quantity and types of mapped coastal water features that intersect the project area. The intersection point data were compiled for the project area (rather than the biological resources study area) to quantify potential feature crossings project-wide and within each district. As shown in the table, based upon available data,<sup>8</sup> the analysis indicates that project area intersects approximately 2,025 mapped coastal water features. Notable water bodies that are within the project area include Humboldt and San Diego bays; Harkins and Elkhorn sloughs, and the Klamath, Mad, Eel, Navarro, Gualala, Russian, Pajaro, Salinas, Ventura, San Gabriel, San Luis Rey, and Sweetwater rivers; among many others.

**TABLE 4.2-1  
 COASTAL WATER FEATURES INTERSECTING THE PROJECT AREA  
 (TOTAL BY CALTRANS DISTRICT)**

Coastal Water Feature Type	Number of Features by Caltrans District						
	D1	D4	D5	D7	D12	D11	Total
Open Water/Mudflat	203	316	143	46	14	26	747
Bay Flat	-	33	-	-	-	-	33
Deep Bay	-	2	-	-	-	-	2
Estuarine and Marine/Deepwater	30	19	13	5	2	13	82

<sup>7</sup> National Hydrology Dataset, 2021. Watershed Boundary Dataset. Available at: [https://www.usgs.gov/core-science-systems/ngp/national-hydrography/watershed-boundary-dataset?qt-science\\_support\\_page\\_related\\_con=4#qt-science\\_support\\_page\\_related\\_con](https://www.usgs.gov/core-science-systems/ngp/national-hydrography/watershed-boundary-dataset?qt-science_support_page_related_con=4#qt-science_support_page_related_con)

<sup>8</sup> U.S. Fish & Wildlife Service, 2020, National Wetlands Inventory. Available at: <https://www.fws.gov/wetlands/arcgis/rest/services/Wetlands/MapServer>; EcoAtlas, 2022, California Aquatic Resources Inventory Wetlands. Available at: [https://services2.arcgis.com/Uq9r85Potqm3MfRV/arcgis/rest/services/biosds2835\\_fpu/FeatureServer](https://services2.arcgis.com/Uq9r85Potqm3MfRV/arcgis/rest/services/biosds2835_fpu/FeatureServer)

**TABLE 4.2-1  
 COASTAL WATER FEATURES INTERSECTING THE PROJECT AREA  
 (TOTAL BY CALTRANS DISTRICT)**

Coastal Water Feature Type	Number of Features by Caltrans District						
	D1	D4	D5	D7	D12	D11	Total
Fluvial Channel	-	6	-	-	-	-	6
Fluvial Unvegetated Flat (in-channel)	-	1	-	-	-	-	1
Freshwater Pond	13	2	8	-	-	1	24
Lagoon	-	1	-	-	-	-	1
Lake	3	-	2	-	-	1	6
Marsh Flat	-	9	-	-	-	-	9
Riverine	157	171	120	40	12	11	511
Seep or Spring	-	62	-	-	-	-	62
Shallow Bay	-	10	-	-	-	-	10
<b>Wetlands</b>	<b>517</b>	<b>348</b>	<b>204</b>	<b>76</b>	<b>14</b>	<b>119</b>	<b>1,278</b>
Depressional	-	15	-	-	-	-	15
Estuarine and Marine Wetland	94	28	45	17	2	73	259
Freshwater Emergent Wetland	202	74	84	1	4	16	381
Freshwater Forested/Shrub Wetland	221	144	75	58	8	30	536
Marsh	-	87	-	-	-	-	87
<b>Total Coastal Water Features per District</b>	<b>720</b>	<b>664</b>	<b>347</b>	<b>121</b>	<b>28</b>	<b>145</b>	<b>2,025</b>

SOURCE: NWI, 2020; EcoAtlas, 2022

The vegetation/habitat dataset summarized above in *Vegetation/Habitat Environmental Setting* and detailed in **Appendix F** (Tables F-1a and F-1b) was analyzed to identify which vegetation/habitat types of the biological resources study area could be characterized as coastal waters, wetlands, or aquatic/marine habitats afforded protection under Coastal Act sections 30230, 30231, 30232, or 30233. The compiled vegetation mapping dataset for the study area was evaluated for qualifying characteristics as potential coastal waters, satisfying the one-parameter threshold for a coastal water or wetland, including hydrology (e.g., open water or mudflat habitats) or the presence of hydrophytic (wetland<sup>9</sup>) vegetation according to the U.S. Army Corps of Engineers’ regional wetland plant list supplements for the Arid West<sup>10</sup> and/or Western Mountains, Valleys, and Coasts.<sup>11</sup> These qualifying coastal waters and wetland vegetation/habitat types are organized into three summary categories based on species dominance (i.e., vegetation

<sup>9</sup> As defined in Coastal Act Section 30121 and California Code of Regulations Section 13577(b).

<sup>10</sup> U.S. Army Corps of Engineers 2020. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (version 3.5). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. Available at: <http://wetland-plants.usace.army.mil/>

<sup>11</sup> U.S. Army Corps of Engineers 2020. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coasts Region (version 3.5). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH. Available at: <http://wetland-plants.usace.army.mil/>

alliance or association)<sup>12</sup> or another notable characteristic and include: fresh/marine open water, beach, and freshwater/saline marsh, corresponding with the aquatic habitat types described above. Beach is included in this category because it includes a tidal, aquatic component, and is typically regulated under Coastal Act section 30230 as a marine resource. Although riparian woodland/forest often contains hydrophytic vegetation that could constitute a coastal water, Coastal Act section 30240 traditionally protects coastal streams, creeks, rivers, and associated riparian areas as ESHA; therefore, vegetation/habitat types within the riparian woodland/forest summary category are discussed under the next section, *Environmentally Sensitive Habitat Areas*.

**Table 4.2-2** presents the acreage for each of the coastal waters and wetland summary categories within the project area and biological resources study area, organized by Caltrans district. A detailed breakdown of the specific types of coastal waters and wetland vegetation/habitat within each category, along with the acreage within each Caltrans district and for the project overall, is presented in **Appendix F** (Table F-2).

**TABLE 4.2-2  
 COASTAL WATERS, WETLANDS, AND BEACH WITHIN PROJECT AREA AND STUDY AREA (ACRES)  
 (TOTAL BY CALTRANS DISTRICT)**

Summary Category	Acres by Caltrans District (Project Area   Study Area)												Total	
	1		4		5		7		12		11			
Fresh/Marine Open Water	7	122	5	1007	5	357	6	129	<1	20	90	536	<b>114</b>	<b>2171</b>
Beach	3	284	2	103	0	34	<1	27	<1	7	<1	224	<b>6</b>	<b>679</b>
Freshwater/Saline Marsh	45	397	10	638	12	193	3	10	<1	10	21	161	<b>91</b>	<b>1409</b>
<b>Total Aquatic Habitats</b>	<b>55</b>	<b>803</b>	<b>17</b>	<b>1749</b>	<b>17</b>	<b>583</b>	<b>9</b>	<b>166</b>	<b>&lt;1</b>	<b>37</b>	<b>112</b>	<b>921</b>	<b>210</b>	<b>4259</b>

NOTES: Totals rounded to the nearest acre; "<1" indicates quantities less than one acre; "0" is null.

SOURCES: California Department of Fish and Wildlife (CDFW), 2013, VegCamp Palos Verdes Data; CDFW, 2015, VegCamp Orange County Data; CDFW, 2018, VegCamp San Diego County Data; CDFW, 2019, VegCamp Mendocino Data. All VegCamp datasets available at: <https://wildlife.ca.gov/Data/BIOS>; California Department of Forestry and Fire Protection, 2015, FVEG. Available at: <https://calfire.app.box.com/s/f3ajflnmj7cd7isjimf52hdxxtjyoy>

Many of the coastal water and wetland vegetation/habitat types included in these three summary categories also meet the criteria for potential ESHA, discussed in detail in the next section. **Appendix F** (Tables F-3a and F-3b) contains matrices of each vegetation/habitat type which qualified as potential ESHA, associated acreage within the project area and biological resources study area and identifies the potential ESHA that are also coastal waters or wetlands, based on hydrology or hydrophytic vegetation attributes satisfying the one-parameter threshold for a coastal water or wetland. **Appendix F** (Table F-4) presents the potential ESHA vegetation/habitat types and associated acreage within the study area by district, and also identifies those types qualifying as coastal waters and wetlands (ESHA-wetlands). A description of the fresh/marine open water, beach, and freshwater/saline marsh vegetation/habitats and their qualifying

<sup>12</sup> California Native Plant Society (CNPS). 2022. <https://vegetation.cnps.org/overview/descriptions>

characteristics as potential ESHA, are discussed below within *Aquatic Habitats as Potential ESHA*. These aquatic vegetation/habitat types either contain records of special-status species presence for which they provide suitable habitat or are named as ESHA in an LCP. Although each of these aquatic habitats may retain characteristics of ESHA, the ESHA policy traditionally applies to terrestrial sensitive habitat areas. Therefore, other more appropriate Coastal Act policies would likely be applied to protect or permit restricted use within these three aquatic habitat types.

### ***Environmentally Sensitive Habitat Areas***

The vegetation/habitat dataset summarized in the environmental setting descriptions above and detailed in **Appendix F** (Tables F-1a and F-1b) was analyzed to identify which vegetation/habitat types of the biological resources study area could be characterized as potential ESHA according to Coastal Act section 30107.5 or a particular LCP. As introduced in section 4.2.1, *Applicable Policies*, many LCP policies defining or protecting ESHA include coastal waters, wetlands, or beaches. Although LCPs may identify these resources as sensitive habitat areas, it is not indicative of the applicable Coastal Act policies that would define or protect such resources, rather broad use of terminology to identify these resources as “sensitive” within their plan areas. **Table 4.2-3** presents the criteria used to evaluate whether a vegetation/habitat type qualified as potential ESHA. Areas not identified as potential ESHA were characterized as non-sensitive if enough information was known about the vegetation/habitat type to evaluate against the criteria. Vegetation/habitat types which were not descriptive enough to be evaluated by the criteria identified in Table 4.2-3 were identified as “Data Gaps” and prioritized during the reconnaissance survey effort described in **Appendix C**. Many of these vegetation/habitat types were classified, according to the Manual of California Vegetation,<sup>13</sup> or other defining characteristics (e.g., coastal bluff, riparian corridor, developed, etc.). Although most geographical concentrations of Data Gap areas were field-verified and classified as potential ESHA or not, areas with only a few polygons dispersed across a large geographic area, for example between Ventura and San Diego counties, were not surveyed. It was determined that these areas were a small portion of the Data Gap polygons and would be more efficiently evaluated in pre-construction assessments. Furthermore, all annual grassland vegetation/habitat types that did not contain a “perennial” descriptor were excluded from the survey effort because a reconnaissance-level survey from the right-of-way was determined, in coordination with Coastal Commission staff, to be insufficient to evaluate potential qualification as ESHA; therefore, annual grassland vegetation/habitat types remain characterized as Data Gaps in the environmental setting dataset.

The analysis identified 204 terrestrial vegetation/habitat types totaling approximately 26,440 acres of potential ESHA within the biological resources study area (43 percent of the study area); 154 of these terrestrial vegetation/habitat types totaling approximately 2,809 acres of potential ESHA occur within the project area (27 percent of the project area). These terrestrial vegetation/habitat types have been summarized into seven broader categories, and each is discussed below. Special-status plant and animal species documented within each of these seven summary categories are

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<sup>13</sup> Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens, 2009, A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, CA. 1300 pp.



also provided.<sup>14</sup> **Table 4.2-4** lists for the project overall and each Caltrans district the types and extents of potential terrestrial ESHA in the project area and study area. **Appendix F** (Tables F-3a and F-3b) contains expanded matrices of each vegetation/habitat type which qualified as potential terrestrial ESHA and associated acreage within the project area and biological resources study area.

**TABLE 4.2-3  
 CRITERIA USED TO EVALUATE POTENTIAL ESHA**

Categorical ESHA <sup>a</sup>	CDFW <sup>b</sup> Sensitive Natural Community	Special-Status Species <sup>e</sup> and Sensitive Habitat Occurrence	Local Coastal Program Designations
<ul style="list-style-type: none"> <li>• Dunes</li> <li>• Oak woodland</li> <li>• Riparian vegetation</li> <li>• Rock outcrop</li> <li>• Perennial grassland or prairie</li> <li>• Bluff scrub</li> <li>• Maritime chaparral or scrub</li> <li>• Vernal pools</li> <li>• Wet meadow</li> </ul>	<ul style="list-style-type: none"> <li>• NatureServe<sup>c</sup> State Rank of 1-3</li> <li>• NatureServe Global Rank of 1-3</li> <li>• Alliance/association is identified as “sensitive” in CDFW Sensitive Natural Community List<sup>d</sup></li> </ul>	<ul style="list-style-type: none"> <li>• CNDDDB<sup>f</sup> occurrence records overlapping suitable habitat for a particular species or sensitive natural community with a 15-foot buffer applied to the extent of the record to account for inherent error in the occurrence record boundary and conservatively include nearby suitable habitat for the subject sensitive species or habitat as potential ESHA.</li> <li>• Omit occurrence records listed as “extirpated”</li> <li>• Omit occurrence data with location accuracy more than 0.4 mile or has been “hidden” due to resource sensitivity.<sup>g</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Specific resources and/or locations identified in LCPs that expand upon the Coastal Act definition of ESHA.</li> </ul>

SOURCES:

- a Commission staff guidance on vegetation communities or habitat that would categorically be identified as ESHA
- b CDFW = California Department of Fish and Wildlife
- c <https://www.natureserve.org/>
- d <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline>
- e Includes species listed and candidates for listing as threatened, endangered, or fully protected under the Federal Endangered Species Act or California Endangered Species Act; species identified as a CDFW Species of Special Concern or Special Animal; species or habitats with a Nature Serve State or Global Rank 1-3; plant species with a California Rare Plant Rank of 1 or 2
- f CNDDDB = CDFW's California Natural Diversity Database
- g Hidden occurrences consist of records for species where site specific information has been removed from the database and the record instead appears for the entire U.S. Geological Survey 7.5-minute quadrangle, such as is the case for San Francisco gartersnake (*Thamnophis sirtalis tetrataenia*). Complete records for such hidden occurrences must be requested from resource agencies.

<sup>14</sup> Includes species documented in the California Department of Fish and Wildlife’s California Natural Diversity Database that are listed as threatened, endangered, or fully protected under the Federal Endangered Species Act or California Endangered Species Act species identified as a CDFW Species of Special Concern or Special Animal; species or habitat with a NatureServe State or Global Rank 1-3; and plant species with a California Rare Plant Rank of 1 or 2.

**TABLE 4.2-4  
 POTENTIAL TERRESTRIAL ESHA WITHIN PROJECT AREA AND STUDY AREA**

Terrestrial ESHA Summary Category	Acres by Caltrans District (Project Area   Study Area)												Total ESHA by Category	
	1	4	5	7	12	11								
Coastal Bluff	<1	12	2	83	0	3	0	0	0	0	0	0	2	98
Dune	20	116	8	115	112	586	15	106	0	0	17	61	172	985
Grassland/Herbaceous	172	2,187	273	5,224	284	2,274	0	1	1	42	1	19	730	9,747
Rocky Outcrop	0	3	1	2	0	0	0	1	0	2	0	0	1	8
Scrub	40	280	93	714	207	929	119	812	4	141	50	193	513	3,071
Riparian Woodland/Forest	289	2,028	113	1,167	37	311	14	186	<1	17	5	39	459	3,748
Woodland/Forest	566	5,428	151	2,049	198	1,137	16	144	<1	25	0	0	932	8,782
<b>Total Terrestrial ESHA by Caltrans District</b>	<b>1,087</b>	<b>10,055</b>	<b>640</b>	<b>9,354</b>	<b>839</b>	<b>5,241</b>	<b>165</b>	<b>1,252</b>	<b>5</b>	<b>226</b>	<b>73</b>	<b>312</b>	<b>2,809</b>	<b>26,440</b>

NOTES: Totals rounded to the nearest acre. Cells with "<1" indicate fractions of an acre; cells with "0" indicate total is null.

**Coastal Bluff ESHA**

Vegetation/habitat types in this category satisfied at least one of the criteria in Table 4.2-3. These include various coastal bluff habitats which are protected in an LCP and/or contain a CNDDDB occurrence record for a special-status species that uses coastal bluff habitat.

The following LCPs identify vegetation/habitat types in this category as ESHA:

Cities of:

- Daly City
- Half Moon Bay
- Santa Cruz
- Morro Bay
- Carlsbad
- San Diego
- Dana Point

Counties of:

- Del Norte
- Mendocino
- Sonoma
- San Francisco
- Ventura
- Los Angeles

The subsections that follow present the special-status species with CNDDDB occurrence records documented within the Coastal Bluff ESHA habitat types of the biological resources study area.

**Special-Status Plants**

The following special-status plants have CNDDDB occurrence records within vegetation/habitat types included in the Coastal Bluff ESHA category within the biological resources study area:

- Blasdale’s bent grass (*Agrostis blasdalei*)
- bluff wallflower (*Erysimum concinnum*)
- dark-eyed gilia (*Gilia millefoliata*)
- Mendocino Coast paintbrush (*Castilleja mendocinoensis*)
- pacific gilia (*Gilia capitata* ssp. *pacifica*)
- purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurea*)
- Roderick’s fritillary (*Fritilaria roderickii*)

### Special-Status Animals

The following special-status animals have CNDDDB occurrence records within vegetation/habitat

#### Birds

- black swift (*Cypseloides niger*)

### Dune ESHA

Vegetation/habitat types in this category satisfied at least one of the criteria in Table 4.2-3. These include various dune habitats which qualify as potential ESHA categorically, such as southern foredunes and California Coastal evergreen bluff and dune scrub group; are identified for protection in an LCP; and/or contain a CNDDDB occurrence record for a special-status species that uses dune habitats.

The following LCPs identify vegetation/habitat types in this category as ESHA:

#### Cities of:

- Half Moon Bay
- Marina
- Sand City
- Monterey
- Morro Bay
- Grover Beach
- Santa Barbara
- Coronado

#### Counties of:

- Del Norte
- Humboldt
- Mendocino
- Sonoma
- Marin
- San Francisco
- Santa Cruz
- Monterey
- Ventura
- Los Angeles

The subsections that follow present the special-status species with CNDDDB occurrence records documented within the Dune ESHA vegetation/habitat types of the biological resources study area.

### Special-Status Plants

The following special-status plants have CNDDDB occurrence records within vegetation/habitat types included in the Dune ESHA category within the biological resources study area:

- beach goldenaster (*Heterotheca sessiliflora* ssp. *sessiliflora*)
- beach layia (*Layia carnosa*)
- Blasdale’s bent grass
- Brand’s star phacelia (*Phacelia stellaris*)
- perennial goldfields (*Lasthenia californica* ssp. *macrantha*)
- pink sand-verbena (*Abronia umbellata* var. *breviflora*)

- coast wooly-heads (*Nemacaulis denudata* var. *denudata*)
- coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola*)
- dark-eyed gilia
- Menzies' wallflower (*Erysimum menziesii*)
- Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*)
- Monterey spineflower (*Chorizanthe pungens* var. *pungens*)
- Nuttall's acmispon (*Acmispon prostratus*)
- Pajaro manzanita (*Arctostaphylos pajaroensis*)
- San Francisco Bay spineflower (*Chorizanthe cuspidata* var. *cuspidata*)
- sand-loving wallflower (*Erysimum ammophilum*)
- sandmat manzanita (*Arctostaphylos pumila*)
- seaside bird's-beak (*Cordylanthus rigidus* ssp. *littoralis*)
- seaside pea (*Lathyrus japonicus*)
- short-leaved evax (*Hesper-evax sparsiflora* var. *brevifolia*)
- south coast saltscale (*Atriplex pacifica*)
- swamp harebell (*Campanula californica*)
- Wolf's evening-primrose (*Oenothera wolfii*)

### Special-Status Animals

The following special-status animals have CNDDDB occurrence records within vegetation/habitat types included in the Dune ESHA category within the biological resources study area:

#### Invertebrates

- globose dune beetle (*Coelus globosus*)
- Myrtle's silverspot butterfly (*Speyeria zereine myrtleae*)
- western beach tiger beetle (*Cicindela latesignata*)

#### Birds

- Belding's savanna sparrow (*Passerculus sandwichensis beldingi*)
- burrowing owl (*Athene cunicularia*)
- California least tern (*Sternula antillarum brownii*)
- western snowy plover (*Charadrius nivosus nivosus*)

#### Amphibians and Reptiles

- California legless lizard (*Anniella* sp.)
- northern California legless lizard (*Anniella pulchra*)
- southern California legless lizard (*Anniella stebbinsi*)

### Grassland/Herbaceous ESHA

Vegetation/habitat types in this category satisfied at least one of the criteria in Table 4.2-3. These include various grassland or herbaceous habitats which qualify as potential ESHA categorically, such as Californian Annual & Perennial Grassland Mapping Unit; are protected in an LCP; and/or contain a CNDDDB occurrence record for a special-status species that uses grassland or herbaceous habitats.

The following LCPs identify vegetation/habitat types in this category as ESHA:

Cities of:

- Half Moon Bay
- Santa Barbara
- Carlsbad
- San Clemente

Counties of:

- Sonoma
- Santa Cruz
- Ventura
- Los Angeles

The subsections that follow present the special-status species with CNDDDB occurrence records documented within the Grassland/Herbaceous ESHA vegetation/habitat types of the biological resources study area.

### Special-Status Plants

The following special-status plants have CNDDDB occurrence records within vegetation/habitat types included in the Grassland/Herbaceous ESHA category within the biological resource study area:

- alpine marsh violet (*Viola palustris*)
- Baker's goldfields (*Lasthenia californica* ssp. *bakeri*)
- beach layia
- bent-flowered fiddleneck (*Amsinckia lunaris*)
- Betty's dudleya (*Dudleya abramsii* ssp. *bettinae*)
- Blasdale's bent grass
- bluff wallflower
- Braunton's milk-vetch (*Astragalus brauntonii*)
- coast lily (*Lilium maritimum*)
- coast yellow leptosiphon (*Leptosiphon croceus*)
- coastal goosefoot (*Chenopodium littoreum*)
- congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*)
- Contra Costa goldfields (*Lasthenia conjugens*)
- deceiving sedge (*Carex saliniformis*)
- fragrant fritillary (*Fritillaria liliacea*)
- Franciscan onion (*Allium peninsulare* var. *franciscanum*)
- golden larkspur (*Delphinium luteum*)
- great burnet (*Sanguisorba officinalis*)
- Hoover's bent grass (*Agrostis hooveri*)
- Howell's spineflower (*Chorizanthe howellii*)
- Jones' layia (*Layia jonesii*)
- Laguna Beach dudleya (*Dudleya stolonifera*)
- maple-leaved checkerbloom (*Sidalcea malachroides*)
- Marin checker lily (*Fritillaria lanceolata* var. *Tristulis*)
- marsh pea (*Lathyrus palustris*)
- Mendocino Coast paintbrush (*Castilleja mendocinensis*)
- Oregon polemonium (*Polemonium carneum*)
- pacific gilia (*Gilia capitata* ssp. *Pacifica*)
- papoose tarplant (*Centromadia parryi* ssp. *parryi*)
- Point Reyes blennosperma (*Blennosperma nanum* var. *robustum*)
- purple-stemmed checkerbloom
- Roderick's fritillary
- Santa Cruz microseris (*Stebbinsoseris decipens*)
- Santa Cruz tarplant (*Holocarpha macradenia*)
- San Diego barrel cactus (*Ferocactus viridescens*)
- San Luis Obispo owl's-clover (*Castilleja densiflora* var. *Obispoensis*)
- sandmat manzanita
- southern tarplant (*Centromadia parryi* ssp. *australis*)
- supple daisy (*Erigeron supplex*)
- swamp harebell
- thin-lobed horkelia (*Horkelia tenuiloba*)
- two-fork clover (*Trifolium amoenum*)
- variegated dudleya (*Dudleya variegata*)
- Wolf's evening-primrose
- woodland woollythreads (*Monolopia gracilens*)
- woolly-headed gilia (*Gilia capitata* ssp. *tomentosa*)

### Special-Status Animals

The following special-status animals have CNDDDB occurrence records within vegetation/habitat types included in the Grassland/Herbaceous ESHA category within the biological resources study area:

#### *Invertebrates*

- Behren's silverspot butterfly (*Speyeria zerebe behrensii*)
- Marin hesperian (*Vespericola marinensis*)
- obscure bumble bee (*Bombus caliginosus*)
- San Diego fairy shrimp (*Branchinecta sandiegonensis*)

#### *Birds*

- Belding's savannah sparrow
- burrowing owl
- California horned lark (*Eremophila alpestris actia*)
- ferruginous hawk (*Buteo regalis*)
- grasshopper sparrow (*Ammodramus savannarum*)
- merlin
- northern harrier (*Circus hudsonius*)
- snowy egret (*Egretta thula*)
- tricolored blackbird (*Agelaius tricolor*)

#### *Amphibians and Reptiles*

- northern California legless lizard

#### *Mammals*

- American badger (*Taxidea taxus*)
- North American porcupine (*Erethizon dorsatum*)
- Salinas harvest mouse (*Reithrodontomys megalotis distichlis*)

### Rocky Outcrop ESHA

Vegetation/habitat types in this category satisfied at least one of the criteria in Table 4.2-3. These include various rocky outcrop habitats which qualify as potential ESHA categorically, such as rock outcrop mapping unit; are protected in an LCP; and/or contain a CNDDDB occurrence record for a special-status species that uses rocky outcrop habitats.

The following LCPs identify vegetation/habitat types in this category as ESHA:

Counties of:

- Ventura
- Los Angeles

The subsections that follow present the special-status species with CNDDDB occurrence records documented within the Rocky Outcrop ESHA habitat types of the biological resources study area.

### Special-Status Plants

The following special-status plants have CNDDDB occurrence records within vegetation/habitat types included in the Rocky Outcrop ESHA category within the biological resources study area:

- Laguna Beach dudleya

## Special-Status Animals

There are no CNDDDB occurrence records for special-status animals documented within vegetation/habitat types included in the Rocky Outcrop ESHA category.

## Scrub ESHA

Vegetation/habitat types in this category satisfied at least one of the criteria in Table 4.2-3. These include various scrub or chaparral habitats which contain sensitive vegetation alliances or associations, such as lizard tail – seaside daisy – coast buckwheat (*Eriophyllum staechadifolium* – *Erigeron glaucus* – *Eriogonum latifolium*) alliance; qualify as potential ESHA categorically, such as southern maritime chaparral; are protected in an LCP; and/or contain a CNDDDB occurrence record for a special-status species that uses scrub or chaparral habitats.

The following LCPs identify vegetation/habitat types in this category as ESHA:

### Cities of:

- Goleta
- Carpinteria
- Carlsbad
- Laguna Beach
- San Clemente
- Grover Beach
- Morro Bay

### Counties of:

- Santa Cruz
- Santa Barbara
- Ventura
- Los Angeles

The subsections that follow present the special-status species with CNDDDB occurrence records documented within the Scrub ESHA vegetation/habitat types of the biological resources study area.

## Special-Status Plants

The following special-status plants have CNDDDB occurrence records within vegetation/habitat types included in the Scrub ESHA category within the biological resources study area:

- aphanisma (*Aphanisma blitoides*)
- Baker’s goldfields
- beach layia
- black-flowered figwort (*Scrophularia atrata*)
- Blasdale’s bent grass
- Blochman’s dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)
- blue coast gilia (*Gilia capitata* ssp. *chamissonis*)
- bluff wallflower
- Braunton’s milk-vetch
- California adolphia (*Adolphia californica*)
- chaparral ragwort (*Senecio aphanactis*)
- cliff spurge (*Euphorbia misera*)
- Orcutt’s pincushion (*Chaenactis glabriuscula* var. *orcuttiana*)
- Oregon coast paintbrush (*Castilleja litoralis*)
- Oregon polemonium
- Pacific gilia
- Pajaro manzanita
- perennial goldfields
- pink sand-verbena
- Point Reyes horkelia (*Horkelia marinensis*)
- Raiche’s red ribbons (*Clarkia concinna* ssp. *raichei*)
- Roderick’s fritillary
- San Diego ambrosia (*Ambrosia pumila*)
- San Diego barrel cactus

- coast lily
- coast woolly-threads (*Nemacaulis denudata* var. *denudata*)
- coastal goosefoot
- Coulter's saltbush (*Atriplex coulteri*)
- deceiving sedge
- Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)
- Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*)
- dune larkspur (*Delphinium parryi* ssp. *blochmaniae*)
- Eastwood's goldenbush (*Ericameria fasciculata*)
- fragrant fritillary
- Franciscan thistle (*Cirsium andrewsii*)
- golden larkspur
- Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*)
- Hoover's bent grass
- Jones' layia
- Kellogg's horkelia (*Horkelia cuneata* var. *sericea*)
- Laguna beach dudleya
- maple-leaved checkerbloom
- Marin checker lily
- marsh pea
- Mendocino Coast paintbrush
- Mile's milk-vetch (*Astragalus didymocarpus* var. *milesianus*)
- Monterey spineflower
- naked flag moss (*Discelium nudum*)
- Nipomo Mesa lupine (*Lupinus nipomensis*)
- Nuttall's acmispone
- Nuttall's scrub oak (*Quercus dumosa*)
- San Francisco Bay spineflower
- San Luis Obispo monardella (*Monardella undulata* ssp. *undulata*)
- sandmat manzanita
- Santa Catalina Island desert-thorn (*Lycium brevipes* var. *hassei*)
- Santa Cruz microseris
- Santa Lucia bush-mallow (*Malacothamnus palmeri* var. *palmeri*)
- Santa Margarita manzanita (*Arctostaphylos pilosula*)
- Santa Monica dudleya (*Dudleya cymosa* ssp. *ovatifolia*)
- Scouler's catchfly (*Silene scouleri* ssp. *scouleri*)
- sea dahlia (*Leptosyne maritima*)
- seaside bird's-beak
- seaside pea
- Shaw's agave (*Agave shawii* var. *shawii*)
- short-leaved evax
- slender mariposa-lily (*Calochortus clavatus* var. *gracilis*)
- south coast saltscale (*Atriplex pacifica*)
- sticky dudleya (*Dudleya viscida*)
- summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)
- supple daisy
- Tracy's Romanzoffia (*Romanzoffia tracyi*)
- variegated dudleya
- wart-stemmed ceanothus (*Ceanothus verrucosus*)
- white-veined monardella (*Monardella hypoleuca* ssp. *hypoleuca*)
- Wolf's evening-primrose
- woodland woollythreads
- woolly-headed spineflower

### Special-Status Animals

The following special-status animals have CNDDDB occurrence records within vegetation/habitat types included in the Scrub ESHA category within the biological resources study area:

#### *Invertebrates*

- Gertsch's Socalchemmis spider (*Socalchemmis gertschi*)
- Marin hesperian
- Morro shoulderband (*Helminthoglypta walkeriana*)
- San Diego fairy shrimp
- western bumblebee (*Bombus occidentalis*)



*Birds*

- Belding's savannah sparrow
- burrowing owl
- coastal California gnatcatcher (*Polioptila californica californica*)
- merlin
- southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)

*Amphibians and Reptiles*

- California legless lizard (*Anniella ssp.*)
- California red-legged frog (*Rana draytonii*)
- northern California legless lizard
- southern California legless lizard

*Mammals*

- Humboldt mountain beaver (*Aplodontia rufa humboldtiana*)
- northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)
- Point Arena mountain beaver (*Aplodontia rufa nigra*)
- Salinas harvest mouse
- San Diego desert woodrat (*Neotoma lepida intermedia*)
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Yuma myotis (*Myotis yumanensis*)

**Riparian Woodland/Forest ESHA**

Vegetation/habitat types in this category satisfied at least one of the criteria in Table 4.2-3. These include various riparian woodland or forest habitats which contain sensitive vegetation alliances or associations, such as bigleaf maple – red alder (*Acer macrophyllum – Alnus rubra*) alliance; qualify as potential ESHA categorically, such as southern riparian scrub; are protected in an LCP; and/or contain a CNDDDB occurrence record for sensitive habitat within this summary category or a special-status species that uses riparian woodland or forest habitats.

The following LCPs identify vegetation/habitat types in this category as ESHA:

Cities of:

- Crescent City
- Trinidad
- Eureka
- Point Arena
- Daly City
- Santa Cruz
- Capitola
- Watsonville
- Pismo Beach
- Grover Beach
- Santa Barbara
- Goleta
- Carpinteria
- Ventura
- Oceanside
- Laguna Beach
- San Clemente
- Morro Bay

Counties of:

- Del Norte
- Humboldt
- Mendocino
- Sonoma
- Marin
- Santa Cruz
- Los Angeles
- Orange

The subsections that follow present the special-status species with CNDDDB occurrence records documented within the Riparian Woodland/Forest ESHA vegetation/habitat types of the biological resources study area.

### Special-Status Plants

The following special-status plants have CNDDDB occurrence records within vegetation/habitat types included in the Riparian Woodland/Forest ESHA category within the biological resources study area:

- alpine marsh violet
- Baker’s goldfields
- Blasdale’s bent grass
- blue coast gilia
- California saw grass (*Cladium californicum*)
- California seablite (*Suaeda californica*)
- coast lily
- cylindrical trichodon (*Trichodon cylindricus*)
- decumbent goldenbush (*Isocoma menziesii* var. *decumbens*)
- Del Norte pyrrocoma (*Pyrrocoma racemosa* var. *congesta*)
- elongate copper moss (*Mielichhoferia elongata*)
- fragrant fritillary
- Franciscan thistle
- great burnet (*Sanguisorba officinalis*)
- green yellow sedge (*Carex viridula* ssp. *viridula*)
- Humboldt bay owl’s clover (*Castilleja ambigua* var. *humboldtiensis*)
- Lyngbye’s sedge (*Carex lyngbyei*)
- maple-leaved checkerbloom
- Marin knotweed (*Polygonum marinense*)
- marsh sandwort (*Arenaria paludicola*)
- Mendocino Coast paintbrush
- Point Reyes checkerbloom (*Sidalcea calycosa* ssp. *rhizomata*)
- purple-stemmed checkerbloom
- Raiche’s red ribbons
- saline clover (*Trifolium hydrophilum*)
- San Diego marsh-elder (*Iva hayesiana*)
- San Francisco Bay spineflower
- short-leaved evax
- Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*)
- spiral-spored gilded-head pin lichen (*Calicium adpersum*)
- swamp harebell
- twisted horsehair lichen (*Sulcaria spiralifera*)
- two-fork clover
- variegated dudleya
- water star-grass (*Heteranthera dubia*)
- white-veined monardella
- woolly-headed gilia

### Sensitive Habitats

The following sensitive habitats have CNDDDB occurrence records within vegetation/habitat types included in the Riparian Woodland/Forest ESHA category within the biological resources study area:

- Coastal and Valley Freshwater Marsh
- Coastal Brackish Marsh
- Northern Coastal Salt Marsh
- Southern California Steelhead Stream
- Southern Sycamore Alder Riparian Woodland
- Southern Willow Scrub

## Special-Status Animals

The following special-status animals have CNDDDB occurrence records within vegetation/habitat types included in the Riparian Woodland/Forest ESHA category within the biological resources study area:

### Invertebrates

- Gertsch's socialchemmis spider
- Marin hesperian
- monarch – California overwintering population (*Danaus plexippus plexippus* po. 1)

### Fish

- coast cutthroat trout (*Oncorhynchus clarkii clarkii*)
- northern coastal roach (*Hesperoleucus venustus navarroensis*)
- steelhead – central California coast DPS (*O. mykiss irideus* pop. 8)

### Birds

- bank swallow
- black-crowned night heron (*Nycticorax nycticorax*)
- coastal California gnatcatcher
- great blue heron (*Ardea herodias*)
- great egret (*Ardea alba*)
- least Bell's vireo (*Vireo bellii pusillus*)
- light-footed Ridgway's rail (*Rallus obsoletus levipes*)
- merlin
- osprey (*Pandion haliaetus*)
- tricolored blackbird
- yellow warbler (*Setophaga petechia*)
- yellow-breasted chat (*Icteria virens*)

### Amphibians and Reptiles

- California giant salamander (*Dicamptodon ensatus*)
- pacific tailed frog (*Ascaphus truei*)
- Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*)
- southern California legless lizard
- southern torrent salamander (*Rhyacotriton variegatus*)
- two-striped gartersnake (*Thamnophis hammondi*)
- western pond turtle (*Emys marmorata*)

### Mammals

- American badger
- fringed myotis (*Myotis thysanodes*)
- Humboldt mountain beaver
- North American porcupine
- northwestern San Diego pocket mouse
- pallid bat (*Antrozous pallidus*)
- Point Arena mountain beaver
- San Francisco dusky-footed woodrat
- Sonoma tree vole (*Arborimus pomo*)
- Townsend's big-eared bat
- western red bat (*Lasiurus frantzii*)
- Yuma myotis

## Woodland/Forest ESHA

Vegetation/habitat types in this category satisfied at least one of the criteria in Table 4.2-3. These include various woodland or forest habitats which contain sensitive vegetation alliances or associations, such as elderberry (*Sambucus mexicana*) shrubland alliance; qualify as potential ESHA categorically, such as coast live oak; are protected in an LCP; and/or contain a CNDDDB occurrence record for sensitive habitat within this summary category or a special-status species that uses woodland or forest habitats.

The following LCPs identify vegetation/habitat types in this category as ESHA:

Cities of:

- Capitola
- Monterey
- Grover Beach
- Goleta
- Carpinteria
- Santa Barbara
- Ventura
- Carlsbad

Counties of:

- Mendocino
- Sonoma
- Santa Cruz
- Los Angeles
- Ventura

The subsections that follow present the special-status species with CNDDDB occurrence records documented within the Woodland/Forest ESHA vegetation/habitat types of the biological resources study area.

### Special-Status Plants

The following special-status plants have CNDDDB occurrence records within vegetation/habitat types included in the Woodland/Forest ESHA category within the biological resources study area:

- Anderson's manzanita (*Arctostaphylos andersonii*)
- Baker's goldfields
- bent-flowered fiddleneck
- bunchberry (*Cornus unalaschensis*)
- Cambria morning-glory (*Calystegia purpurata* ssp. *saxicola*)
- coast lily
- coastal bluff morning-glory
- cylindrical trichodon
- Del Norte pyrrocoma
- Eastwood's goldenbush
- elongate copper moss
- fragrant fritillary
- Franciscan onion
- Franciscan thistle
- ghost-pipe (*Monotropa uniflora*)
- Gowen cypress (*Hesperocyparis goveniana*)
- Hooker's manzanita
- Hoover's bent grass
- Kellogg's horkelia
- lagoon sedge (*Carex lenticularis* var. *sericea*)
- Laguna Beach dudleya
- Mendocino Coast paintbrush
- Methuselah's beard lichen (*Usnea longissima*)
- Monterey clover (*Trifolium trichocalyx*)
- Monterey pine (*Pinus radiata*)
- naked flag moss
- Oregon polemonium
- papoose tarplant
- perennial goldfields
- pine rose (*Rosa pinetorum*)
- purple-stemmed checkerbloom
- pygmy cypress (*Hesperocyparis pygmaea*)
- running-pine (*Lycopodium clavatum*)
- San Luis Obispo owl's-clover
- sandmat manzanita
- seacoast ragwort
- seaside bird's-beak
- Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*)
- spiral-spored gilded-head pin lichen
- swamp harebell
- thin-lobed horkelia
- twisted horsehair lichen
- water star-grass

- leafy-stemmed miterwort (*Mitellastracaulescens*)
- maple-leaved checkerbloom
- marsh pea
- white-veined monardella
- Wolf's evening-primrose
- woolly-headed gilia
- Yadon's rein orchid (*Piperia yadonii*)

### Sensitive Habitats

The following sensitive habitats have CNDDDB occurrence records within vegetation/habitat types included in the Woodland/Forest ESHA category within the biological resources study area:

- Grand Fir Forest
- Northern Bishop Pine Forest

### Special-Status Animals

The following special-status animals have CNDDDB occurrence records within vegetation/habitat types included in the Woodland/Forest ESHA category within the biological resources study area:

#### *Invertebrates*

- monarch – California overwintering population
- Marin hesperian

#### *Birds*

- Marbled murrelet (*Brachyramphus marmoratus*)
- osprey (*Pandion haliaetus*)
- purple martin (*Progne subis*)

#### *Amphibians and Reptiles*

- California giant salamander
- Del Norte salamander (*Plethodon elongatus*)
- northern California legless lizard
- Pacific tailed frog
- San Bernadino ringneck snake (*Diadophis punctatus modestus*)
- Santa Crux long-toed salamander (*Ambystoma macrodactylum croceum*)
- southern torrent salamander

#### *Mammals*

- American badger
- big free-tailed bat (*Nyctinomops macrotis*)
- fringed myotis
- Humboldt mountain beaver
- North American porcupine
- pallid bat
- Point Arena mountain beaver
- Sonoma tree vole
- Townsend's big-eared bat
- Yuma myotis

### **Aquatic Habitats as Potential ESHA**

The aquatic habitat summary categories of fresh/marine open water, beach, and freshwater/saline marsh comprise vegetation/habitat types that are coastal waters, wetlands or marine habitats that may also meet criteria for potential ESHA (see Table 4.2-3). For example, a vegetation/habitat type within one of these summary categories may be identified as ESHA in a LCP or contain occurrence records for special-status plants or animals for which they provide suitable habitat.

**Table 4.2-5** lists for the project overall and each Caltrans district the types and extents of aquatic habitat as potential ESHA in the project area and biological resources study area. A description of these qualifying ESHA characteristics is included below for each summary category. Although these vegetation/habitat types may contain attributes characteristic of ESHA, the section 30240

policy traditionally applies to terrestrial sensitive habitat areas; thus, application of alternative Coastal Act policies may be more appropriate for protecting or permitting conditional use within these aquatic habitats. For this reason, these aquatic habitats with attributes satisfying criteria as potential ESHA are distinguished from the general ESHA discussion, above, which focuses on qualifying terrestrial vegetation/habitat types. For resources where two or more Coastal Act policies apply, the more specific policy generally controls. For example, in the case of proposed fill of a wetland that is also considered ESHA, section 30233, which allows wetland fill in certain circumstances, generally controls over section 30240, which would prohibit wetland fill for a non-resource-dependent use.

**TABLE 4.2-5  
 AQUATIC HABITAT ESHA WITHIN PROJECT AREA AND STUDY AREA (ACRES)  
 (TOTAL BY CALTRANS DISTRICT)**

Summary Category	Acres by Caltrans District (Project Area   Study Area)												Total	
	1		4		5		7		12		11			
Fresh/Marine Open Water	7	108	5	818	5	234	3	33	<1	15	24	319	44	1,529
Beach	3	212	1	48	0	33	<1	23	<1	7	<1	224	4	547
Freshwater/Saline Marsh	44	397	10	626	12	193	0	4	<1	10	21	161	88	1,390
<b>Total Aquatic Habitat ESHA</b>	<b>55</b>	<b>717</b>	<b>15</b>	<b>1,493</b>	<b>17</b>	<b>460</b>	<b>3</b>	<b>60</b>	<b>&lt;1</b>	<b>32</b>	<b>45</b>	<b>703</b>	<b>136</b>	<b>3,466</b>

NOTES: Totals rounded to the nearest acre; "<1" indicates quantities less than one acre; "0" is null.

SOURCES: California Department of Fish and Wildlife (CDFW), 2013, VegCamp Palos Verdes Data; CDFW, 2015, VegCamp Orange County Data; CDFW, 2018, VegCamp San Diego County Data; CDFW, 2019, VegCamp Mendocino Data. All VegCamp datasets available at: <https://wildlife.ca.gov/Data/BIOS>; California Department of Forestry and Fire Protection, 2015, FVEG. Available at: <https://calfire.app.box.com/s/f3ajf1nmj7cd7isjimf52hdxrxtjyoy>

**Fresh/Marine Open Water Habitat**

Vegetation/habitat types in this category satisfied at least one of the criteria in Table 4.2-3. These include various fresh and marine open water habitats which contain sensitive vegetation alliances or associations, such as eelgrass (*Zostera [marina, pacifica]*) Pacific aquatic alliance; qualify as potential ESHA categorically, such as riverine; are protected in an LCP (most of the habitat types included in this category); and/or contain a CNDDDB occurrence record for sensitive habitat within this summary category or a special-status species that uses fresh or marine open water habitats.

The following LCPs identify vegetation/habitat types in this category as ESHA:

Cities of:

- Crescent City
- Arcata
- Santa Cruz
- Morro Bay
- Grover Beach
- Santa Barbara
- Goleta
- Carpinteria
- Ventura
- Oceanside
- Carlsbad
- Dana Point
- Newport Beach
- San Clemente

Counties of:

- Del Norte
- Humboldt
- Mendocino
- Sonoma
- Marin
- San Francisco
- San Mateo
- Santa Cruz
- Monterey
- San Luis Obispo
- Santa Barbara
- Ventura
- Orange

The subsections that follow present the special-status species with CNDDDB occurrence records documented within the Fresh/Marine Open Water ESHA habitat types of the biological resources study area.

### Special-Status Plants

Although fresh or marine open water habitats often contains submerged aquatic vegetation (e.g., macroalgae) they are typically devoid of rooted plant life. However, there are many CNDDDB occurrence records for plants commonly found in mesic or wetland habitat documented within this category. These species likely originated in adjacent vegetated habitats and occur along the margins of the open water habitat. The following special-status plants have CNDDDB occurrence records within vegetation/habitat types included in the Fresh/Marine Open Water ESHA category within the biological resources study area:

- California seablite
- estuary seablite (*Suaeda esteroa*)
- Franciscan thistle
- Humboldt Bay owl's clover
- Lyngbye's sedge
- Marin knotweed
- marsh sandwort
- Mendocino dodder (*Cuscuta pacifica* var. *papillata*)
- Palmer's Frankenia (*Frankenia palmeri*)
- Point Reyes salty bird's-beak (*Chloropyron maritimum* ssp. *palustre*)
- purple-stemmed checkerbloom
- saline clover
- salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*)
- San Diego marsh-elder
- water star-grass

### Sensitive Habitats

The following sensitive habitats have CNDDDB occurrence records within vegetation/habitat types included in the Fresh/Marine Open Water ESHA category within the biological resources study area:

- Coastal and Valley Freshwater Marsh
- Northern Coastal Salt Marsh
- Coastal Brackish Marsh

### Special-Status Animals

The following special-status animals have CNDDDB occurrence records within vegetation/habitat types included in the Fresh/Marine Open Water ESHA category within the biological resources study area:

#### Invertebrates

- California freshwater shrimp (*Syncaris pacifica*)
- Marin hesperian
- mimic tryonia (=California brackishwater snail; *Tryonia imitator*)
- wandering (=saltwater) skipper (*Panoquina errans*)
- western beach tiger beetle

#### Fish

- coast cutthroat trout
- coho salmon – central California coast ESU<sup>15</sup> (*Oncorhynchus kisutch* pop. 4)
- eulachon (*Thaleichthys pacificus*)
- green sturgeon – southern DPS<sup>16</sup> (*Acipenser medirostris* pop. 1)
- Gualala roach (*Hesperoleucus parvipinnis*)
- longfin smelt (*Spirinchus thaleichthys*)
- Monterey hitch (*Lavinia exilicauda harengus*)
- southern coastal roach (*Hesperoleucus venustus subditus*)
- steelhead – central California coast DPS<sup>17</sup> (*O. mykiss irideus* pop. 8)
- steelhead – south-central California coast DPS<sup>18</sup> (*O. mykiss irideus* pop. 9)
- steelhead – southern California DPS (*O. mykiss irideus* pop. 10)
- tidewater goby (*Eucyclogobius newberryi*)

#### Birds

- Belding's savannah sparrow
- California black rail (*Laterallus jamaicensis coturniculus*)
- California least tern
- California Ridgway's rail (*Rallus obsoletus obsoletus*)
- double-crested cormorant (*Nannopterum auritum*)
- great blue heron
- great egret
- light-footed Ridgway's rail
- western snowy plover
- yellow rail

#### Amphibians and Reptiles

- California red-legged frog
- foothill yellow-legged frog – north coast DPS (*Rana boylei* pop. 1)
- green sea turtle (*Chelonia mydas*)
- southern torrent salamander
- two-striped garter snake
- western pond turtle

<sup>15</sup> ESU = evolutionarily significant unit

<sup>16</sup> DPS = distinct population segment

<sup>17</sup> DPS = distinct population segment

<sup>18</sup> DPS = distinct population segment



### Mammals

- fringed myotis
- Humboldt mountain beaver
- Yuma myotis

### Beach

Vegetation/habitat types in this category satisfied at least one of the criteria in Table 4.2-3. These include various beach habitats which are identified for protection in an LCP and/or contain a CNDDDB occurrence record for a special-status species that uses beach habitats.

The following LCPs identify beach habitat types as ESHA:

#### Cities of:

- Half Moon Bay
- Grover Beach
- Goleta
- San Diego
- Dana Point

#### Counties of:

- Santa Cruz
- Mendocino

Although these LCPs identify beach habitats are ESHA, the Coastal Act policy which traditionally protects beach habitat is section 30230. The subsections that follow present the special-status species with CNDDDB occurrence records documented within the beach vegetation/habitat types of the biological resources study area.

### Special-Status Plants

The following special-status plants have CNDDDB occurrence records within vegetation/habitat types included in the beach habitat category within the biological resources study area:

- aphanisma
- beach goldenaster
- beach layia
- Blasdale's bent grass
- bluff wallflower
- Brand's star phacelia
- coast wooly-heads
- coast yellow leptosiphon
- coastal bluff morning-glory
- dark-eyed gilia
- Mendocino dodder
- Menzies' wallflower
- Nuttall's acmispon
- Orcutt's pincushion
- Palmer's frankenia
- perennial goldfields
- pink sand-verbena
- sand dune phacelia (*Phacelia argentea*)
- sand-loving wallflower
- seaside bird's-beak
- seaside pea
- short-leaved evax
- short-lobed broomrape
- twisted horsehair lichen
- Wolf's evening-primrose

### Special-Status Animals

The following special-status animals have CNDDDB occurrence records within vegetation/habitat types included in the beach habitat category within the biological resources study area:

*Invertebrates*

- globose dune beetle
- western beach tiger beetle
- Marin hesperian

*Birds*

- bank swallow
- burrowing owl
- California least tern
- western snowy plover

*Amphibians and Reptiles*

- northern California legless lizard
- southern California legless lizard

**Freshwater/Saline Marsh**

Vegetation/habitat types in this category satisfied at least one of the criteria in Table 4.2-3. These include various freshwater or saline marsh habitats which contain sensitive vegetation alliances or associations, such as alkali bulrush (*Bolboschoenus maritimus*) alliance; qualify as potential ESHA categorically, such as Vancouverian freshwater wet meadow and marsh group; are protected in an LCP; and/or those that contain a CNDDDB occurrence record for sensitive habitat within this summary category or a special-status species that uses freshwater or saline marsh habitats.

The following LCPs identify vegetation/habitat types in this category as ESHA:

Cities of:

- Crescent City
- Arcata
- Eureka
- Point Arena
- Santa Cruz
- Watsonville
- Morro Bay
- Grover Beach
- Santa Barbara
- Goleta
- Carpinteria
- Ventura
- Long Beach
- Oceanside
- San Diego
- Carlsbad
- Huntington Beach
- Dana Point
- San Clemente

Counties of:

- Del Norte
- Humboldt
- Mendocino
- Sonoma
- Marin
- San Mateo
- Monterey
- San Luis Obispo
- Santa Barbara
- Ventura
- Los Angeles

The subsections that follow present the special-status species with CNDDDB occurrence records documented within the Freshwater/Saline Marsh ESHA vegetation/habitat types of the biological resources study area.

### Special-Status Plants

The following special-status plants have CNDDDB occurrence records within vegetation/habitat types included in the Freshwater/Saline Marsh ESHA category within the biological resources study area:

- coast lily
- Coulter's goldfields (*Lasthenia glabrata* *ssp. coulteri*)
- estuary seablite
- green yellow sedge
- Humboldt Bay owl's clover
- lagoon sedge
- Lyngbye's sedge
- Marin knotweed
- papoose tarplant
- Point Reyes checkerbloom
- Point Reye's salty bird's-beak
- purple-stemmed checkerbloom
- saline clover
- salt marsh bird's-beak
- San Diego barrel cactus
- San Diego marsh-elder
- southern tarplant
- supple daisy
- swamp harebell
- variegated dudleya
- water star-grass
- western sand-spurrey (*Spergularia canadensis* *var. occidentalis*)
- woolly-headed gilia

### Sensitive Habitats

The following sensitive habitats have CNDDDB occurrence records within vegetation/habitat types included in the Freshwater/Saline ESHA category within the biological resources study area:

- Coastal and Valley Freshwater Marsh
- Northern Coastal Salt Marsh
- Southern Willow Scrub

### Special-Status Animals

The following special-status animals have CNDDDB occurrence records within vegetation/habitat types included in the Freshwater/Saline Marsh ESHA category within the biological resources study area:

#### *Invertebrates*

- Gertsch's socalchemmis spider
- Marin hesperian
- Mimic tryonia (=California brackishwater snail)
- San Diego fairy shrimp
- wandering (=saltwater) skipper
- western beach tiger beetle

#### *Fish*

- coast cutthroat trout
- coho salmon – central California coast ESU
- green sturgeon – southern DPS
- longfin smelt
- Monterey hitch
- steelhead – central California coast DPS
- tidewater goby

#### *Birds*

- Belding's savannah sparrow
- California black rail
- California least tern
- light-footed Ridgway's rail
- merlin

- California Ridgway's rail
- great blue heron
- great egret
- saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)
- tricolored blackbird

#### *Amphibians and Reptiles*

- California giant salamander
- California red-legged frog
- northern red-legged frog (*Rana aurora*)
- western pond turtle

#### *Mammals*

- American badger
- western red bat

### **Relevant Project Activities and Effects**

As discussed in Section 2.5, Project Elements, the project will involve staging and the installation of fiber-optic cable conduit, vaults, pullouts, and network hub shelters within the Caltrans right-of-way. Because the specific project alignment has not been finalized, the analysis conservatively assumes the project could impact coastal waters, wetlands, and/or ESHA through direct impacts (temporary or permanent) to sensitive vegetation communities, vegetation/habitat supporting special-status plants (and individual plants if present), or direct impacts to (i.e., mortality) and/or indirect effects on special-status animals utilizing (i.e., foraging and breeding) these sensitive areas. A description of the potential project effects on coastal waters, wetlands, and water quality, vegetation communities, and ESHA supporting special-status species is presented below.

### **Coastal Waters, Wetlands, and Water Quality**

The primary coastal waters and wetlands issues raised by the project concern the potential for direct disturbance from work within such areas and indirect disturbance from water quality impacts related to (1) the discharge of excavated materials, drilling muds, fluids and other materials from construction activities, (2) the risk of hydraulic fracturing (frac-out) from horizontal directional drilling (HDD), and (3) the potential for mobilization of residual contaminants in soil and groundwater. Each of these potential water quality issues could also affect habitat conditions of coastal waters and wetlands and their biological productivity.

The project is expected to be designed to avoid direct impacts to wetlands either from placement of fill or from discharge contamination (from excavated material or water quality degradation) by locating project elements and staging areas outside of and set back from such features. However, as there are approximately 210 acres of coastal waters and wetlands within the project area and given that the locations of many project elements have yet to be finalized, this analysis conservatively assumes that the project could inadvertently impact coastal waters and wetlands. Direct effects on such resources could include vegetation trampling and soil compaction from equipment operation or staging, vegetation clearing for access to work areas, soil excavation during network installation, placement of project elements in waters or wetlands, and topographic modifications affecting surface hydrology.

The construction activities that have the potential to discharge pollutants to coastal waters and wetlands include plowing, trenching, or excavation of the bore pits and the boring process for conduit installation; excavation for the vaults; and excavation and grading for the hub shelters, and grading and paving of new pullouts. Construction materials that could potentially contribute

to water quality and habitat degradation issues, either through direct discharge into coastal waters or indirectly through stormwater runoff, include drilling mud, equipment fuel, bore or trench spoils, concrete and asphalt, paints and solvents, and polymer and asphalt dust. Water quality impacts could result from the direct or indirect release (e.g., stormwater runoff) of such materials into coastal waters and wetlands. Because of the extent of watersheds traversed by the project, and quantity of coastal water features that intersect the project area, there is potential to indirectly impact aquatic resources located downstream of the project area through inadvertent release of hazardous materials or sediment into coastal waters that intersect the project area.

Construction activities that result in disturbance to contaminated soil or groundwater could also result in the upset or inadvertent release of hazardous materials into coastal waters. For example, Caltrans has stated that construction of the coastal MMBN project would cause disturbance of soil containing aerially deposited lead from the historical use of leaded gasoline.<sup>19</sup> Most of the soil excavated during the project would be used as backfill at the same location. However, as the project includes placement of new facilities, construction will produce surplus excavated material. Caltrans has stated that hauling all surplus excavated material to Class 2 and Class 3 landfills would possibly overwhelm landfill capacity, and so the agency instead intends to use the surplus material within the limits of the project wherever possible to create a pad around vaults, as fill material at the network hub locations, for maintenance vehicle pullouts, and to widen or flatten fill slopes. Direct lead exposure can result in various health impacts, including to the nervous system, blood, heart, liver, and reproductive system.<sup>20</sup> Caltrans, in coordination with the Department of Toxic Substances Control, has established a protocol for testing and determining whether and how to reuse or dispose of the excavated material, depending upon aerially deposited lead concentrations.<sup>21</sup>

The project's design guidelines state that Caltrans would utilize HDD or bridge mounting construction method at waterway crossings.<sup>22</sup> The HDD construction method minimizes impacts by limiting surface disturbance to bore entry/exit pits. While the final design details are not yet available, based upon the number of coastal water features that intersect the project, it is likely that this method could be utilized at hundreds of locations. The HDD construction method uses a polymer-bentonite clay/water mixture (drilling mud) that is pumped down the drill stem to lubricate the drill head and drill pipe, maintain the bore hole opening, and remove bore cuttings. This method produces a risk of hydraulic fractures, or "frac-outs," where drilling fluids from the drilling mud are discharged into the environment through fractures and other planes of weakness within the overlying material. Frac-outs result from drilling at too shallow a depth below the ground; drilling through brittle, fractured and/or poorly consolidated rocks or sediments; and

<sup>19</sup> California Department of Transportation (Caltrans) and California Department of Technology (CDT), 2023. Middle-Mile Broadband Network Design Guidelines. April 2023.

<sup>20</sup> California Department of Toxic Substances Control (DTSC), 2016. 2016 DTSC-Caltrans Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils, Frequency Asked Questions. October 2016. Available at: <https://dtsc.ca.gov/dtsc-caltrans-sma-faqs/#easy-faq-348202>

<sup>21</sup> DTSC. 2016. Community Update: Statewide Agreement for Caltrans for Reuse of Aerially Deposited Lead-Contaminated Soils. March 2016. Available online at: <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/f0004055-caltrans-fs-a11y.pdf>

<sup>22</sup> Caltrans and CDT, 2023. Middle-Mile Broadband Network Design Guidelines. April 2023. Table 5.1-2, Conduit Installation Selection Method

drilling with fluid pressures that are too high. The proposed HDD method could result in an inadvertent frac-out, which could degrade water quality as a result. In most cases, if fluid loss occurs, the fluid fills the formation voids and fractures and does not reach the ground surface. However, a surface release of sediment and drilling fluids could adversely affect water quality and/or sensitive habitat types.

Mounting broadband on bridges would avoid or minimize potential impacts to coastal waters, wetlands, and ESHA within the project area from vegetation removal, grading, excavation, or potential water quality impacts resulting from frac-outs by using existing infrastructure to cross such sensitivities along the alignment. Caltrans guidelines state that utilizing the existing bridge utility openings is preferred over exterior surface mounting. Mounted broadband is at greater risk of theft, vandalism, or damage than broadband installed underground using trenching and/or HDD installation methods.

### **Environmentally Sensitive Habitat Areas**

#### **Vegetation Communities**

Vegetation community ESHA within the study area comprises unique plant alliances or associations (e.g., *Eriophyllum staechadifolium* – *Erigeron glaucus* – *Eriogonum latifolium* alliance), or constitutes a unique habitat type (e.g., maritime chaparral), that could be impacted by project implementation. This discussion generally refers to ESHA which is inclusive of terrestrial and aquatic ESHA described above. The project is expected to be designed to avoid directly impacting ESHAs by locating project elements within disturbed or developed areas of the road right-of-way, outside of sensitive resources areas. Because of the extent of ESHA within the project area (terrestrial habitats comprising approximately 26 percent of the project area; aquatic habitats comprising 1 percent of the project area), there remains potential for inadvertent impacts to ESHA during construction. This analysis assumes that direct effects on ESHA could result during project construction, either incidentally or because there is no feasible alternative. Direct effects on ESHA could include vegetation trampling, placement of project materials preventing use of the ESHA as habitat, and vegetation removal (e.g., clearing, grubbing and/or grading project areas) which would significantly disrupt, degrade, or destroy the rare or sensitive vegetation community and/or habitat value of the ESHA. Project activities requiring vegetation removal within ESHA could include potholing (utility location), open-cut trench installation of the fiber optic conduit, establishment of paved pullouts, installation of the vaults and network hub locations, and excavation of bore pits to facilitate horizontal directional drilling (HDD; discussed further, below). Staging areas for construction personnel would be located in existing, previously cleared, graded or paved areas such that no new grading or vegetation clearing is required; therefore, direct impacts to ESHA from project staging is not expected.

Depending on the type of vegetation present and duration of recovery, these direct impacts on the ESHA from vegetation removal could be temporary or permanent. The Commission separates temporary impacts into two categories (short-term and long term) based on the duration of disturbance to the vegetation community and time it would take the vegetation to recover to the

same structure, stature, and maturity it possessed prior to disturbance.<sup>23</sup> Short-term temporary impacts are those that can be restored within 12 months of the initial disturbance and long-term temporary impacts are those that can be restored within 36 months<sup>24</sup> of initial disturbance. Permanent impacts are those that involve significant ground disturbance and complete removal of vegetation. To avoid or minimize the potential for direct impacts on ESHA the project's design guidelines state that Caltrans would utilize HDD or bridge mounting construction methods at waterway crossings, as discussed in the previous section.<sup>25</sup> As introduced in the previous section, the HDD construction method utilizes drilling mud to stabilize the borehole and lubricate the drill head and pipe as it bores through subsurface substrate. Due to variation in subsurface materials within the bore path and naturally occurring fissures, this method contains a risk of frac-outs, resulting in accidental release of the drilling fluid into the surrounding environment. Such a release within an ESHA would be a direct impact, degrading or disrupting the vegetation community/habitat value and preventing use until cleaned up. As discussed above, mounting broadband to existing bridge infrastructure spanning ESHA resources would effectively avoid or minimize surface disturbance to ESHA.

### Special Status-Species Habitat

Potential ESHAs (terrestrial or aquatic) within the biological resources study area provide suitable habitat for 232 special-status species and 8 sensitive habitats with documented CNDDDB occurrences.<sup>26</sup> The discussion of potential, inadvertent project impacts on these special-status species is presented below, organized by the following summary categories: plants, habitats, invertebrates, fish, birds, amphibians and reptiles, and mammals.

#### *Plants*

The project area and broader biological resources study area contain suitable habitat for special-status plants within each of the ESHA summary categories. A total of 145 special-status plant species are documented in CNDDDB with occurrence records located in the study area. Project activities could directly impact special-status plants through inadvertent trampling, ground disturbance (surface and subsurface disruption of soil seedbank), and placement of project equipment or materials; and indirectly through the introduction of competitive, invasive species. Each of these impacts would result in the mortality of special-status plants and/or habitat degradation.

#### *Habitats*

The project area and study area contain suitable habitat for 8 sensitive habitat types with CNDDDB occurrence records documented in riparian woodland/forest ESHA, woodland/forest ESHA, fresh/marine open water ESHA, or freshwater/saline marsh ESHA summary categories. Similar to potential project impacts on sensitive plants, project activities could directly impact sensitive habitats through inadvertent vegetation trampling, ground disturbance (surface and subsurface

<sup>23</sup> Garske-Garcia, Lauren, Ph.D. – Senior Ecologist. Memorandum: Impact Definitions and Mitigation Framework for Gleason's Beach Highway 1 Realignment. California Coastal Commission. October 8, 2020.

<sup>24</sup> To be characterized as a long-term temporary impact, the impact must occur over no more than 24 months and vegetation recovers to comparable age/size class no more than 12 months following the conclusion of disturbance.

<sup>25</sup> Caltrans, 2022. Middle-Mile Broadband Network Design Guidelines. Table 5.1-2, Conduit Installation Selection Method. April 2023.

<sup>26</sup> CDFW, 2023. California Natural Diversity Database. Biogeographic Data Branch.

disruption of soil seedbank), and placement of project equipment or materials that disrupts function or use; and indirectly through the introduction of competitive, invasive species which degrades the quality of these sensitive habitats.

#### *Invertebrates*

The project area and study area contain suitable habitat for 14 special-status invertebrates with CNDDDB occurrence records documented in each of the ESHA summary categories, excluding coastal bluff and rocky outcrop. Project activities could directly impact special-status invertebrates by inadvertently crushing individuals or trampling nests during vegetation removal, ground disturbance, and inadvertent placement of project materials. Indirect project impacts on special-status invertebrates would result from degradation of habitat, primarily associated with vegetation removal.

#### *Fish*

The project area and study area contain suitable aquatic habitat for 13 special-status fish species (including one evolutionarily significant unit [ESU]<sup>27</sup> for coho salmon, three distinct population segments [DPS]<sup>28</sup> for steelhead, and one DPS for green sturgeon) with CNDDDB occurrence records located within the fresh/marine open water, freshwater/saline marsh, and riparian forest/woodland ESHA summary categories. Potential project impacts on special-status fish would be indirect, resulting from the degradation of habitat associated with inadvertent release of hazardous materials affecting water quality. Project use of the HDD construction method in locations where the alignment crosses aquatic features could impact special-status fish habitat if a frac-out were to occur within occupied waterways.

#### *Birds*

The project area and study area contain suitable habitat for special-status birds within each of the ESHA summary categories except rocky outcrop. A total of 30 special-status bird species are documented in CNDDDB with occurrence records located within the study area. The study area also provides suitable habitat for numerous common, migratory birds. Special-status and common birds collectively utilize ESHA throughout the study area for foraging, breeding, and rearing young. Project activities could directly impact nesting birds by removing vegetation containing an occupied or active nest, or otherwise disrupting use of the habitat which inadvertently results in nest or young abandonment, or failure (mortality). Indirect project impacts may include the disruption of foraging/breeding activities within nearby ESHA, caused by noise and/or visual disturbance (such as artificial lighting) from adjacent construction activities. These disturbances may result from equipment and constructional personnel facilitating potholing, open-cut trenching and installation of

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<sup>27</sup> Evolutionarily Significant Units (ESU) are defined by the National Oceanic and Atmospheric Administration (NOAA) Fisheries under their Endangered Species Act (ESA) status reviews. They are defined as a population that is substantially reproductively isolated from conspecific populations and represents an important component in the evolutionary legacy of the species.

<sup>28</sup> Under the federal ESA, a distinct population segment (DPS) is a vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. A joint policy released by NOAA Fisheries and the U.S. Fish and Wildlife Service define the criteria for identifying a population as a DPS. The ESA provides for listing species, subspecies, or distinct population segments of vertebrate species. (<https://www.fisheries.noaa.gov/laws-and-policies/glossary-endangered-species-act>)



the vaults and paved pullouts, and HDD installation, and construction and operation of the hub locations.

#### *Amphibians and Reptiles*

The project area and study area contain suitable habitat for 15 special-status amphibians and reptiles documented in CNDDDB with occurrence records located within each of the ESHA summary categories, excluding coastal bluff and rocky outcrop. Project activities could directly impact special-status amphibians and reptiles by inadvertently crushing or otherwise causing the mortality of individuals (e.g., entrapment, desiccation, predation) and indirectly through habitat degradation by removing vegetation or degrading water quality. Direct impacts on individuals could result from project staging and placement of materials, vegetation clearing, potholing, open-cut trenching and installation of the vaults, and installation of the hubs during project construction. Inadvertent release of hazardous materials into occupied habitat impacting water quality, such as a frac-out of drilling mud from use of HDD construction method, could jeopardize special-status amphibians and/or reptiles inhabiting the subject feature. Noise and/or artificial light generated by the drilling equipment staged at the HDD entrance and exit pits, could disrupt special-status amphibian and reptile foraging/breeding activities within adjacent ESHA.

#### *Mammals*

The project area and study area contain suitable habitat for 15 special-status mammals documented in CNDDDB with occurrence records located within each of ESHA summary categories, excluding beach, coastal bluff, dune, and rocky outcrop. Project activities could directly impact special-status mammals by inadvertent crushing or otherwise causing the mortality of individuals (e.g., entrapment, abandonment of young, predation) and indirectly through habitat degradation, primarily associated with vegetation removal. Direct impacts on individuals could result from project staging and placement of materials, vegetation clearing, potholing, open-cut trenching and installation of the vaults, and installation of the hubs during project construction. Indirect project impacts may include the disruption of foraging/breeding activities within nearby ESHA, caused by noise and/or visual disturbance (such as artificial lighting) from adjacent construction activities or operation of the network hubs.

### **4.2.2.2 District Analysis**

The subsections that follow present the impact analysis for potential project effects on natural resources within each of the affected Caltrans districts, organized into two subsections: 1) coastal waters and wetlands, and 2) potential ESHA.

As explained in Section 4.2.1, *Statewide Project Analysis*, project construction activities proposed for each district could inadvertently directly impact wetlands and/or ESHA resources through vegetation trampling and soil compaction from equipment operation or staging, vegetation clearing for access to work areas, soil excavation during network installation, inadvertent placement of project materials in wetlands and/or ESHA, unintentional trampling or crushing of plants or animals during equipment operation, introduction of invasive plant species, and topographic modifications affecting surface hydrology. Project construction activities proposed for each district that involve earthwork; as well as the transport, use, and storage of construction materials, could degrade coastal water quality if directly discharged into or indirectly released (e.g., through stormwater runoff)

into coastal waters, wetlands, or ESHA. As also explained for *Statewide Project Analysis*, proposed project construction activities could indirectly disrupt special-status animal foraging/breeding activities within the nearby ESHA, due to increased noise or artificial lighting from nearby project construction activities and operation of the network hub locations.

As noted above, the project would utilize the HDD or bridge mounting construction method at coastal waterway and/or ESHA crossings to avoid fill of these resources.<sup>29</sup> Based upon the number of coastal waters and ESHA that intersect or comprise the project area, it is estimated that this method would be used at hundreds of locations. As discussed for *Statewide Project Analysis*, the HDD method produces a risk of frac-out which could adversely affect water quality and/or sensitive habitat types.

Table 4.2-1 (above) presents for each Caltrans district the number of coastal water features intersecting the project area. Table 4.2-2 (above) presents for each Caltrans district the acreage of coastal waters and wetlands (aquatic habitat summary categories) occurring within the project area and study area. Tables 4.2-4 and 4.2-5 (above) present for each Caltrans district the types and amounts of each terrestrial and aquatic ESHA category, respectively, occurring within the project area and study area. **Appendix F** (Table F-2) presents the acreage for each of the potential ESHA vegetation/habitat types within the summary ESHA categories. The individual vegetation/habitat types within each summary ESHA category varies between districts, and is presented in **Appendix F** (Tables F-3a and F-3b). A summary of the types and quantities of these features occurring within each district's project area, and potential project effects thereupon, is provided in the subsections that follow.

### ***District 1***

**Table 4.2-6** presents a summary of resources within the District 1 study area and project area.

#### **Coastal Waters and Wetlands**

The project area within District 1 traverses 18 watersheds. As shown in Table 4.2-1 and Table 4.2-6, the project area within District 1 intersects 720 coastal water features and contains 55 acres of potential coastal waters and wetlands. The project area intersects with several significant aquatic resources, including Humboldt Bay and the Klamath, Mad, Eel, Ten Mile, Noyo, Big, Albion, and Navarro rivers. As presented in Table 4.2-1, coastal waters that intersect the District 1 project area primarily include estuarine and marine deepwater, riverine, estuarine and marine wetlands, freshwater and emergent wetlands, and freshwater forested/shrub wetlands. Coastal water and wetland vegetation/habitat mapped within the District 1 project area consist of fresh/marine open water (7 acres), beach (3 acres), and freshwater/saline marsh (45 acres).

<sup>29</sup> Caltrans and CDT, 2023. Middle-Mile Broadband Network Design Guidelines. April 2023. Table 5.1-2, Conduit Installation Selection Method

**TABLE 4.2-6  
 DISTRICT 1 COASTAL WATERS AND WETLANDS, POTENTIAL ESHA, AND SPECIAL-STATUS SPECIES**

Resource	Extent within the Biological Resources Study Area (acres)	
	Project Area	Study Area
<b>Coastal Waters and Wetlands (Aquatic Habitats)</b>		
Fresh/Marine Open Water	7	122
Beach	3	284
Freshwater/Saline Marsh	45	397
<b>District 1 Totals</b>	<b>55</b>	<b>803</b>
<b>Terrestrial ESHA</b>		
Coastal Bluff	<1	12
Dune	20	116
Grassland/Herbaceous	172	2,187
Rocky Outcrop	0	3
Scrub	40	280
Riparian Woodland/Forest*	289	2,028
Woodland/Forest	566	5,428
<b>District 1 Totals</b>	<b>1,087</b>	<b>10,055</b>
<b>Aquatic ESHA</b>		
Fresh/Marine Open Water*	7	108
Beach	3	212
Freshwater/Saline Marsh*	44	397
<b>District 1 Totals</b>	<b>55</b>	<b>717</b>

**Special-Status Species within the Biological Resources Study Area**

Plants (49)	
<ul style="list-style-type: none"> <li>• alpine marsh violet</li> <li>• Baker's goldfields</li> <li>• beach layia</li> <li>• Blasdale's bent grass</li> <li>• bluff wallflower</li> <li>• bunchberry</li> <li>• coast lily</li> <li>• coastal bluff morning-glory</li> <li>• cylindrical trichodon</li> <li>• dark-eyed gilia</li> <li>• Del Norte pyrrocoma</li> <li>• ghost-pipe</li> <li>• great burnet</li> <li>• green yellow sedge</li> <li>• Howell's spineflower</li> </ul>	<ul style="list-style-type: none"> <li>• Oregon coast paintbrush</li> <li>• Oregon polemonium</li> <li>• Pacific gilia</li> <li>• perennial goldfields</li> <li>• pink sand-verbena</li> <li>• Point Reyes blennosperma</li> <li>• Point Reyes salty bird's-beak</li> <li>• purple-stemmed checkerbloom</li> <li>• pygmy cypress</li> <li>• Roderick's fritillary</li> <li>• running-pine</li> <li>• sand dune phacelia</li> <li>• seacoast ragwort</li> <li>• seaside pea</li> <li>• short-leaved evax</li> </ul>

**Special-Status Species within the Biological Resources Study Area**

- Humboldt Bay owl's-clover
- lagoon sedge
- leafy-stemmed mitrewort
- Lyngbye's sedge
- maple-leaved checkerbloom
- marsh pea
- Mendocino Coast paintbrush
- Mendocino dodder
- Methuselah's beard lichen
- naked flag moss
- Siskiyou checkerbloom
- spiral-spored gilded-head pin lichen
- supple daisy
- swamp harebell
- thin-lobed horkelia
- Tracy's romanzoffia
- twisted horsehair lichen
- western sand-spurrey
- Wolf's evening-primrose

**Habitats (4)**

- Coastal and Valley Freshwater Marsh
- Coastal Brackish Marsh
- Grand Fir Forest
- Northern Coastal Salt Marsh

**Animals (30)**

**Invertebrates (3)**

- Behren's silverspot butterfly
- monarch - California overwintering population
- obscure bumble bee

**Fish (7)**

- coast cutthroat trout
- eulachon
- green sturgeon - southern DPS
- Gualala roach
- longfin smelt
- northern coastal roach
- tidewater goby

**Birds (8)**

- bank swallow
- black-crowned night heron
- great blue heron
- marbled murrelet
- osprey
- purple martin
- snowy egret
- tricolored blackbird

**Amphibians and Reptiles (5)**

- California giant salamander
- Del Norte salamander
- northern red-legged frog
- Pacific tailed frog
- southern torrent salamander

**Mammals (7)**

- fringed myotis
- Humboldt mountain beaver
- North American porcupine
- Point Arena mountain beaver
- Sonoma tree vole
- Townsend's big-eared bat
- Yuma myotis

NOTES. Totals rounded to the nearest acre. Cells with "<1" indicate fractions of an acre; cells with "-" indicate total is null.  
 \* Potential ESHA that are also coastal waters or wetlands; DPS = distinct population segment

## Environmentally Sensitive Habitat Areas

As shown in Table 4.2-6, the biological resources study area within District 1 contains 10,055 acres of potential ESHA, 1,087 acres of which are in the project area. District 1 contains 717 acres of aquatic habitat with ESHA characteristics, 55 acres of which are in the project area. As the table also shows, 49 species of special-status plants, 4 sensitive habitats, and 30 species of special-status animals have been recorded in CNDDDB within the District 1 study area. The specific special-status species with occurrences documented within District 1 are listed above.

As shown in Table 4.2-6, the potentially affected resources would be the same as described for *Statewide Project Analysis*, but the specific habitat/vegetation composition within the various coastal water, wetlands, and ESHA categories would be different. **Appendix F** (Table F-4) presents for each Caltrans district the specific vegetation/habitat types and amounts (acres) associated with each ESHA summary category within the study area. Similarly, each of the associated special-status species categories identified for the study area within *Statewide Project Analysis* is also represented in the District 1 study area. However, as with the ESHA categories, the specific species composition within the various special-status species categories and sensitive habitats affected would be different. Table 4.2-6 lists the special-status species with occurrence records within District 1. The types of direct and indirect project effects on potential ESHA, special-status species and their habitats within District 1 would be the same as described for *Statewide Project Analysis*. Because rocky outcrop is not mapped within the project area, direct impacts on vegetation/habitats included in this ESHA summary category would not result from project construction.

## Hubs

The locations of potential hub sites #107 and #20 (both options in Mendocino County), are within upland areas that are not identified as aquatic resources or potential ESHA. No direct effects to coastal waters, wetlands, or ESHA would be expected from construction of these hub shelters. However, construction of each hub structure may involve activities that could indirectly impact nearby coastal waters through site runoff, if not properly controlled. Of the three potential hub site locations, only hub site #20 (Option 1) is located nearby a CNDDDB occurrence record for special-status species, which could be impacted by construction and/or operation of the hub site, discussed further below. No special-status species occurrences overlap the hub site locations #107 or #20 (Option 2).

### Hub Site #107

Hub site #107, at postmile MEN 59.237, is located within vegetation/habitat identified as Monterey pine and is not near mapped waters or wetlands. Vegetation removal and construction of this hub site could disrupt nesting birds if it was conducted during the nesting season.

### Hub Site #20 - Option 1 (North)

Hub site #20 (Option 1) is located at postmile MEN 23.295, within vegetation/habitat identified as agricultural (general). A freshwater emergent wetland is mapped approximately 100 feet northwest of the hub site #20 (Option 1) location. Riparian vegetation associated with a freshwater forested/shrub wetland and drainage tributary to Alder Creek is mapped on the opposite side of the roadway, 90 feet directly east and extending south of hub site #20 (Option 1). This unnamed

drainage with associated riparian and wetland vegetation contains a CNDDDB occurrence record for Point Arena mountain beaver. This area also provides suitable habitat for nesting birds. Because the proposed hub site #20 (Option 1) is not located within the riparian vegetation overlapping this occurrence, direct impacts on this habitat or occupants are not expected. Indirect impacts associated with noise and visual disturbance during project construction of the hub site #20 (Option 1) would be minimal because of the distance from the riparian habitat (approximately 90 feet to the east and 600 feet to the south). Potential impacts on Point Arena mountain beaver associated with the operation of hub site #20 (Option 1), such as artificial night lighting and increased ambient noise emitting from the structure, would be similarly minimal because of the distance between the hub site and suitable habitat.

#### Hub Site #20 - Option 2 (South)

Hub site #20 (Option 2) is located at postmile MEN 20.818, within a denuded roadside clearing with vegetation identified as annual grasses and forbs. The hub site is approximately 100 feet south of Brush Creek (riverine) and associated freshwater forested/shrub wetlands. Construction of this hub site could disrupt nesting birds if it was conducted during the nesting season.

### **District 4**

Table 4.2-7 presents a summary of resources within the District 4 study area and project area.

#### **Coastal Waters and Wetlands**

The project area within District 4 traverses 9 watersheds. As shown in Table 4.2-1 and Table 4.2-7, the project area within District 4 intersects 664 coastal water features and contains 17 acres of potential coastal waters and wetlands. The project area intersects with several significant aquatic resources, including Bodega and the Tomales bays, Bolinas Lagoon, the Gualala and Russian Rivers, along with many smaller creeks and drainages. As presented in Table 4.2-1, coastal waters that intersect the District 4 project area primarily include riverine, seep or springs, freshwater emergent wetlands, marsh, and freshwater forested/shrub wetlands. Coastal water and wetland vegetation/habitat mapped within the District 4 project area consist of fresh/marine open water (5 acres), beach (2 acres), and freshwater/saline marsh (10 acres).

#### **Environmentally Sensitive Habitat Areas**

As shown in Table 4.2-7, the biological resources study area within District 4 contains 9,354 acres of potential ESHA, 640 of which are in the project area. District 4 contains 1,493 acres of aquatic habitat with ESHA characteristics, 15 acres of which are in the project area. As the table also shows, 42 species of special-status plants, 3 sensitive habitats, and 31 species of special-status animals have been recorded within the District 4 study area. The specific special-status species with occurrences documented within District 4 are listed above.

**TABLE 4.2-7  
 DISTRICT 4 COASTAL WATERS AND WETLANDS, POTENTIAL ESHA, AND SPECIAL-STATUS SPECIES**

Resource	Extent within the Biological Resources Study Area (acres)	
	Project Area	Study Area
<b>Coastal Waters and Wetlands (Aquatic Habitats)</b>		
Fresh/Marine Open Water	5	1,007
Beach	2	103
Freshwater/Saline Marsh	10	638
<b>District 4 Totals</b>	<b>17</b>	<b>1,749</b>
<b>Terrestrial ESHA</b>		
Coastal Bluff	2	83
Dune	8	115
Grassland/Herbaceous	273	5,224
Rocky Outcrop	1	2
Scrub	93	714
Riparian Woodland/Forest	113	1,167
Woodland/Forest	151	2,049
<b>District 4 Totals</b>	<b>640</b>	<b>9,354</b>
<b>Aquatic ESHA</b>		
Fresh/Marine Open Water*	5	818
Beach	1	48
Freshwater/Saline Marsh*	10	626
<b>District 4 Totals</b>	<b>15</b>	<b>1,493</b>

**Special-Status Species within the Biological Resources Study Area**

Plants (42)	
• Baker's goldfields	• Methuselah's beard lichen
• bent-flowered fiddleneck	• Oregon polemonium
• Blasdale's bent grass	• Pacific gilia
• blue coast gilia	• pappose tarplant
• coast lily	• perennial goldfields
• coast yellow leptosiphon	• Point Reyes checkerbloom
• coastal bluff morning-glory	• Point Reyes horkelia
• congested-headed hayfield tarplant	• Point Reyes salty bird's-beak
• Contra Costa goldfields	• purple-stemmed checkerbloom
• dark-eyed gilia	• Raiche's red ribbons
• deceiving sedge	• Roderick's fritillary
• elongate copper moss	• San Francisco Bay spineflower
• fragrant fritillary	• Santa Cruz microseris
• Franciscan onion	• Scouler's catchfly
• Franciscan thistle	• short-leaved evax

**Special-Status Species within the Biological Resources Study Area**

<ul style="list-style-type: none"> <li>golden larkspur</li> <li>Humboldt Bay owl's-clover</li> <li>Lyngbye's sedge</li> <li>maple-leaved checkerbloom</li> <li>Marin checker lily</li> <li>Marin knotweed</li> </ul>	<ul style="list-style-type: none"> <li>Sonoma alopecurus</li> <li>supple daisy</li> <li>swamp harebell</li> <li>two-fork clover</li> <li>water star-grass</li> <li>woolly-headed gilia</li> </ul>
<b>Habitats (3)</b>	
<ul style="list-style-type: none"> <li>Coast and Valley Freshwater Marsh</li> <li>Coastal Brackish Marsh</li> </ul>	<ul style="list-style-type: none"> <li>Northern Coastal Salt Marsh</li> </ul>
<b>Animals (31)</b>	
<b>Invertebrates (5)</b>	
<ul style="list-style-type: none"> <li>Behren's silverspot butterfly</li> <li>California freshwater shrimp</li> <li>Marin hesperian</li> </ul>	<ul style="list-style-type: none"> <li>monarch - California overwintering population</li> <li>Myrtle's silverspot butterfly</li> </ul>
<b>Fish (6)</b>	
<ul style="list-style-type: none"> <li>coho salmon - central California coast ESU</li> <li>Gualala roach</li> <li>longfin smelt</li> </ul>	<ul style="list-style-type: none"> <li>southern coastal roach</li> <li>steelhead - central California coast DPS</li> <li>tidewater goby</li> </ul>
<b>Birds (10)</b>	
<ul style="list-style-type: none"> <li>California black rail</li> <li>California Ridgway's rail</li> <li>grasshopper sparrow</li> <li>great blue heron</li> <li>great egret</li> </ul>	<ul style="list-style-type: none"> <li>merlin</li> <li>osprey</li> <li>saltmarsh common yellowthroat</li> <li>tricolored blackbird</li> <li>western snowy plover</li> </ul>
<b>Amphibians and Reptiles (4)</b>	
<ul style="list-style-type: none"> <li>California giant salamander</li> <li>California red-legged frog</li> </ul>	<ul style="list-style-type: none"> <li>foothill yellow-legged frog - north coast DPS</li> <li>western pond turtle</li> </ul>
<b>Mammals (6)</b>	
<ul style="list-style-type: none"> <li>American badger</li> <li>pallid bat</li> <li>San Francisco dusky-footed woodrat</li> </ul>	<ul style="list-style-type: none"> <li>Sonoma tree vole</li> <li>Townsend's big-eared bat</li> <li>western red bat</li> </ul>

NOTES. Totals rounded to the nearest acre. Cells with "<1" indicate fractions of an acre; cells with "-" indicate total is null.

\* Potential ESHA that are also coastal waters or wetlands; DPS = distinct population segment



As shown in Table 4.2-7, the potentially affected ESHA categories would be the same as described for *Statewide Project Analysis*, but the specific habitat/vegetation composition within the various categories would be different. **Appendix F** (Table F-4) presents for each Caltrans district the specific vegetation/habitat types and amounts (acres) associated with each ESHA summary category within the study area (both terrestrial and aquatic). Similarly, each of the associated special-status species categories identified for the study area within *Statewide Project Analysis* is also represented in the District 4 study area. However, as with the ESHA categories, the specific species composition within the various special-status species categories and sensitive habitats affected would be different. Table 4.2-7 lists the special-status species with occurrence records within District 4. The types of direct and indirect project effects on potential ESHA, special-status species and their habitats within District 4 would be the same as described for *Statewide Project Analysis*.

## Hubs

The locations of potential hub sites #23 and #135 in Sonoma County and #136 in Marin County are within upland areas that are not identified as aquatic resources. Hub sites #23 and #135 are not near mapped waters or wetlands. No direct effects to coastal waters or wetlands would be expected from construction of the hub shelters. However, construction of each may involve activities that could indirectly impact coastal waters through site runoff, if not properly controlled.

### Hub Site #23

Hub site #23 is located at an existing maintenance yard, at postmile SON 35.327. It is within vegetation/habitat mapped as *Pinus muricata* (Bishop pine), identified as potential ESHA because it provides suitable habitat for Sonoma tree vole, which has a CNDDDB occurrence record overlapping the vegetation polygon. Bishop pine also provides habitat for nesting birds. Vegetation removal to facilitate hub construction could directly impact Sonoma tree vole through habitat removal and by crushing individuals. Vegetation removal affecting Bishop pine could result in direct impacts on nesting birds by compromising a nest, if conducted during the nesting season. Potential indirect impacts on Sonoma tree vole from either construction or operation of hub site #23 include exposure to increased ambient noise and visual disturbance related to construction personal and artificial night lighting. Noise and visual disturbance associated with construction of the hub site could also indirectly impact nesting birds by disrupting foraging and breeding behavior nearby, if conducted during the nesting season.

### Hub Site #135

Hub site #135 is located at an existing Caltrans maintenance yard, at postmile SON 11.585. It is surrounded by vegetation/habitat mapped as native and non-native perennial coastal grassland mapping unit and *Hesperocyparis macrocarpa* semi-natural alliance, both identified as potential ESHA. The former is categorically ESHA because of the rarity of native perennial grasslands throughout the state and for their tendency to host sensitive plant species. The latter provides suitable habitat for overwintering monarch butterflies, documented in CNDDDB overlapping the *Hesperocyparis macrocarpa* (Monterey cypress) semi-natural alliance polygon which abuts the proposed hub site #135 location. If required to facilitate network hub construction, removal of Monterey cypress could directly impact overwintering monarch butterflies through crushing

individuals (if present) and through habitat removal. Vegetation removal affecting Monterey cypress could result in direct impacts on nesting birds by compromising a nest, if conducted during the nesting season. Noise and visual disturbance associated with construction of the hub site could also indirectly impact nesting birds by disrupting foraging and breeding behavior nearby, if conducted during the nesting season. Operation of hub site #135 could indirectly impact overwintering monarch butterflies through exposure to increased ambient noise emitting from the structure and visual disturbance related to artificial night lighting.

#### Hub Site #136

Hub site #136 is located within a Caltrans maintenance yard, at postmile MRN 28.039. It is approximately 400 feet east of Olema Creek (riverine), and adjacent to a mapped Freshwater Forested/Shrub Wetland and *Salix gooddingii*-*Salix lasiolepis* alliance vegetation, identified as potential ESHA. Direct impacts on vegetation are not expected at this location because of the siting within an existing developed (paved) maintenance yard. Because the hub site would be located in the vicinity of an existing leach field, final siting will be determined following a leach field study. CNDDDB contains occurrence records for coho salmon (central California coast ESU) within nearby Olema Creek and California red-legged frog in the Olema Creek associated wetlands, riparian vegetation and abutting perennial grasslands, approximately 300 feet southeast of the hub site #136 location. This area also provides suitable habitat for nesting birds. Construction of the hub site could indirectly impact Olema Creek, associated riparian and wetland vegetation (also identified as potential ESHA), and coho salmon and California red-legged frog, if present, through degradation of water quality through site runoff, if not properly controlled. Because of the distance between the proposed hub site and riparian vegetation providing habitat for nesting birds, indirect impacts associated with construction of the hub site from increased noise and visual disturbance would be minimal.

### ***District 5***

**Table 4.2-8** presents a summary of resources within the District 5 study area and project area.

#### **Coastal Waters and Wetlands**

The project area within District 5 traverses 12 watersheds. As shown in Table 4.2-1 and Table 4.2-8, the project area within District 5 intersects 347 coastal waters and contains 17 acres of potential coastal waters and wetlands. The project area intersects with several significant aquatic resources, including Soquel Creek, Elkhorn Slough, the Salinas River, and San Pedro Creek, along with many smaller creeks and drainages. As presented in Table 4.2-1, coastal waters that intersect the District 5 project area primarily include riverine, freshwater and emergent wetlands, freshwater forested/shrub wetlands, and estuarine and marine wetlands. Coastal water and wetland vegetation/habitat mapped within the District 5 project area consist of fresh/marine open water (5 acres) and freshwater/saline marsh (12 acres).

**TABLE 4.2-8  
 DISTRICT 5 COASTAL WATERS AND WETLANDS, POTENTIAL ESHA, AND SPECIAL-STATUS SPECIES**

Resource	Extent within the Biological Resources Study Area (acres)	
	Project Area	Study Area
<b>Coastal Waters and Wetlands (Aquatic Habitats)</b>		
Fresh/Marine Open Water	5	357
Beach	0	34
Freshwater/Saline Marsh	12	193
<b>District 5 Totals</b>	<b>17</b>	<b>583</b>
<b>Terrestrial ESHA</b>		
Coastal Bluff	0	3
Dune	112	586
Grassland/Herbaceous	284	2,274
Rocky Outcrop	0	0
Scrub	207	929
Riparian Woodland/Forest	37	311
Woodland/Forest	198	1,137
<b>District 5 Totals</b>	<b>839</b>	<b>5,241</b>
<b>Aquatic ESHA</b>		
Fresh/Marine Open Water*	5	234
Beach	0	33
Freshwater/Saline Marsh*	12	193
<b>District 5 Totals</b>	<b>17</b>	<b>460</b>

**Special-Status Species within the Biological Resources Study Area**

Plants (39)	
<ul style="list-style-type: none"> <li>• Anderson's manzanita</li> <li>• Betty's dudleya</li> <li>• black-flowered figwort</li> <li>• Blochman's dudleya</li> <li>• California saw-grass</li> <li>• California seablite</li> <li>• Cambria morning-glory</li> <li>• coastal goosefoot</li> <li>• dune larkspur</li> <li>• Eastwood's goldenbush</li> <li>• Gowen cypress</li> <li>• Hooker's manzanita</li> <li>• Hoover's bent grass</li> <li>• Jones' layia</li> </ul>	<ul style="list-style-type: none"> <li>• Monterey pine</li> <li>• Monterey spineflower</li> <li>• Nipomo Mesa lupine</li> <li>• Pajaro manzanita</li> <li>• pine rose</li> <li>• saline clover</li> <li>• salt marsh bird's-beak</li> <li>• San Luis Obispo monardella</li> <li>• San Luis Obispo owl's-clover</li> <li>• sand-loving wallflower</li> <li>• sandmat manzanita</li> <li>• Santa Cruz tarplant</li> <li>• Santa Lucia bush-mallow</li> <li>• Santa Margarita manzanita</li> </ul>

**Special-Status Species within the Biological Resources Study Area**

<ul style="list-style-type: none"> <li>• Kellogg's horkelia</li> <li>• marsh sandwort</li> <li>• Menzies' wallflower</li> <li>• Miles' milk-vetch</li> <li>• Monterey clover</li> <li>• Monterey gilia</li> </ul>	<ul style="list-style-type: none"> <li>• seaside bird's-beak</li> <li>• southern tarplant</li> <li>• white-veined monardella</li> <li>• woodland woollythreads</li> <li>• Yadon's rein orchid</li> </ul>
<b>Habitats (2)</b>	
<ul style="list-style-type: none"> <li>• Coastal and Valley Freshwater Marsh</li> </ul>	<ul style="list-style-type: none"> <li>• Northern Bishop Pine Forest</li> </ul>
<b>Animals (32)</b>	
<b>Invertebrates (6)</b>	
<ul style="list-style-type: none"> <li>• globose dune beetle</li> <li>• mimic tryonia (=California brackishwater snail)</li> <li>• monarch – California overwintering population</li> <li>• Morro shoulderband</li> </ul>	<ul style="list-style-type: none"> <li>• wandering (=saltmarsh) skipper</li> <li>• western bumble bee</li> </ul>
<b>Fish (3)</b>	
<ul style="list-style-type: none"> <li>• Monterey hitch</li> <li>• steelhead – south-central California coast DPS</li> </ul>	<ul style="list-style-type: none"> <li>• tidewater goby</li> </ul>
<b>Birds (12)</b>	
<ul style="list-style-type: none"> <li>• Belding's savannah sparrow</li> <li>• black swift</li> <li>• burrowing owl</li> <li>• California horned lark</li> <li>• double-crested cormorant</li> <li>• ferruginous hawk</li> </ul>	<ul style="list-style-type: none"> <li>• great blue heron</li> <li>• great egret</li> <li>• light-footed Ridgway's rail</li> <li>• northern harrier</li> <li>• tricolored blackbird</li> <li>• western snowy plover</li> </ul>
<b>Amphibians and Reptiles (6)</b>	
<ul style="list-style-type: none"> <li>• California legless lizard</li> <li>• California red-legged frog</li> <li>• Northern California legless lizard</li> </ul>	<ul style="list-style-type: none"> <li>• Santa Cruz long-toed salamander</li> <li>• two-striped gartersnake</li> <li>• western pond turtle</li> </ul>
<b>Mammals (5)</b>	
<ul style="list-style-type: none"> <li>• big free-tailed bat</li> <li>• fringed myotis</li> <li>• Salinas harvest mouse</li> </ul>	<ul style="list-style-type: none"> <li>• Townsend's big-eared bat</li> <li>• Yuma myotis</li> </ul>

NOTES. Totals rounded to the nearest acre. Cells with "<1" indicate fractions of an acre; cells with "-" indicate total is null.

\* Potential ESHA that are also coastal waters or wetlands; DPS = distinct population segment

### Environmentally Sensitive Habitat Areas

As shown in Table 4.2-8, the biological resources study area within District 5 contains 5,241 acres of potential ESHA, 839 of which are in the project area. District 5 contains 460 acres of aquatic habitat with ESHA characteristics, 17 acres of which are in the project area. As the table also shows, 39 species of special-status plants, 2 sensitive habitats, and 32 species of special-status animals have been recorded within the District 5 study area. The specific special-status species with occurrences documented within District 5 are listed above.

As shown in Table 4.2-8, the potentially affected ESHA categories would be the same as described for *Statewide Project Analysis*, with the exception of rocky outcrop ESHA which is not mapped within the study area, but the specific habitat/vegetation composition within the various categories would be different. **Appendix F** (Table F-4) presents for each Caltrans district the specific vegetation/habitat types and amounts (acres) associated with each ESHA summary category within the study area. Similarly, each of the associated special-status species categories identified for the study area within *Statewide Project Analysis* is also represented in the District 5 study area. However, as with the ESHA categories, the specific species composition within the various special-status species categories and sensitive habitats affected would be different. Table 4.2-8 lists the special-status species with occurrence records within District 5. The types of direct and indirect project effects on potential ESHA, special-status species and their habitats within District 5 would be the same as described for *Statewide Project Analysis*. Because coastal bluff and rocky outcrop are not mapped within the project area, direct impacts on vegetation/habitats included in these ESHA summary categories would not result from project construction. There are no network hub sites within the District 5 study area.

### District 7

**Table 4.2-9** presents a summary of resources within the District 7 study area and project area.

**TABLE 4.2-9  
 DISTRICT 7 COASTAL WATERS AND WETLANDS, POTENTIAL ESHA, AND SPECIAL-STATUS SPECIES**

Resource	Extent within the Biological Resources Study Area (acres)	
	Project Area	Study Area
<b>Coastal Waters and Wetlands (Aquatic Habitats)</b>		
Fresh/Marine Open Water	6	129
Beach	<1	27
Freshwater/Saline Marsh	3	10
<b>District 7 Totals</b>	<b>9</b>	<b>166</b>
<b>Terrestrial ESHA</b>		
Coastal Bluff	0	0
Dune	15	106
Grassland/Herbaceous	0	1
Rocky Outcrop	0	1

Scrub	119	812
Riparian Woodland/Forest	14	186
Woodland/Forest	16	144
<b>District 7 Totals</b>	<b>165</b>	<b>1,252</b>
<b>Aquatic ESHA</b>		
Fresh/Marine Open Water*	3	33
Beach	<1	23
Freshwater/Saline Marsh*	0	4
<b>District 7 Totals</b>	<b>3</b>	<b>60</b>

**Special-Status Species within the Biological Resources Study Area**

<b>Plants (9)</b>	
<ul style="list-style-type: none"> <li>Aphanisma</li> <li>Braunton's milk-vetch</li> <li>Coulter's saltbush</li> <li>estuary seablite</li> <li>Orcutt's pincushion</li> </ul>	<ul style="list-style-type: none"> <li>Santa Monica dudleya</li> <li>slender mariposa-lily</li> <li>south coast saltscale</li> <li>white-veined monardella</li> </ul>
<b>Habitats (2)</b>	
<ul style="list-style-type: none"> <li>Southern California Steelhead Stream</li> </ul>	<ul style="list-style-type: none"> <li>Southern Sycamore Alder Riparian Woodland</li> </ul>
<b>Animals (11)</b>	
<b>Invertebrates (3)</b>	
<ul style="list-style-type: none"> <li>Gertsch's socialchemmis spider</li> <li>globose dune beetle</li> </ul>	<ul style="list-style-type: none"> <li>monarch - California overwintering population</li> </ul>
<b>Fish (-)</b>	
<b>Birds (3)</b>	
<ul style="list-style-type: none"> <li>burrowing owl</li> <li>least Bell's vireo</li> </ul>	<ul style="list-style-type: none"> <li>western snowy plover</li> </ul>
<b>Amphibians and Reptiles (4)</b>	
<ul style="list-style-type: none"> <li>California legless lizard</li> <li>green turtle</li> </ul>	<ul style="list-style-type: none"> <li>San Bernardino ringneck snake</li> <li>western pond turtle</li> </ul>
<b>Mammals (1)</b>	
<ul style="list-style-type: none"> <li>San Diego desert woodrat</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>

NOTES. Totals rounded to the nearest acre. Cells with "<1" indicate fractions of an acre; cells with "-" indicate total is null.  
 \* Potential ESHA that are also coastal waters or wetlands; DPS = distinct population segment

## Coastal Waters and Wetlands

The project area within District 7 traverses 6 watersheds. As shown in Table 4.2-1 and Table 4.2-9, the project area within District 7 intersects 121 coastal waters and contains 9 acres of potential coastal waters and wetlands. The project area intersects with several significant aquatic resources, including El Estero marsh and the Ventura River in Santa Barbara County and the San Gabriel River in Los Angeles County, along with many smaller creeks and drainages. As presented in Table 4.2-1, coastal waters that intersect the District 7 project area primarily include freshwater forested/shrub wetlands, riverine, and estuarine and marine wetlands. Coastal water and wetland vegetation/habitat mapped within the District 7 project area consist of fresh/marine open water (6 acres), beach (<1), and freshwater/saline marsh (3 acres).

## Environmentally Sensitive Habitat Areas

As shown in Table 4.2-9, the biological resources study area within District 7 contains 1,252 acres of potential ESHA, 165 of which are in the project area. District 7 contains 60 acres of aquatic habitat with ESHA characteristics, 3 acres of which are in the project area. As the table also shows, 9 species of special-status plants, 2 sensitive habitats, and 11 species of special-status animals have been recorded within the District 7 study area. The specific special-status species with occurrences documented within District 7 is provided above.

As shown in Table 4.2-9, the potentially affected ESHA categories would be the same as described for *Statewide Project Analysis*, with the exception of coastal bluff ESHA, which is not mapped within the District 7 study area. **Appendix F** (Table F-4) presents for each Caltrans district the specific vegetation/habitat types and amounts (acres) associated with each ESHA summary category within the study area. Similarly, each of the associated special-status species categories identified for the study area within *Statewide Project Analysis* is also represented in the District 7 study area, with the exception of special-status fish species. As with the ESHA categories, the specific species composition within the various special-status species categories and sensitive habitats affected would be different. Table 4.2-9 lists the special-status species with occurrence records within District 7. The types of direct and indirect project effects on potential ESHA, special-status species and their habitats within District 7 would be the same as described for *Statewide Project Analysis*, with the exception of potential impacts on coastal bluff ESHA or special-status fish. Because coastal bluff, grassland/herbaceous, and rocky outcrop are not mapped within the project area, direct impacts on vegetation/habitat included in these ESHA summary categories would not result from project construction. There are no network hub sites within the District 7 study area.

## District 12

**Table 4.2-10** presents a summary of resources within the District 12 study area and project area.

**TABLE 4.2-10  
 DISTRICT 12 COASTAL WATERS AND WETLANDS, POTENTIAL ESHA, AND SPECIAL-STATUS SPECIES**

Resource	Extent within the Biological Resources Study Area (acres)	
	Project Area	Study Area
<b>Coastal Waters and Wetlands (Aquatic Habitats)</b>		
Fresh/Marine Open Water	<1	20
Beach	<1	7
Freshwater/Saline Marsh	<1	10
<b>District 12 Totals</b>	<b>&lt;1</b>	<b>37</b>
<b>Terrestrial ESHA</b>		
Coastal Bluff	0	0
Dune	0	0
Grassland/Herbaceous	1	42
Rocky Outcrop	0	2
Scrub	4	141
Riparian Woodland/Forest	<1	17
Woodland/Forest	<1	25
<b>District 12 Totals</b>	<b>5</b>	<b>226</b>
<b>Aquatic ESHA</b>		
Fresh/Marine Open Water*	<1	15
Beach	<1	7
Freshwater/Saline Marsh*	<1	10
<b>District 12 Totals</b>	<b>&lt;1</b>	<b>32</b>
<b>Special-Status Species within the Biological Resources Study Area</b>		
<b>Plants (5)</b>		
<ul style="list-style-type: none"> <li>• chaparral ragwort</li> <li>• Laguna Beach dudleya</li> <li>• Santa Catalina Island desert-thorn</li> </ul>	<ul style="list-style-type: none"> <li>• South coast saltscale</li> <li>• southern tarplant</li> </ul>	
<b>Habitats (-)</b>		
<b>Animals (10)</b>		
<b>Invertebrates (1)</b>		
<ul style="list-style-type: none"> <li>• wandering (=saltmarsh) skipper</li> </ul>		
<b>Fish (1)</b>		
<ul style="list-style-type: none"> <li>• steelhead - southern California DPS</li> </ul>		



**Special-Status Species within the Biological Resources Study Area**

Birds (7)	
<ul style="list-style-type: none"> <li>• Belding's savannah sparrow</li> <li>• coastal California gnatcatcher</li> <li>• southern California rufous-crowned sparrow</li> </ul>	<ul style="list-style-type: none"> <li>• western snowy plover</li> <li>• yellow rail</li> <li>• yellow warbler</li> <li>• yellow-breasted chat</li> </ul>
Amphibians and Reptiles (1)	
<ul style="list-style-type: none"> <li>• green turtle</li> </ul>	
Mammals (-)	
<p>NOTES. Totals rounded to the nearest acre. Cells with "&lt;1" indicate fractions of an acre; cells with "-" indicate total is null.                  * Potential ESHA that are also coastal waters or wetlands; DPS = distinct population segment</p>	

**Coastal Waters and Wetlands**

The project area within District 12 traverses 5 watersheds. As shown in Table 4.2-1, the project area within District 12 intersects 28 coastal waters, primarily consisting of riverine and freshwater forested/shrub wetlands. The significant aquatic resources intersecting the project area include Newport Beach and San Juan Creek, along with several smaller creeks and drainages. As presented in Table 4.2-10, less than one acre of coastal water and wetland vegetation/habitats are mapped within the District 12 project area, composed of fresh/marine open water (0.03 acre), beach (0.003), and freshwater/saline marsh (0.04 acre).

**Environmentally Sensitive Habitat Areas**

As shown in Table 4.2-10, the biological resources study area within District 12 contains 226 acres of potential ESHA, 5 of which are in the project area. District 12 contains 32 acres of aquatic habitat with ESHA characteristics, <1 acre of which is in the project area. As the table also shows, 5 species of special-status plants and 10 species of special-status animals have been recorded within the District 12 study area. The specific special-status species with occurrences documented within District 12 is provided above.

As shown in Table 4.2-10, the potentially affected ESHA categories would be the same as described for *Statewide Project Analysis*, with the exception of coastal bluff ESHA and dune ESHA which are not mapped in the study area, but the specific habitat/vegetation composition within the various categories would be different. **Appendix F** (Table F-4) presents for each Caltrans district the specific vegetation/habitat types and amounts (acres) associated with each ESHA summary category within the study area. Similarly, each of the associated special-status species categories identified for the study area within *Statewide Project Analysis* is also represented in the District 12 study area, with the exception of special-status mammals. However, as with the ESHA categories, the specific species composition within the various special-status species categories would be different. Table 4.2-10 lists the special-status species with occurrence records within District 12. The types of direct and indirect project effects on potential ESHA, special-status species and their habitats within District 12 would be the same as described for

*Statewide Project Analysis*, except for direct impacts on vegetation/habitat types included in the coastal bluff, dune, and rocky outcrop ESHA summary categories which are not mapped in the project area. There are no network hub sites within the District 12 study area.

**District 11**

**Table 4.2-11** presents a summary of resources within the District 12 study area and project area.

**TABLE 4.2-11  
 DISTRICT 11 COASTAL WATERS AND WETLANDS, POTENTIAL ESHA, AND SPECIAL-STATUS SPECIES**

Resource	Extent within the Biological Resources Study Area (acres)	
	Project Area	Study Area
<b>Coastal Waters and Wetlands (Aquatic Habitats)</b>		
Fresh/Marine Open Water	90	536
Beach	<1	224
Freshwater/Saline Marsh	21	161
<b>District 11 Totals</b>	<b>112</b>	<b>921</b>
<b>Terrestrial ESHA</b>		
Coastal Bluff	0	0
Dune	17	61
Grassland/Herbaceous	1	19
Rocky Outcrop	0	0
Scrub	50	193
Riparian Woodland/Forest	5	39
Woodland/Forest	0	0
<b>District 11 Totals</b>	<b>73</b>	<b>312</b>
<b>Aquatic ESHA</b>		
Fresh/Marine Open Water*	24	319
Beach	<1	224
Freshwater/Saline Marsh*	21	161
<b>District 11 Totals</b>	<b>45</b>	<b>703</b>

**Special-Status Species within the Biological Resources Study Area**

Plants (28)	
<ul style="list-style-type: none"> <li>• aphanisma</li> <li>• beach goldenaster</li> <li>• Brand's star phacelia</li> <li>• California adolphia</li> <li>• cliff spurge</li> <li>• coast woolly-heads</li> <li>• Coulter's goldfields</li> </ul>	<ul style="list-style-type: none"> <li>• Orcutt's pincushion</li> <li>• Palmer's frankenia</li> <li>• salt marsh bird's-beak</li> <li>• San Diego ambrosia</li> <li>• San Diego barrel cactus</li> <li>• San Diego marsh-elder</li> <li>• sea dahlia</li> </ul>

**Special-Status Species within the Biological Resources Study Area**

<ul style="list-style-type: none"> <li>• Coulter's saltbush</li> <li>• decumbent goldenbush</li> <li>• Del Mar manzanita</li> <li>• Del Mar Mesa sand aster</li> <li>• estuary seablite</li> <li>• Nuttall's acmispon</li> <li>• Nuttall's scrub oak</li> </ul>	<ul style="list-style-type: none"> <li>• Shaw's agave</li> <li>• short-lobed broomrape</li> <li>• south coast saltscale</li> <li>• sticky dudleya</li> <li>• summer holly</li> <li>• variegated dudleya</li> <li>• wart-stemmed ceanothus</li> </ul>
<b>Habitats (1)</b>	
Southern Willow Scrub	
<b>Animals (13)</b>	
<b>Invertebrates (3)</b>	
<ul style="list-style-type: none"> <li>• mimic tryonia (=California brackishwater snail)</li> <li>• San Diego fairy shrimp</li> </ul>	western beach tiger beetle
<b>Fish (1)</b>	
<ul style="list-style-type: none"> <li>• tidewater goby</li> </ul>	-
<b>Birds (7)</b>	
<ul style="list-style-type: none"> <li>• Belding's savannah sparrow</li> <li>• California black rail</li> <li>• California least tern</li> <li>• coastal California gnatcatcher</li> </ul>	<ul style="list-style-type: none"> <li>• least Bell's vireo</li> <li>• light-footed Ridgway's rail</li> <li>• western snowy plover</li> </ul>
<b>Amphibians and Reptiles (1)</b>	
<ul style="list-style-type: none"> <li>• Southern California legless lizard</li> </ul>	
<b>Mammals (1)</b>	
northwestern San Diego pocket mouse	
<p>NOTES. Totals rounded to the nearest acre. Cells with "&lt;1" indicate fractions of an acre; cells with "-" indicate total is null.                      * Potential ESHA that are also coastal waters or wetlands; DPS = distinct population segment</p>	

**Coastal Waters and Wetlands**

The project area within District 11 traverses 8 watersheds. As shown in Tables 4.2-1 and 4.2-11, the project area within District 11 intersects 145 coastal waters and contains 112 acres of potential coastal waters and wetlands. The project area intersects with several significant aquatic resources, including the San Luis Rey River, Buena Vista Lagoon, Agua Hedionda Creek, several estuaries, the San Elijo Lagoon Reserve, the San Diego Bay and the San Diego Bay National Wildlife Refuge, along with many smaller creeks and drainages. As presented in Table 4.2-1, coastal waters that intersect the District 11 project area primarily include estuarine and marine wetlands, freshwater forested/shrub wetlands, freshwater emergent wetlands, and estuarine and marine/deepwater. Coastal water and wetland vegetation/habitat mapped within the District 11 project area consist of fresh/marine open water (90 acres), beach (0.2 acre), and freshwater/saline marsh (21 acres).

## Environmentally Sensitive Habitat Areas

As shown in Table 4.2-11, the biological resources study area within District 11 contains 312 acres of potential ESHA, 73 of which are in the project area. District 11 contains 703 acres of aquatic habitat with ESHA characteristics, 45 acres of which are in the project area. As the table also shows, 28 species of special-status plants, 1 sensitive habitat, and 13 species of special-status animals have been recorded within the District 11 study area. The specific special-status species with occurrences documented within District 11 are listed above.

As shown in Table 4.2-11, the potentially affected ESHA categories would be the same as described for *Statewide Project Analysis*, with the exception of coastal bluff, rocky outcrop and woodland/forest which are not mapped in the District 11 study area. **Appendix F** (Table F-4) presents for each Caltrans district the specific vegetation/habitat types and amounts (acres) associated with each ESHA summary category within the study area. Similarly, each of the associated special-status species categories identified for the study area within *Statewide Project Analysis* is also represented in the District 11 study area, with the exception of special-status fish species. As with the ESHA categories, the specific species composition within the various special-status species categories and sensitive habitats affected would be different. Table 4.2-11 lists the special-status species with occurrence records within District 11. The types of direct and indirect project effects on potential ESHA, special-status species and their habitats within District 11 would be the same as described for *Statewide Project Analysis*, with the exception of potential impacts on coastal bluff, rocky outcrop, and woodland/forest ESHA or special-status fish. There are no network hub sites within the District 11 study area.

## 4.2.3 Consistency Analysis

This section provides an assessment of whether any project elements or activities could raise consistency issues with Coastal Act or LCP coastal waters, wetlands, water quality, or ESHA policies (Section 4.2.1, *Policy Considerations*). A full list of relevant LCP policies is presented in **Appendix E**. Where the analysis finds that project activities could raise such issues, avoidance and minimization measures are recommended to prevent or minimize impacts and address potential policy conflicts. The full text of the recommended measures is presented in Section 4.2.4.

### 4.2.3.1 Coastal Waters and Wetlands

The project is expected to be designed to avoid directly impacting coastal waters and wetlands by siting project elements within disturbed or developed upland areas of the road right-of-way. However, there are many coastal waters and wetlands within and adjacent to the project area along much of the project alignment. In many areas, development is proposed immediately adjacent to coastal waters or wetlands with little buffer. For example, portions of the project area in District 1 would traverse Humboldt Bay and associated estuarine and marine wetlands and freshwater emergent wetlands. As a result, construction of proposed coastal MMBN project elements, including both above- and underground project elements, could directly impact waters and wetlands during project construction, including through inadvertent vegetation trampling and soil compaction from equipment operation or staging, vegetation clearing for access to work

areas, soil excavation during network installation, placement of project elements in wetlands, and topographic modifications affecting surface hydrology.

If the above-described project activities were to inadvertently affect the biological productivity of coastal waters, interfere with surface water flow, or violate protective buffers for riparian habitat and wetlands within and adjacent to the project area, the project could raise consistency issues with Coastal Act sections 30230, 30231, 30232 and related LCP policies. Furthermore, such activities could raise issues with Coastal Act section 30233, because there would have been no analysis of alternatives or mitigation applied.

The following measures are recommended to address the Coastal Act requirements and avoid or minimize project impacts to coastal waters and wetlands. **Avoidance and Minimization Measure BIO-1, Resource Review and General Pre-construction Surveys**, requires a pre-construction review of mapped coastal waters and wetlands from the coastal MMBN project GIS database, a general pre-construction survey to verify the presence/absence of coastal waters and wetlands prior to the start of work for a given project segment, and application of adaptive construction methods to avoid impacts to coastal waters and wetlands. **Avoidance and Minimization Measure BIO-2, Worker Environmental Awareness Training**, calls for a qualified biologist to provide awareness training to construction personnel ahead of construction of a given project segment, to increase awareness about coastal waters and wetlands in the project area. **Avoidance and Minimization Measure BIO-3, Biological Monitoring**, requires that a qualified biologist be present onsite during construction to monitor all ground-disturbing activities within 200 feet of coastal waters and wetlands. **Avoidance and Minimization Measure BIO-5, Coastal Waters/Wetlands/ESHA**, calls for establishment of an exclusion buffer of 200 feet around aquatic resources where feasible and outlines preferred construction methods within or near coastal waters and wetlands. **Avoidance and Minimization Measure WET-5, Frac-Out Contingency Plan**, requires the preparation and implementation of a plan for monitoring horizontal directional drilling (HDD) activities, identification of drilling fluid leaks, and protocols for responding in the event of fluid release into coastal waters.

#### 4.2.3.2 Water Quality

The proposed project could degrade the biological productivity and quality of coastal waters through direct or indirect discharges of drilling mud, equipment fuel, bore or trench spoils, concrete and asphalt, paints and solvents, contaminated soil, and polymer and asphalt dust. The project's use of the HDD construction method would reduce the potential for direct effects on coastal waters from surface installation methods, but also produces a risk of frac-outs which could also degrade water quality. In addition, onsite reuse of excess soil with aerially deposited lead could result in runoff or leaching of lead into surface or groundwater. If the above-described project activities were to inadvertently introduce hazardous materials or otherwise degrade water quality, the project could raise consistency issues with Coastal Act sections 30230, 30231, 30232 and related LCP policies.

MMBN projects are subject to two National Pollutant Discharge Elimination System (NPDES) permits to regulate stormwater runoff: (1) the Construction General Permit (CGP), and (2) the Caltrans NPDES municipal separate storm sewer system (MS4) permit (Caltrans NPDES Permit).

Both are issued by the State Water Resources Control Board (SWRCB) and enforced by 9 Regional Water Quality Control Boards (RWQCB) in California. Both permits were updated in 2022.

The 2022 CGP provides a programmatic permit option specifically for the MMBN projects that became effective December 17, 2022. Site-specific Linear Construction Activities Notification (LCAN) forms must be submitted to the SWRCB before the start of any construction activities. The LCAN takes the place of traditional project specific Stormwater Pollution Prevention Plan (SWPPP) or Water Pollution Control Program (WPCP) submittals. The LCAN would delineate site-specific temporary construction best management practices for stabilizing disturbed soil and preventing erosion and sediment or pollutant transport.<sup>30</sup>

The Caltrans NPDES permit regulates stormwater discharges within the Caltrans right-of-way and includes post-construction treatment requirements. However, the SWRCB has provided MMBN with post-construction treatment exclusions for most MMBN components, therefore most MMBN projects are not expected to require treatment facilities. Trenching and resurfacing associated with utility work, including that required for fiber optic conduit, pull and splice vaults, maintenance vehicle pullouts, and network hub shelters) is exempt from post-construction treatment requirements.<sup>31</sup>

In addition to those identified for *Coastal Waters and Wetlands*, above, the following measures are recommended to avoid or minimize project impacts on the biological productivity and quality of coastal waters. **Avoidance and Minimization Measure WET-1, Best Management Practices**, requires the implementation of water quality best management practices (BMPs) to minimize impacts from runoff, erosion, equipment leaks and spills, and construction wastes. **Avoidance and Minimization Measure WET-2, Debris Disposal Plan**, calls for the preparation and implementation of a plan for disposal of debris and hazardous materials generated during construction. **Avoidance and Minimization Measure WET-3, Spill Prevention**, requires hazardous materials management and response measures in place to contain and clean up hazardous materials spills. **Avoidance and Minimization Measure WET-4, Water Quality and Wetland Protection**, requires preparation and implementation of a Linear Construction Activities Notification, Post Construction Best Management Practices, and plan for management and disposal of contaminated soils, which collectively prevent or control potential impacts on coastal waters associated with contamination and stormwater runoff during construction and operation of the project. **Avoidance and Minimization Measure WET-5, Frac-Out Contingency Plan**, requires the preparation and implementation of a plan for monitoring horizontal directional drilling activities, identification of drilling fluid leaks, and protocols for responding in the event of fluid release into coastal waters.

In conclusion, the project as proposed could be considered to have consistency issues with Coastal Act and LCP policies, primarily through inadvertent direct or indirect effects on coastal waters and wetlands. With implementation of the **Avoidance and Minimization Measures BIO-1, BIO-2, BIO-3, BIO-5, and WET-1 through WET-5**, the proposed project would maintain and

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<sup>30</sup> California Department of Transportation and California Department of Technology, 2023. Middle Mile Broadband Network Draft Design Guidelines. Appendix G. April 2023.

<sup>31</sup> Ibid.

protect the biological productivity and quality of coastal waters and wetlands in the project area consistent with Coastal Act sections 30230, 30231, 30232 and relevant LCP policies. Should direct placement of fill within coastal water and wetlands be proposed, additional evidence would be required from the permittee demonstrating the project impact qualifies as a permissible action under Coastal Act section 30233, and that there is no less environmentally damaging, feasible alternative. Additional avoidance and minimization measures may be required to ensure that the associated adverse environmental effects are minimized.

### 4.2.3.3 Environmentally Sensitive Habitat Areas

#### *Vegetation Communities and Sensitive Habitat*

The project is expected to be designed to avoid directly impacting ESHAs by siting project elements within disturbed or developed areas of the road right-of-way. However, there are many types of ESHA within and adjacent to the project area along much of the project alignment, including dunes, bluffs, native grasslands, riparian and forest woodlands, and chaparral. In many areas, development is proposed immediately adjacent to ESHA with little buffer. For example, the proposed District 4 hub locations in Sonoma County (hub sites #23 and #135), would occur within or are surrounded by woodland/forest ESHA identified as suitable habitat for the special-status Sonoma tree vole and monarch butterfly overwintering populations, respectively. As a result, construction of proposed coastal MMBN project elements, including both above- and below-ground project elements, could directly impact ESHA within the project area through the removal and/or trampling of vegetation, inadvertent placement of project materials, or accidental discharges of hazardous materials (e.g., drilling muds). Project construction could also indirectly impact ESHA adjacent to work areas, including through increased human presence, noise, and lighting. The project activities and associated impacts could raise issues with Coastal Act section 30240 and related LCP policies because they are not resource dependent and could significantly disrupt the habitat values of ESHAs within or adjacent to the project area.

The following measures are recommended to avoid or minimize project impacts to potential ESHA, special-status species, and aquatic resources within the study area. **Avoidance and Minimization Measure BIO-1, Resource Review and General Pre-construction Surveys**, requires a pre-construction review of mapped biological resources from the coastal MMBN GIS database, a general (or focused, protocol-level) pre-construction survey to verify the presence/absence of aquatic resources and/or ESHA and delineate or demarcate resource boundaries prior to the start of work for a given project segment, and application of adaptive construction methods to avoid impacts to ESHA and/or aquatic resources. **Avoidance and Minimization Measure BIO-2, Worker Environmental Awareness Training**, calls for a qualified biologist to provide awareness training to construction personnel ahead of construction of a given project segment, to increase awareness about ESHA, sensitive species, and coastal waters and wetlands in the project area. **Avoidance and Minimization Measure BIO-3, Construction Monitoring**, requires that a qualified biologist be present onsite during construction of a given project segment to monitor all ground-disturbing activities within 200 feet of potential ESHA and aquatic resources. **Avoidance and Minimization Measure BIO-4, Artificial Nighttime Lighting**, imposes lighting restrictions on all development within 200 feet of ESHA. **Avoidance and Minimization Measure BIO-5, Coastal Waters/Wetlands/ESHA**,

calls for establishment of an exclusion buffer of 200 feet around aquatic resources and ESHA, and outlines preferred construction methods within or over ESHA and aquatic resources.

**Avoidance and Minimization Measure WET-5, Frac-Out Contingency Plan**, requires the preparation and implementation of a plan for monitoring horizontal directional drilling (HDD) activities, identification of drilling fluid leaks, and protocols for responding in the event of fluid release into coastal waters.

### ***Special-Status Species Habitat***

Construction and operation of the coastal MMBN project could result in a direct impact to or have an indirect effect on special-status species that occupy ESHA within or adjacent to the project area. For example, the proposed District 4 hub location in Marin County (hub site #136) would occur in a Caltrans maintenance yard adjacent to willow thickets identified as potential ESHA, and mapped wetlands associated with the Olema Creek corridor 400 feet to the west, which provides suitable habitat for coho salmon and California red-legged frog. Project construction may result in special-status plant or animal mortality, disruption of animal foraging and breeding behaviors, or degradation of suitable habitat. Similar to the project impacts discussed for *General ESHA*, above, project activities resulting in impacts on important special-status species habitat or individuals could raise consistency issues with Coastal Act section 30240 and related LCP policies because they are not resource dependent and could significantly disrupt the habitat values of the ESHAs. The implementation of avoidance and minimization is recommended to reduce the severity and/or eliminate project impacts on special-status species, as discussed below.

### **Special-Status Plants**

A total of 145 special-status plant species are recorded in the CNDDDB within or immediately adjacent to the project area. Project activities could impact special-status plants through trampling, vegetation removal, ground disturbance, inadvertent placement of project materials and introduction of competitive, invasive species. Implementation of **Avoidance and Minimization Measures BIO-1, BIO-6, and BIO-7** would protect against project effects on special-status plants.

**Avoidance and Minimization Measure BIO-1** requires a pre-construction desktop review of the coastal MMBN GIS database and site survey, as warranted, prior to the start of work for a given project segment. **Avoidance and Minimization Measure BIO-6, Plants**, calls for a pre-construction botanical survey where special-status plant species have been documented within ESHA near work areas. **Avoidance and Minimization Measure BIO-7** requires equipment to be cleaned prior to use on a given project segment and that any outside material brought in as fill or for erosion control be certified weed-free to minimize the introduction or spread of non-native seed/vegetative material.

### **Special-Status Animals**

#### **Invertebrates**

A total of 14 special-status invertebrates are recorded in the CNDDDB within or immediately adjacent to the project area. Project activities could impact special-status invertebrates through crushing individuals or trampling nests during vegetation removal or ground disturbance.

Implementation of **Avoidance and Minimization Measures BIO-1, BIO-8, BIO-9, and BIO-10**



would protect against project effects on special-status invertebrates. **Avoidance and Minimization Measure BIO-1** requires a pre-construction desktop review of the coastal MMBN project GIS database and site survey, as warranted, prior to the start of work of a given project segment. **Avoidance and Minimization Measures BIO-8, Invertebrates; BIO-9, Bumble Bees; and BIO-10, San Diego Ferry Shrimp**, specify survey requirements for special-status terrestrial invertebrates, bumble bees, and fairy shrimp, respectively, where these species have been documented near work areas.

#### Fish

A total of 13 special-status fish species (including one coho salmon ESU and three steelhead DPS) are documented in CNDDDB within or immediately adjacent to the project area. Project activities could impact special-status fish indirectly through water quality (habitat) degradation if hazardous materials used during construction were to contaminate occupied waterways. Implementation of **Avoidance and Minimization Measures BIO-1, BIO-3, BIO-5, and WET-5** would protect against project effects on special-status fish. **Avoidance and Minimization Measure BIO-1** requires a pre-construction desktop review of the coastal MMBN project GIS database prior to the start of work of a given project segment. **Avoidance and Minimization Measure BIO-3, Construction Monitoring**, requires that a qualified biologist be present onsite during construction to monitor all ground-disturbing activities within 200 feet of waters and wetlands. **Avoidance and Minimization Measure BIO-5** requires the implementation best management practices for controlling erosion and other pollutants that can impact ESHA or aquatic habitats where work is proposed within 200 feet of an aquatic resource while maintaining a minimum 50-foot buffer from the outside extent of ESHA and aquatic resources. **Avoidance and Minimization Measure WET-5, Frac-Out Contingency Plan**, requires the preparation and implementation of a plan for monitoring horizontal directional drilling activities, identification of drilling fluid leaks, and protocols for responding in the event of fluid release into coastal waters.

#### Nesting Birds

A total of 30 special-status avian species are recorded in CNDDDB within or adjacent to the project area. The study area provides suitable nesting habitat for these special-status and common avian species that could be affected by project activities conducted during the nesting season. Project activities could impact special-status and common bird species nesting in the project area through vegetation removal, ground disturbance, and increased noise or visual disturbance that disrupts nesting attempts, destroys an active nest, or causes nest or nestling abandonment. Implementation of **Avoidance and Minimization Measures BIO-1 and BIO-11** would protect against project effects on nesting birds. **Avoidance and Minimization Measure BIO-1** requires a pre-construction desktop review of the coastal MMBN project GIS database prior to the start of work of a given project segment. **Avoidance and Minimization Measure BIO-11, Nesting Birds**, requires pre-construction nesting bird surveys and work restrictions, as appropriate, where construction is required within 500 feet of nesting bird ESHA during the nesting season (January 1 through September 1).

#### Amphibians and Reptiles

A total of 15 special-status amphibian and reptile species are recorded in CNDDDB within or adjacent to the project area. Project activities could impact special-status amphibians and reptiles

through crushing or otherwise causing the mortality of individuals (e.g., entrapment, desiccation, predation) and indirectly through habitat degradation by removing vegetation or degrading water quality. Implementation of **Avoidance and Minimization Measures BIO-1** and **BIO-12** would protect against project effects on special-status amphibians and reptiles. **Avoidance and Minimization Measure BIO-1** requires a pre-construction desktop review of the coastal MMBN project GIS database and site survey, as warranted, prior to the start of work of a given project segment. **Avoidance and Minimization Measure BIO-12, Amphibians and Reptiles**, further specifies survey requirements for special-status amphibians and reptiles where these species have been documented near work areas.

### Mammals

A total of 15 special-status mammal species are recorded in CNDDDB within or adjacent to the project area. Project activities could impact special-status mammals through crushing or otherwise causing the mortality of individuals (e.g., entrapment, abandonment of young, predation) and indirectly through habitat degradation, primarily associated with vegetation removal. Implementation of **Avoidance and Minimization Measures BIO-1** and **BIO-13** through **16** would protect against project effects on special-status mammals. **Avoidance and Minimization Measure BIO-1** requires a pre-construction desktop review of the coastal MMBN project GIS database and site survey, as warranted, prior to the start of work for a given project segment. **Avoidance and Minimization Measures BIO-13, Mammals; BIO-14, Burrowing Small Mammals; BIO-15, Bats; and BIO-16, Woodrats**, specify survey requirements for special-status terrestrial mammals, burrowing small mammals, bats, and woodrat, respectively, where these species have been documented near work areas.

In conclusion, the project as proposed raises consistency issues with Coastal Act and LCP ESHA policies, primarily through direct or indirect effects on ESHA and sensitive biological resources. With implementation of the **Avoidance and Minimization Measures BIO-1** through **BIO-16** and **WET-5**, the proposed project would protect ESHA by prioritizing avoiding work directly within those areas, and by ensuring that work within adjacent areas does not significantly degrade or jeopardize the continuance of that habitat. Therefore, with application of the aforementioned avoidance and minimization measures, the project could likely be found consistent with Coastal Act section 30240 and relevant LCP policies.

## 4.2.3.4 Conflict Resolution

### ***Coastal Waters and Wetlands***

The state of project design at the writing of this analysis is not advanced enough to know whether Caltrans will propose direct impacts to coastal waters and wetlands. As introduced above, certain types of development in wetlands and waters are permissible under Coastal Act section 30233 if they are among the qualifying types enumerated in the policy, are the least environmentally damaging alternative, and adequately mitigate impacts. Broadband could be characterized as an incidental public service (Coastal Act section 30233[a][4]), which is a permissible type of fill of coastal waters or wetlands. The Commission has applied a similar approach to past projects involving cables and pipes within or through coastal aquatic resources. Nevertheless, in the event that the coastal MMBN project were not found to meet the section 30233 criteria, the Commission

may also find that denial of the project could be inconsistent with one or more other Coastal Act policies (e.g., section 30210 [public access], section 30253 [minimize energy consumption and vehicle miles traveled]). In such a situation, section 30007.5 of the Coastal Act requires the Commission to resolve the conflict in a manner which is on balance the most protective of significant coastal resources. To resolve the identified Coastal Act conflict, the Commission would need to find that the impacts on coastal resources from not constructing the project would be more significant than the project's coastal resource impacts if project is approved, so long as these impacts are minimized and mitigated as proposed and conditioned. In past actions where the Commission has invoked the conflict resolution provisions of the Coastal Act, the Commission has found it necessary to mitigate adverse impacts on coastal resources to the maximum extent feasible. Therefore, in the event the Commission finds that project effects on wetlands or waters are approvable through conflict resolution, the following additional compensatory mitigation for those impacts is recommended.

**Avoidance and Minimization Measure BIO-17, Compensation for Impacts to Coastal Waters/Wetlands/ESHA**, would require Caltrans to provide a detailed inventory of the affected resource (e.g., coastal water type, vegetation/habitat type, wetland type, special-status plant species and quantity impacted, etc.), classification of the impact based on duration of disturbance and resource affected (i.e., short-term temporary, long-term temporary, or permanent), and proposal for compensation. Mitigation may include payment into a mitigation bank or through an in-lieu fee process; or on/off-site restoration. If restoration is chosen, BIO-17 requires that the project applicant prepare a Habitat Mitigation and Monitoring Plan (HMMP) for submission to the Commission, and approval by the Executive Director. The HMMP would include a description and extent of aquatic resource/ESHA impacted by construction activities; proposed restoration methods for each aquatic resource/ESHA category, including a distinction between on- and off-site restoration, enhancement and/or creation, non-native species removal/control, planting design, irrigation schedule, erosion control, and exclusionary fencing; restoration success criteria, monitoring and reporting requirements; and funding source(s) and responsible parties, adaptive management strategies, and details regarding long-term preservation or management of restored areas.

### ***Environmentally Sensitive Habitat Areas***

The state of project design at the writing of this analysis is not advanced enough to know whether the project would require development within ESHA or whether the project would be able to fully comply with the recommended avoidance and minimization measures that would protect against ESHA impacts. As discussed above, project development within ESHA could conflict with Coastal Act section 30240 and related LCP policies. However, the Commission may also find that denial of the project could be inconsistent with one or more other Coastal Act policies (e.g., section 30210 [public access], section 30250 [concentration of development], section 30253 [minimize energy consumption and vehicle miles traveled]). In such a situation, Section 30007.5 of the Coastal Act requires the Commission to resolve the conflict in a manner which is on balance the most protective of significant coastal resources. To resolve the identified Coastal Act conflict, the Commission would need to find that the impacts on coastal resources from not constructing the project would be more significant than the project's coastal resource impacts if project is approved, so long as these impacts are minimized and mitigated as proposed and/or

conditioned. In past actions where the Commission has invoked the conflict resolution provisions of the Coastal Act, the Commission has found it necessary to mitigate adverse impacts on coastal resources to the maximum extent feasible. Therefore, in the event the Commission finds that adverse project effects on ESHA are approvable through conflict resolution, the following additional compensatory mitigation for those impacts is recommended.

**Avoidance and Minimization Measure BIO-17, Compensation for Impacts to Coastal Waters/Wetlands/ESHA** would require Caltrans to provide a detailed inventory of the affected resource (e.g., vegetation/habitat type, coastal water or wetland type, quantity of ESHA supporting a special-status species, etc.), characterize the impact based on duration and nature of disturbance (i.e., short-term temporary, long-term temporary, or permanent), and develop a detailed plan for compensation of the resource affected. Mitigation may include payment into a mitigation bank or through an in-lieu fee process; or on/off-site restoration. If restoration is chosen, Mitigation Measure BIO-17 requires that the project applicant prepare and implement a Habitat Mitigation and Monitoring Plan (HMMP) for submission to the Commission, and approval by the Executive Director. The HMMP would include a description and extent of aquatic resources/ESHA impacted by construction activities; clearly articulate mitigation goals and objectives supported by technical rationale; describe existing habitats and resources at the proposed mitigation site(s); proposed restoration methods for each aquatic resource/ESHA resource category, including a distinction between on- and off-site preservation, restoration, enhancement and/or creation; non-native species removal/control; mitigation design including planting plans where applicable; site preparation including salvage, landform alteration, etc.; irrigation schedules, as applicable; erosion control; any exclusionary fencing; restoration success criteria and performance assessment methods; monitoring and reporting requirements; and funding source(s) and responsible parties, adaptive management strategies, and details regarding long-term preservation or management of restored areas.

## 4.2.4 Impact Avoidance and Minimization Measures

### 4.2.4.1 General Avoidance and Minimization Measures

#### **BIO-1, Resource Review and General Pre-construction Surveys:**

**Pre-construction Survey:** A qualified biologist<sup>32</sup> shall conduct a desktop review, including via the coastal MMBN project GIS database, CNDDDB and other relevant BIOS layers, CalFlora, etc. for areas within 2 miles of the site. This shall be followed by pre-construction surveys to verify the presence/absence of aquatic resources (including wetlands as defined in Coastal Act section 30121) and/or potential ESHA within 200 feet of the project area, and/or special-status species within 500 feet of the project area and delineate any sensitive resource areas and their appropriate buffers as specified in **Avoidance and Minimization Measures BIO-5 through BIO-16**. The following additional measures shall be undertaken, as applicable:

<sup>32</sup> A qualified biologist or environmental resources specialist is an individual with a four-year degree in biological sciences and at least three years of local (i.e., to the region) field experience surveying the respective special-status species and their habitat that may occur on the site.

- 1) If special-status species are mapped with CNDDDB occurrences in the survey area, the Permittee shall implement specialty pre-construction survey requirements as set forth in **Avoidance and Minimization Measures BIO-6 and BIO-8 through BIO-16**, based upon species present.
- 2) If a special-status plant or animal species, or suitable habitat, is detected during the general pre-construction survey, the Permittee shall implement the protective measures set forth in **Avoidance and Minimization Measures BIO-6 through BIO-16** for special-status plants, invertebrates, birds, amphibians and reptiles, and mammals, as applicable.
- 3) If aquatic resources and/or ESHA are detected during the general pre-construction survey, the Permittee shall implement the additional protective measures set forth in **Avoidance and Minimization Measure BIO-5, Coastal Waters/Wetlands/ESHA**.
- 4) The Permittee shall revise project construction plans/methods as necessary to avoid direct impacts to aquatic resources and/or ESHA or special-status species identified in the pre-construction survey (e.g., utilize HDD installation, trench in pavement).

#### **BIO-2, Worker Environmental Awareness Program Training:**

A qualified biologist shall develop and present a Worker Environmental Awareness Program (WEAP) training to construction personnel prior to the commencement of construction activities within the project area of a given project segment. The training shall be required for all project personnel prior to their work on the site and shall inform recipients of the applicable permit requirements, in addition to the potential presence of ESHA, aquatic resources (wetlands and open water), or special-status species resources in proximity to the project area. The training shall establish and notify workers of the communication protocol for when sensitive resources are detected or impacted during construction activities. This information shall also be available at the job site to ensure the importance of these measures is recognized. All participants in the training shall provide written verification that they have completed the training. The Permittee shall maintain updated training verification logs and provide the logs and training materials to the Executive Director and appropriate resource agencies for review within 24 hours of receipt of request.

#### **BIO-3, Biological Monitoring:**

Prior to commencement of construction of a given project segment, the Permittee shall retain the services of a qualified biologist or environmental resources specialist to monitor the site during construction activities and conduct surveys of sensitive species.<sup>33,34</sup>

- A qualified biologist or resource specialist shall be present onsite during construction to monitor all ground-disturbing activities within 200 feet of aquatic resources (wetlands and

<sup>33</sup> For the purpose of this mitigation measure, “sensitive species” shall be taken to mean species listed or candidates for listing as threatened, endangered, or fully protected under the Federal Endangered Species Act or California Endangered Species Act; species identified as a CDFW Species of Special Concern or Special Animal; species with a NatureServe State or Global Rank 1-3; plant species with a California Rare Plant Rank of 1 or 2.

<sup>34</sup> A qualified biologist or environmental resources specialist is an individual with a four-year degree in biological sciences and at least three years of local (i.e., to the region) field experience surveying the respective special-status species and their habitat that may occur on the site.

open water) and ESHA, to avoid or minimize impacts to coastal waters, wetlands, ESHA, or the special-status species occupants of these resources.

- A qualified biologist or resource specialist shall document all project activities concerning these resources in daily logs that will at a minimum include the following: date, monitor information, weather details, description of construction activities, incidences of non-compliance and any resolutions.
- The Permittee shall prepare and submit to the Coastal Commission a post-construction monitoring report within 90 days of completion of construction. The report shall include, at a minimum, a brief description of project activities, the results of all resource surveys performed, details of resources encountered, and a documentation of environmental/biological compliance (e.g., avoidance, impacts, and mitigation).

#### **BIO-4, Artificial Nighttime Lighting:**

For construction and operation of project elements within 200 feet of ESHA, avoid nighttime construction to the extent feasible. If unavoidable, all temporary and permanent artificial nighttime lighting shall be shielded, directed downward and away from adjacent ESHA, and be the minimum necessary for safety to minimize potential effects on wildlife that may utilize the habitat. Any use of artificial night lighting must incorporate protocols published by the International Dark Sky Association, such as use of lighting with a color temperature of 3000K and below to reduce short-wave blue-violet light that is more harmful to wildlife.

#### **4.2.4.2 Water Quality Protection Avoidance and Minimization Measures**

##### **WET-1: Best Management Practices.**

The Permittee shall implement the following best management practices (BMP) during all phases of project construction:

1. ***Runoff Protection.*** Silt fences, straw wattles, or equivalent apparatus shall be installed at the perimeter of all construction areas to prevent construction-related runoff and sediment from discharging from the construction area entering into storm drains, or otherwise offsite or towards the beach and ocean. Special attention shall be given to appropriate filtering of all runoff, and all drainage points, including storm drains, shall be equipped with appropriate construction-related containment and filtration equipment. All runoff controls shall be in place during construction.
2. ***Erosion Control.*** Erosion, sediment, and vehicle tracking control BMPs shall be installed as necessary within the project area (e.g., staging areas, hub locations) to prevent construction-related runoff. Erosion control devices include, but are not limited to fiber rolls, silt fence and shaker plates. Fiber rolls shall be biodegradable, and all erosion control devices shall be installed and maintained such that they will not entrap or harm wildlife. To minimize wildlife entanglement and plastic debris pollution, the use of temporary rolled erosion and sediment control products with plastic netting (such as polypropylene, nylon, polyethylene, polyester, or other synthetic fibers used in fiber rolls, erosion control blankets, and mulch control netting) is prohibited. Any erosion-control associated netting shall be made of natural fibers and constructed in a loose-weave design with movable joints between the horizontal and vertical twines.

3. **Equipment BMPs.** Equipment washing, and maintenance shall take place at an appropriate off-site and inland location to help prevent leaks and spills of hazardous materials at the project site, preferably on an existing hard surface area (e.g., a road) or an area where collection of materials is facilitated. All construction equipment shall also be inspected and maintained at a similarly sited inland location to prevent leaks and spills of hazardous materials at the project site. Fueling and maintenance of construction equipment and vehicles shall be conducted off site if feasible. Any fueling and maintenance of mobile equipment conducted on site shall take place at a designated area located at least 50 feet from coastal waters, drainage courses, and storm drain inlets, if feasible (unless those inlets are blocked to protect against fuel spills). The fueling and maintenance area shall be designed to fully contain any spills of fuel, oil, or other contaminants. Equipment that cannot be feasibly relocated to a designated fueling and maintenance area may be fueled and maintained in other areas of the site, provided that procedures are implemented to fully contain any potential spills.
4. **Good Housekeeping.** Active construction areas shall be maintained clean and free of deleterious materials at all times. Secondary containment should be placed beneath all construction equipment and hazardous material, and any leaks or other spills of hazardous substances shall be cleaned up immediately. Stockpiled materials (e.g., topsoil or backfill material) shall be adequately covered and contained to prevent runoff and sedimentation of nearby sensitive resources. Waste generated during construction shall be collected in covered, locking receptacles, that are emptied and disposed of properly, on a routine basis.
5. **Trash/Debris.** During construction, all trash and debris shall be properly contained, removed from the work site, and disposed of on a regular basis to avoid contamination of habitat during construction activities. Any debris inadvertently discharged into coastal waters or surrounding habitats shall be recovered immediately and disposed of consistent with the requirements of this CDP. All construction debris shall be disposed of in an upland location outside of the coastal zone or at another disposal facility approved by the Executive Director.

#### **WET-2: Debris Disposal Plan.**

Not less than ninety (90) days prior to the anticipated commencement of construction of a given project segment, the Permittee shall submit, for the review and approval of the Executive Director, a plan for the disposal of excess construction debris and hazardous materials (e.g., contaminated soils and groundwater). The plan shall list the names of all authorized disposal site(s) where materials will be lawfully disposed of and describe the manner and schedule by which the materials will be removed from the construction site. The Permittee shall undertake development in accordance with the approved final Debris Disposal Plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

#### **WET-3: Spill Prevention.**

Fuels, lubricants, solvents, and other hazardous materials shall not be allowed to enter the coastal waters or wetlands. Hazardous materials management equipment shall be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials cleanup/remediation service shall be locally available on call. Any accidental spill shall be rapidly contained and cleaned up consistent with the Water Quality and Wetland Protection and Frac-out Contingency Plan required by **Avoidance and Minimization Measure WET-4, Water Quality**

**and Wetland Protection, and Avoidance and Minimization Measure WET-5, Frac-Out Contingency Plan.**

**WET-4: Water Quality and Wetland Protection.**

Not less than ninety (90) days prior to the anticipated commencement of construction of a given project segment, the Permittee shall submit for the review and approval of the Executive Director a final Water Quality Protection Plan prepared in accordance with the requirements of the mitigation measures recommended herein and containing the following components:

- A. A Linear Construction Activities Notification (LCAN) or equivalent requirement (e.g., Storm Water Pollution Prevention Plan (SWPPP)) for development authorized that prevents contamination of wetlands and associated damage to sensitive species from storm water runoff during the proposed construction period; and
- B. Post-construction Best Management Practices (BMPs) plan for development authorized under the permit for water quality protection. The plan shall prioritize the use of BMPs in the following order: 1) site design BMPs (including by minimizing impervious surfaces), 2) source control BMPs, 3) treatment control BMPs. The BMPs shall be designed to treat, infiltrate, or filter the amount of storm water runoff produced by all storms up to and including the 85th percentile, 24-hour storm event for volume-based BMPs, and/or the 85th percentile, 1- hour storm event (with an appropriate safety factor of 2 or greater) for flow-based BMPs. The plan shall include provisions for long term maintenance to ensure that the BMPs will continue to provide water quality protection for the life of the development; and
- C. A plan for the management and/or disposal of soils at the project site identified as contaminated with Aerially Deposited Lead (ADL), prepared in accordance with the 2016 DTSC-Caltrans Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils.

The Permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to the CDP unless the Executive Director determines that no amendment is legally required.

**WET-5: Frac-Out Contingency Plan.**

Not less than ninety (90) days prior to the anticipated commencement of construction of a given project segment, the Permittee shall submit to the Executive Director for review and approval a Frac-Out Contingency Plan. The plan shall include, at a minimum:

1. An evaluation of a worst-case spill volume;
2. A commitment to use water as a drilling fluid for the last 60-100 feet of the HDD bore before the drill punches out into the exit pit if soil conditions allow.
3. Measures describing training of personnel, monitoring procedures, equipment, materials and procedures in place for the prevention, containment, clean up, and disposal of released drilling muds, and agency notification protocols;
4. Methods for detecting the accidental release of drilling fluids that may include:



- a. Continuous monitoring of drilling fluid, bore path, and water bodies by a qualified drilling monitor during the entire duration of HDD construction activities;
- b. monitoring by a minimum of one biological monitor throughout drilling operations to ensure swift response if a release (i.e., frac-out) occurs;
- c. continuous monitoring of drilling pressures to ensure they do not exceed those needed to penetrate the formation;
- d. continuous monitoring of mud returns at the exit and entry pits to determine if total fluid volume in circulation has been lost;
- e. continuous monitoring by spotters to follow the progress of the drill bit during the pilot hole operation, and reaming and pull back operations;
- f. protocols the Permittee will follow if there is a loss of circulation or other indicator of a release of fluids;
- g. protocols the Permittee will follow if there is a fluid release on beach or other onshore habitat (e.g., isolating the area through construction of temporary berms/dikes and use of silt fences, straw bales, absorbent pads, straw wattles, and plastic sheeting);
- h. protocols the Permittee will follow if there is a fluid release in open coastal waters (e.g., immediately erect an isolation/containment environment (underwater boom and curtain)); and/or
- i. Protocols for halting work if a frac-out and fluid release occurs and notifying and consulting with the staffs of the Coastal Commission, CDFW's Office of Spill Prevention and Response, and National Oceanic and Atmospheric Administration Fisheries, as appropriate, regarding incident-specific actions to be undertaken before HDD activities can begin again.

#### **4.2.4.3 Coastal Waters/Wetlands/ESHA Avoidance and Minimization Measures**

##### **BIO-5, Coastal Waters/Wetlands/ESHA:**

A qualified biologist or resource specialist shall establish a construction exclusion buffer of 200 feet around aquatic (wetland and open water) resources and/or ESHA based on the results of the pre-construction survey (BIO-1). The biologist shall demarcate the boundaries of ESHA and delineate aquatic resources (riparian, wetland, and open waters) within and adjacent to the project area, and routinely inspect the integrity of those boundaries, to ensure that they are visible for construction personnel. Any fencing that is used shall be properly installed. If any fencing is removed, damaged, or otherwise compromised during the construction period, the Permittee shall cease construction activities until the fencing is repaired or replaced.

- 1) If construction must occur within 200 feet of aquatic resources/ESHA, but direct impact to the aquatic resource/ESHA can be avoided, a suitable exclusion area (as determined by a qualified biologist) shall be demarcated for avoidance during construction activities to avoid degradation of the aquatic resource or ESHA. When working within 200 feet of aquatic

resources/ESHA, appropriate best management practices shall be implemented as described in **WET-1**, **WET-2**, **WET-3**, and **WET-4**, such as erosion control measures and secondary containment for all vehicles, mechanical equipment and construction material, to prevent construction-generated runoff into aquatic resources and/or ESHA.

- 2) If the project alignment traverses aquatic resources/ESHA, the following shall be implemented to avoid or minimize impacts to these resources:
  - a) Where plow or trench method installation of conduit is proposed in locations identified as aquatic resources/ESHA and adjacent to asphalt or concrete pavement within the right-of-way, the Permittee shall implement the following to avoid or minimize impacts to aquatic resources/ESHA:
    - i) If asphalt is present adjacent to the aquatic resource/ESHA, utilize open-cut-trench methods to install the conduit within the asphalt pavement.
    - ii) If concrete is present adjacent to the aquatic resource/ESHA, utilize HDD installation methods. Site bore entrance and exit pits outside of aquatic resources/ESHA in accordance with BIO-5, Part 1), but no less than 100-feet from the edge of the aquatic resource/ESHA, unless a reduced buffer distance, that ensures no adverse effect on the resource, is recommended by the qualified biologist and approved by the Executive Director. See **WET-5** for frac-out plan requirements associated with HDD installation.

If the project alignment would occur directly above aquatic resources/ESHA (e.g., on a viaduct crossing freshwater/saline marsh ESHA-wetlands), the following shall be implemented to avoid or minimize impacts to these resources:

- b) The Permittee shall implement the following to avoid or minimize conduit construction impacts on aquatic resources/ESHA at surface drainages:
  - i) Install the fiber optic conduit within or attach it to existing bridge infrastructure, if present; or
  - ii) Utilize HDD installation. Site bore entrance and exit pits outside of aquatic resources/ESHA in accordance with BIO-5, Part 1), but no less than 100-feet from the edge of the aquatic resource/ESHA, unless a reduced buffer distance, that ensures no adverse effect on the resource, is recommended by the qualified biologist and approved by the Executive Director. See **WET-5** for frac-out plan requirements associated with HDD installation.

#### 4.2.4.4 Plant Avoidance and Minimization Measures

##### BIO-6, Plants:

If special-status plant species are documented in CNDDDB within potential ESHA that could be directly impacted by the project, a qualified biologist/botanist shall conduct a pre-construction botanical survey for special-status plant species within 50 feet of the project area within the potential ESHA. The focused surveys shall be conducted during the appropriate blooming period for each species(s) and in accordance with CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*.<sup>35</sup> If

<sup>35</sup> CDFW 2018. Protocols for surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural communities. March 20, 2018. file:///C:/Users/rsweet/Downloads/2018%20Protocols%2013%20rev1.pdf

special-status plants are detected within 50 feet of the project impact area, a suitable exclusion area (as determined by a qualified biologist) shall be demarcated to avoid impacts to special-status plants. Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.

**BIO-7, Invasive Species Control:**

Construction equipment shall be cleaned prior to use on the project to minimize the potential for the transport, introduction or spread of non-native vegetation through seeds or other plant material (e.g., nodes, roots, etc.). Rock, sand, or any material used for soil erosion control shall originate from a certified weed-free source to avoid the inadvertent introduction of non-native plant species to surrounding environmentally sensitive areas.

**4.2.4.5 Invertebrate Avoidance and Minimization Measures**

**BIO-8, Invertebrates:**

A qualified biologist shall conduct a pre-construction survey for special-status terrestrial invertebrates documented in potential ESHA identified as suitable habitat within 100 feet of the project area. If protocol survey procedures have been established or adopted by resource agencies for the invertebrate species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within two weeks prior to initiation of ground disturbance and/or vegetation removal for a given project segment, when ambient temperatures are 60° Fahrenheit (F) or greater, to maximize the likelihood of detection. If any special-status invertebrates are observed within the project area, a qualified biologist shall relocate the individual(s) to suitable habitat outside of the project disturbance area to ensure that construction-related impacts are avoided. Survey results shall be documented and provided to Coastal Commission Executive Director and appropriate resource agencies within 48 hours of receipt of request.

If an active nest of any special-status invertebrate is inadvertently excavated during or prior to construction activities for a given project segment, it shall be carefully replaced to minimize impact to eggs or larvae and remain undisturbed until the biologist determines the nest is inactive.

**BIO-9, Bumble Bees:**

A qualified biologist shall conduct presence/absence surveys for bumble bees documented in potential ESHA identified as suitable habitat within 100 feet of the project area. If protocol survey procedures have been established or adopted by resource agencies for the bumble bee species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within two weeks prior to initiation of ground disturbance and/or vegetation removal for a given project segment, when ambient temperatures are 60° Fahrenheit (F) or greater, to maximize the likelihood of detection. If a bumble bee nest is detected within 50 feet of the project impact area, a suitable exclusion area (as determined by a qualified biologist) shall be demarcated to avoid impacts to the nest. Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.

### **BIO-10, San Diego Fairy Shrimp:**

A biologist possessing an Endangered Species Act section 10(a)(1)(A) scientific research permit for listed large branchiopods shall conduct focused surveys (both wet and dry season) for the San Diego fairy shrimp within potential ESHA identified as suitable habitat and containing previous CNDDDB occurrence records within 500 feet of the project area. The survey shall be conducted in accordance with the U.S. Fish and Wildlife Service *Survey Guidelines for the Listed Large Brachiopods*.<sup>36</sup> If San Diego fairy shrimp are detected within 50 feet of the project impact area, a suitable exclusion area (as determined by the permitted biologist) shall be demarcated to avoid impacts to the fairy shrimp. Survey results shall be provided to the Executive Director and appropriate resource agencies prior to commencement of construction of each construction phase segment.

### **4.2.4.6 Bird Avoidance and Minimization Measures**

#### **BIO-11, Nesting Birds:**

If project construction activities occur during the bird nesting season (generally defined as January 1 through September 1), a qualified biologist shall conduct a pre-construction survey within 30 days of the anticipated start date, and no less than 3 days prior to vegetation removal or ground disturbance of a given project segment, to identify any active nests within 500 feet of the project impact area. If protocol survey procedures have been established or adopted by resource agencies for the sensitive avian species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. Active nest(s) shall be avoided, and a suitable no disturbance buffer zone shall be established around the nest until a qualified biologist determines the nest is no longer active. No disturbance buffers shall be 300 feet around for passerine nests, 500 feet around for raptor nests, and up to 1,000 feet around nests of state or federally listed species. Avoidance buffers may be reduced from these distances at the discretion of a qualified biologist who will monitor bird behavior associated with work within the buffer to assess the respective species tolerance to human presence and construction-related noises and vibrations associated with the work. Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.

### **4.2.4.7 Amphibians and Reptile Avoidance and Minimization Measures**

#### **BIO-12, Amphibians and Reptiles:**

A qualified biologist shall conduct a pre-construction survey for special-status amphibians and reptiles documented in potential ESHA identified as suitable habitat within 100 feet of the project impact area. If protocol survey procedures have been established or adopted by resource agencies for the sensitive amphibian or reptile species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within 3 days prior to vegetation removal or ground disturbance and immediately prior to initiation of construction activities for project segments, when ambient temperatures are 60° Fahrenheit (F) or greater, to maximize the likelihood of detection. If any special-status

<sup>36</sup> U.S. Fish and Wildlife Service (USFWS). 2017. Survey guidelines for the Listed Large Brachiopods. November 13, 2017. <https://www.fws.gov/sites/default/files/documents/survey-guidelines-for-large-brachiopods.pdf>

amphibians and reptiles are observed within the project area, a qualified biologist shall relocate the individual(s) to suitable habitat outside of the project site to ensure that construction-related impacts are avoided. If a species listed as endangered or threatened under the federal Endangered Species Act or California Endangered Species Act is detected during the survey, the Permittee shall coordinate with the jurisdictional regulatory agency regarding species relocation. Only biologists possessing an Endangered Species Act section 10(a)(1)(A) scientific research permit for that species shall handle individual(s). Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.

Any project excavation (e.g., conduit trench or HDD entrance/exit pits) shall be filled or covered at the end of the day/overnight/when work is not occurring to prevent animal entrapment and mortality. If excavations cannot be filled or covered, escape ramps with a 3:1 rise shall be installed every 25 feet to allow exit.

If an active nest of any special-status reptile or amphibian is inadvertently excavated during construction activities, it shall be carefully replaced to minimize impact to eggs or larvae and remain undisturbed until the qualified biologist determines the nest is inactive.

#### **4.2.4.8 Mammal Avoidance and Minimization Measures**

##### **BIO-13, Mammals:**

A qualified biologist shall conduct a pre-construction survey for special-status mammals documented in potential ESHA identified as suitable habitat within 500 feet of the project area. If protocol survey procedures have been established or adopted by resource agencies for the sensitive mammal species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within 3 days prior to vegetation removal or ground disturbance and immediately prior to initiation of construction activities for a given project segment, when ambient temperatures are 60° Fahrenheit (F) or greater, to maximize the likelihood of detection. If any special-status mammals are observed within the project area, they shall either be allowed to disperse of their own accord, or a qualified biologist shall attempt to capture the species for relocation. Any captured individuals shall be relocated to suitable habitat outside of the project impact area to ensure that construction-related impacts are avoided. If a species listed by the CDFW or USFWS is detected during the survey, the individual(s) will be relocated by a biologist permitted to handle the species. Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.

Any project excavation (e.g., conduit trench or HDD entrance/exit pits) shall be filled or covered at the end of the day/overnight/when work is not occurring to prevent animal entrapment and mortality. If excavations cannot be filled or covered, escape ramps shall be installed with a 3:1 rise every 25 feet to allow exit.

##### **BIO-14, Burrowing Small Mammals:**

A qualified biologist shall conduct small mammal trapping for special-status ground-dwelling mammals documented in potential ESHA identified as suitable habitat within 3 days prior to vegetation removal or ground disturbance and immediately prior to initiation of construction

activities for a given project segment. If protocol survey or trapping procedures have been established or adopted by resource agencies for the sensitive small mammal species with potential to occur, they shall be implemented by the qualified biologist. The trapping effort shall be conducted within 100 feet of the project area, during the appropriate time of year, and under appropriate weather conditions to maximize the likelihood of detection. The qualified biologist shall implement best management practices to avoid inadvertent mortality of captured individuals. Any individuals captured shall be relocated to suitable habitat at least 500 feet from the project area ahead of initiation of vegetation removal or ground disturbance. If a species listed as endangered or threatened under the federal Endangered Species Act or California Endangered Species Act is captured during the trapping effort, the individual(s) shall be relocated by a biologist permitted to handle the species. Any individuals observed in the project impact area after the trapping effort is complete shall either be allowed to disperse of their own accord, or a qualified biologist shall attempt to capture for relocation outside of the project impact area. Trapping results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.

Any project excavation (e.g., conduit trench or HDD entrance/exit pits) shall be filled or covered at the end of the day/overnight/when work is not occurring to prevent animal entrapment and mortality. If excavations cannot be filled or covered, escape ramps shall be installed with a 3:1 rise every 25 feet to allow exit.

#### **BIO-15, Bats:**

In potential ESHA identified as suitable habitat for special-status bats within 500 feet of the project area, a qualified biologist shall conduct a pre-construction survey for active bat roosts. If protocol survey procedures have been established or adopted by resource agencies for the sensitive bat species with potential to occur, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within two weeks prior to initiation of ground disturbance and/or vegetation removal for a given project segment and include both a visual (habitat assessment and nighttime emergence survey) and acoustic survey component. If bats are detected during the nighttime emergence survey or active bat roosts are identified within 500 feet of the project area or, the qualified biologist will determine whether the roost is a maternity roost (hosting lactating females and dependent young), hibernation roost (hosting bats in a state of torpor) or day roost (hosting bachelors). Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.

- If a non-maternity, day roost is detected, the qualified biologist shall ensure that direct mortality to roosting individuals is avoided by preventing disturbance to the roost site while bats are present.
  - A no disturbance buffer shall be established around roost sites until the qualified biologist determines they are no longer active. The size of the no-disturbance buffer shall be determined by the qualified biologist and would depend on the species present, roost type, and existing screening around the roost site (such as dense vegetation or a building), as well as the type of construction activity that would occur around the roost site.

- If removal or trimming of any trees supporting a day roost is necessary, the qualified biologist shall ensure that all roosting individuals disperse from the roost site prior to disturbance to prevent direct mortality.
- The qualified biologist shall be present during tree/vegetation removal if potential bat roosting habitat or active bat roosts are present and roosts do not contain young. Trees with active roosts shall be disturbed only under clear weather conditions when precipitation is not forecast for three days and when daytime temperatures are at least 50 degrees Fahrenheit.
- Removal of trees/vegetation containing or suspected to contain active bat roosts shall be dismantled under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Trees shall be partially limbed to significantly change the roost conditions, causing bats to abandon and not return to the roost.
- If a maternity or hibernation roost is detected, appropriate species- and roost-specific avoidance and protection measures shall be developed by the qualified biologist in consultation with the appropriate regulatory agency. Such measures may include postponing the removal of occupied trees or other structures, establishing exclusionary work buffers while the roost is active (e.g., 100-foot no-disturbance buffer), or other avoidance measures depending on the species present, their protection status, and roost type. If a maternity roost of any size supporting any bat species is detected during surveys, an avoidance buffer, as determined by the qualified biologist, shall be maintained until the young bats are flying. The qualified biologist shall determine the extent of protective buffers, and buffer placement would depend on: the species' sensitivity to disturbance, which can vary among species; the level of noise or construction disturbance; the line-of-sight between the roost and the disturbance; ambient noise (baseline noise) and other disturbances under existing conditions; and consideration of other topographical or artificial barriers.

#### **BIO-16, Woodrats:**

A qualified biologist shall conduct a pre-construction survey for San Francisco dusky-footed or San Diego desert woodrat middens where these species are documented in potential ESHA identified as suitable habitat within 500 feet of the project area. If protocol survey procedures have been established or adopted by resource agencies for San Francisco dusky-footed woodrat or San Diego desert woodrat, they shall be implemented by the qualified biologist during the pre-construction survey. The survey shall be conducted within two weeks of initiation of ground disturbance and/or vegetation removal. If active woodrat middens are observed within the project area, they shall be dismantled by hand under the supervision of the biologist, prior to initiation of construction activities for a given project segment. If young are encountered during the dismantling process, the material shall be replaced and the midden shall remain undisturbed until determined by the biologist to be inactive and the young dispersed. After this period, the midden may be dismantled, material relocated, and construction can commence. Midden material shall be relocated to nearby suitable habitat at least 500 feet from the project impact area. Survey results shall be documented and provided to the Executive Director and appropriate resource agencies within 48 hours of receipt of request.

Any project excavation (e.g., conduit trench or HDD entrance/exit pits) shall be filled or covered at the end of the day/overnight/when work is not occurring to prevent animal entrapment and

mortality. If excavations cannot be filled or covered, escape ramps shall be installed with a 3:1 rise every 25 feet to allow exit.

#### 4.2.4.9 Compensatory Measures

##### **BIO-17, Compensation for Impacts to Coastal Waters/Wetlands/ESHA:**

If direct impacts to aquatic resources/ESHA are proposed and avoidance is infeasible, compensatory mitigation is required, based on the following:

**Short-Term Temporary Impacts** – Short-term temporary impacts to aquatic resources/ESHA consist of activities that do not involve ground disturbance or vegetation removal such that the disturbed vegetation can be restored to similar size and maturity within 12 months of initial construction activity disturbance. These impacts shall be mitigated at a 1:1 impact to replacement ratio at the impact site.

**Long-Term Temporary Impacts** – Long-term temporary impacts to aquatic resources/ESHA are those described above that may extend over 24 months of construction but require no more than 12 months from the conclusion of the construction activity disturbance to fully recover (collective disturbance not exceeding 36 months in total). These impacts shall be mitigated at a 1:1.5 impact to replacement ratio and shall require partial off-site implementation.

**Permanent Impacts** – Permanent impacts to aquatic resources/ESHA include those that involve ground disturbance and vegetation removal which prevent vegetative recovery within the timelines described for temporary impacts, or involves a location where permanent infrastructure replaces aquatic resources/ESHA (e.g., a hub site). Permanent impacts to upland ESHA shall be mitigated at a 3:1 ratio when the mitigation is creation or significant restoration and will require partial off-site implementation. Permanent impacts to aquatic resources (which may also be ESHA) require a 4:1 impact to replacement ratio when the mitigation is creation or significant restoration. When the proposed mitigation is enhancement, the ratio is doubled. When the proposed mitigation is preservation, the ratio is tripled.

Mitigation may include payment into a mitigation bank or through an in-lieu fee process; or on/off-site restoration. If restoration is chosen, a Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared and submitted to the Executive Director for review and approval, no less than 60 days prior to commencement of vegetation removal/impact to ESHA or aquatic resources.

1. ***Habitat Mitigation and Monitoring Plan.*** The permittee shall carry out/undertake development in accordance with the approved HMMP. Any proposed changes to the approved plan shall be submitted to the Executive Director for approval. The HMMP shall include, at a minimum, details regarding the following:
  - a) ***Impact Validation*** – The HMMP shall include a requirement to conduct pre-construction surveys within all areas directly impacted by the project to document the character and extent of the aquatic resource/ESHA being impacted and the extent of the impacts once they occur. This could include impacts to an ESHA vegetation community or special-status plants populating the ESHA, impacts to ESHA occupied by or providing valuable habitat for a special-status animal such as San Diego fairy shrimp, or fill of an aquatic resource. Within 90 days following the impact, post-construction surveys must be completed to document the extent of the impacts, the



type of activities that occurred, and identification of the impact type (i.e., short-term temporary, long-term temporary, or permanent). If either short- or long term temporary, additional information, such as the dates of initial and final project related disturbance, species diversity within each aquatic resource/ESHA type, relative cover of dominant plant species, and age classes/size structure distributions. If special-status plants are impacted, an inventory of the population shall be performed. The results of the impact validation must be documented in a standalone report and submitted to the Executive Director.

- b) *Temporary Impacts* – The HMMP shall include details regarding the mitigation of temporary impacts. Revegetation of temporary impact areas shall include, at a minimum, replanting with locally and genetically appropriate native species and control of California Invasive Plant Council-listed species. A restoration report must be prepared within 30 days of the revegetation that documents the results of the effort. Short-term and long-term temporary surveys must be completed within twelve months of the initial disturbance and conclusion of the disturbance, respectively. The results of the surveys must be detailed in a report documenting whether the revegetation was successful, and whether the impacts are short-term temporary, long-term temporary, or permanent. The report shall be submitted to the Commission for review by the Executive Director.
- c) *Additional Plan Elements* – The HMMP shall incorporate the following:
  - i. Description and extent of aquatic resources/ESHA impacted by construction activities; proposed restoration methods for each aquatic resource/ESHA category (i.e., each vegetation/habitat type, quantity and special-status plant species affected, extent of vernal pools filled, etc.), including a distinction between on- and off-site restoration, enhancement and/or creation, applicable seed collection or salvage and propagule transplanting methods, non-native species removal/control, planting design and implementation schedule, irrigation schedule, erosion control, and exclusionary fencing; restoration success criteria, monitoring and reporting requirements; and funding source(s) and responsible parties, adaptive management strategies, maintenance schedule, and details regarding long-term preservation or management of restored areas.
  - ii. A set of interim and final success criteria for restored sites that shall serve as benchmarks and guide adaptive management and that shall include, at a minimum: (a) a minimum of 80% survival of replacement plantings (a combination of living installed, volunteer, and/or resprouting native woody plants) of trees and large shrubs at the end of five years; and (b) for all areas disturbed during construction activities, equal to or less than 5% cover of invasive plants rated “Moderate” and “High” by the California Invasive Plant Council except for nonnative annual grasses.
  - iii. A performance monitoring plan that provides for monitoring, maintenance, and remediation activities of the restored areas. The Permittee shall submit monitoring reports prepared by a qualified restoration ecologist to the Executive Director for review and approval six months after planting and at the end of Years 1, 3, and 5 after planting. Each report shall document the condition of the revegetation and invasive species removal with photographs taken from the same fixed points in the same directions; a “performance evaluation” section where monitoring results are used to evaluate the status of the revegetation and invasive

species removal efforts in relation to the interim and final success criteria in the final approved HMMP; and recommendations for work for the subsequent year needed to improve mitigation success.

- iv. Provisions for a final monitoring report for Year 5 shall be submitted for the review and approval of the Executive Director at the conclusion of all onsite mitigation efforts consistent with the monitoring schedule in the final approved HMMP. The final monitoring report shall evaluate whether the restoration areas conform to the goals, objectives, and success criteria set forth in the approved final HMMP. The final monitoring report shall summarize prior reports and provide a timeline of the overall progress and success and include sufficient detail to evaluate comprehensive mitigation compliance with the mitigation program and specified goals and success criteria set forth in the approved final HMMP.
- v. In the event actual impacts in the final “as-built” onsite habitat impact report exceed the estimates in the Final HMMP submitted prior to construction of a given project segment, the Permittee shall submit an updated HMMP that provides additional mitigation sufficient to compensate for the additional final impacts.
- vi. If the final monitoring report indicates that the restoration efforts have been unsuccessful, in part or in whole, based on the approved success criteria, the Permittee shall submit within 90 days a revised or supplemental HMMP for the review and approval of the Executive Director to compensate for those portions of the original program which did not meet the approved success criteria. The revised or supplemental HMMP shall be prepared by a qualified restoration ecologist and shall specify measures to remediate those portions of the original approved HMMP that have failed or have not been implemented in conformance with the original approved HMMP.
- vii. The Permittee shall undertake development in accordance with the approved final HMMP. Any proposed changes to the approved final plan shall be submitted to the Executive Director for approval.

## 4.3 Visual and Scenic Resources, and Community Character

The Coastal Act specifically protects scenic and visual resources in the coastal zone. This section summarizes Coastal Act and LCP scenic and visual resources policies, describes the project area's visual setting, and reviews the potential for project activities to impact these resources. It then evaluates the project's consistency with the Coastal Act and applicable LCP policies and identifies avoidance and minimization measures to address potential project impacts and related policy conflicts.

### 4.3.1 Policy Considerations

The Coastal Act and LCPs protect the scenic and visual qualities of coastal areas as a "resource of public importance." This includes requirements that development be sited and designed to protect public views and minimize landform alteration.

#### Relevant Coastal Act Provisions

Coastal Act section 30251 is the most important policy when considering protection of scenic resources:

*The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

In addition, Coastal Act section 30253 requires the protection of special community character, which may include concerns about development scale and architectural design:

*New development shall do all of the following:*

*[...]*

*(e) Where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses.*

Finally, Coastal Act section 30254 includes, in part, a specific requirement to assure that Highway one remains a scenic two-lane road in rural areas:

*...New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road.*

## Relevant LCP Provisions

Certified LCPs generally reflect the broad Coastal Act mandates to protect scenic resources. For example, the LCPs contain policies that either mimic or reflect the section 30251 requirement that development protect scenic views to and along the coast (e.g., Mendocino County General Plan Coastal Element (Coastal Element) policy 3.5-1, Sonoma County LCP policy View Protections 2, Marin County LCP policy C-DES-2). To the extent that LCP policies mirror the Coastal Act and are advisory, no more specific elaboration is warranted here. However, many LCPs identify special communities, scenic areas, and design standards for the protection of scenic and visual qualities.

Most of the project will ultimately be underground, with active soil disturbance limited to a few hours to days within a narrow corridor (assuming one work crew at a time) and affected areas restored. Therefore, only a handful of LCP visual resource policies are directly relevant for consideration, and only then as guidance, mostly in relation to those locations where the above-ground hubs are proposed in Mendocino, Sonoma, and Marin counties. Relevant LCP policies are those which contain information specific to the site in question or requirements that further elaborate on the requirements of the Coastal Act. The full text of these policies is presented in **Appendix E**. This section summarizes scenic and visual quality LCP policies that relate to those locations where the above-ground hubs are proposed in Mendocino, Sonoma, and Marin counties.

The Mendocino County Coastal Element policy 3.5-3 requires that development within designated “highly scenic areas” be subordinate to the character of its setting and provide for the protection of ocean and coastal views from public areas. Both options for hub site #20 are within a designated highly scenic area; hub site #107 does not have such designation. Coastal Element policy 3.5-4 specifies siting considerations for development within highly scenic areas to minimize visual impact (e.g., in or near the edge of a wooded area). Coastal Element policy 3.5-5 calls for screening of new development with trees that would not block coastal views from public areas. Coastal Element policy 3.5-9 requires review of all new access roads and driveways in rural areas to ensure safe location and minimal visual disturbance.

The Sonoma County LCP includes recommendations for the protection of visual and scenic resources in the categories of view protection, alterations to landforms and landform guidelines, natural landscape compatibility, community capability, utilities, vegetation, and design review procedure. Policy View Protections 1 prohibits development (including buildings, structures, fences, paved areas, signs, and landscaping) from obstructing views of the shoreline from coastal roads, vista points, recreation areas, and beaches and View Protections 3 requires a minimum setback of 100 feet from the right-of-way along scenic corridors and greater where possible, except in rural community and urban service areas. Hub sites #23 and #135 are both located along coastal roads and scenic corridors, at existing maintenance yards. Sonoma County LCP policy Alterations and Landforms 4 prohibits development that requires alteration of natural landforms and policy Landform Guidelines 6 prohibits development in open fields in rural areas. Policy Utilities 13 also requires all new distribution line extensions be placed underground. Policy Procedure 20 requires design review of new development within scenic view shed areas and includes a number of criteria to evaluate projects in design review including the condition that

neither topography nor vegetation shall be altered or removed if doing so would expose the development to view from any scenic corridor route.

The Marin County LCP policy C-DES-1 requires siting, height, scale (including materials and color) of new structures be compatible with the character of the surrounding natural and built environment, be designed to follow natural contours of the land, and limit reflectivity. Policy C-DES-4 places further height restrictions on new structures and C-DES-6 requires undergrounding of utilities. Policy C-TR-2 requires that improvements do not detract from the rural scenic characteristics of State Route 1 and C-PRS-1 requires the maintenance of the existing small-scale, historic community character of the Point Reyes Station. Hub site #136 is located along State Route 1, at an existing maintenance yard on the southern boundary of the Point Reyes Station community.

## 4.3.2 Coastal Resources and Impacts

### Statewide Project Analysis

#### **Resource Summary**

Visual and scenic resources assessed for potential impacts from the proposed project include public views from the State Highway System road right-of-way and from public vantage points that include the project in their viewshed. A visual resources study area, defined as the State Highway System road right-of-way plus an additional 500 feet on either side of the right-of-way boundary, as well as any notable or iconic geographic features that contribute to the scenic character of the viewshed, is used to identify and quantify visual resources for consideration. Scenic resources visible from greater than 500 feet at the network hub shelter locations, such as potential views to the ocean, are also identified for individual Caltrans districts, as applicable, in the *District Analysis* section below. National Register of Historic Places sites within the study area are also described.

The character of the visual resources study area changes throughout the project alignment, since the project spans the majority of the California coastline. Common visual resources throughout the study area include views both to and from the Pacific Ocean and coastline features such as coastal bluffs, sand dunes, broad sandy beaches, and cliffs. Notable scenic and visual resource types and quantities within the project's visual resource study area are summarized in **Table 4.3-1** and described below. Because the majority of the project components are to be placed underground, the visual character of each above-ground component, which includes six potential network hub shelter sites, is described in greater detail in the *District Analysis* section. Visual resources such as Coastal Scenic Areas and Prominent Landforms are described qualitatively for each Caltrans district. Similarly, Table 4.3-1 quantifies designated Caltrans vista points, which are designated and maintained accessible areas where the traveling public can stop and view the local landscape. A vista point is designated based on the quality of the view/scenery, compatibility with the adjacent state highway, accessibility to the site, and provision of adequate space to accommodate the necessary features and accessible facilities. Caltrans maintains an inventory of approximately 146 vista points throughout the State Highway System. Caltrans vista points often provide views of outstanding merit or beauty, can be in areas of historical or environmental significance, and may

be protected as part of a local scenic resource policy plan. Additional non-designated vistas/scenic viewpoints are also described in the *District Analysis* section below.

**TABLE 4.3-1  
 SCENIC AND VISUAL RESOURCES WITHIN THE VISUAL RESOURCES STUDY AREA**

Caltrans District	Caltrans Vista Points	Designated Scenic Highway (Miles)	Eligible Scenic Highway (Miles)	Wild and Scenic River Segments	Landscape Preservation Projects	Listed National Register Sites	Eligible National Register Sites
District 1	10	6	124	3	11	2	2
District 4	1	5	122	0	17	2	1
District 5	1	64	102	0	10	0	0
District 7	0	3	25	0	3	0	0
District 12	0	0	3	0	2	0	0
District 11	1	9	27	0	2	0	1
<b>Total</b>	<b>13</b>	<b>87</b>	<b>403</b>	<b>3</b>	<b>45</b>	<b>4</b>	<b>4</b>

NOTES: Miles of scenic highway are approximate and are rounded up to a whole mile. Landscape preservation projects include all projects within each District except for those located on California islands, since these are general project areas and may or may not be within 500 feet of the Project corridor.

SOURCE: Caltrans, 2020; Caltrans, 2023; California Department of Parks and Recreation, 1971; National Park Service, 2023; United States Department of Agriculture, 2022.

### Scenic Resources

Scenic resources within the coastal zone refer to features along the coast that are unique or particularly beautiful or spectacular and therefore take on public importance. Scenic resources may include but are not limited to sandy beaches and the ocean, rocky headlands and shorelines, coastal bluffs, coastal lagoons and marshlands, rural farmlands and pasturelands, and open or forested slopes, hillsides, ridgelines and mountain tops, as well as more urbanized harbors, waterfront areas and special communities. Cultural, historic, and tribal cultural resources located within scenic areas and other visitor points of interest that are visible from public viewing areas or scenic corridors may also be considered scenic resources. The LCPs for each certified jurisdiction often identify and elaborate on these resources. The Caltrans Scenic Highway Mapping Program also identifies eligible and designated scenic highway corridors that provide public views of visual and scenic resources. According to the Caltrans Scenic Highway Program, scenic corridors consist of land that is visible from, adjacent to, and outside the highway right-of-way, and is composed primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines are used to determine the scenic highway corridor boundaries.<sup>1</sup>

Although Coastal Act protections for visual resources are not limited to designated scenic resources, the following designated scenic resources are found within the study area:

<sup>1</sup> California Department of Transportation (Caltrans). 2023. Scenic Highways. Available online at: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed March 29, 2023.

**Viewpoints/Vistas.** There are approximately 13 designated Caltrans vista points within the coastal MMBN project visual resources study area. Other scenic viewpoints, such as informal roadside turnouts along scenic highways, are also available in elevated locations from which the public can access scenic vistas. Vista points and viewpoints can provide public views of the ocean, coastline, natural landforms, and other character-defining features of an area.

**Scenic Highways.** There are approximately 403 miles of eligible scenic highway corridors and 87 miles of designated scenic highway corridors identified within the coastal MMBN project visual resources study area. According to Caltrans California Scenic Highway Program, highways may be designated as scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

**Landscape Preservation Projects.** There are approximately 35 designated landscape preservation project areas identified within the coastal zone, and 16 that may intersect the visual resources study area, or are within the viewshed of the project, due to the general nature of the areas identified. Landscape preservation projects, as identified by the California Department of Parks and Recreation in the California Coastline Preservation and Recreation Plan, are areas within the coastal zone identified for protection as significant examples of the California coastal landscape. If properly managed, these landscape preservation project areas would assure that adequate examples of California's coastal landscape heritage are protected.

**Coastal Scenic Areas.** Coastal scenic areas include views of the California coastline that may be characterized by rocky promontories and headlands, rocky shorelines, sandy beaches, coastal bluffs, coastal lagoons and marshlands, rural farmlands and pasturelands, and open or forested slopes, hillsides, ridgelines and mountain tops, as well as more urbanized harbors, marinas and waterfront areas. Different jurisdictions may have slightly different definitions of such areas. For example, the Mendocino County LCP designates the majority of land west of State Route 1 as Highly Scenic Areas, but excludes certain areas (e.g., urban/developed areas). A qualitative discussion of coastal scenic areas as they relate to the visual character of the proposed network hub shelter sites is provided in the impact discussion below.

**Wild & Scenic Rivers.** The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. Rivers may be designated by Congress or, if certain requirements are met, the Secretary of the Interior. Each river is administered by either a federal or state agency. Designated segments need not include the entire river and may include tributaries. California Public Resources Code section 5093.53(a) defines "wild rivers" as being "those rivers or segments of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted." Scenic rivers, defined in section 5093.53(b), are "those rivers or segments of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads." There are three designated wild and scenic river segments within the coastal zone that intersect the project area and the visual study area – the Smith River, the Klamath River, and the Eel River, all within District 1.<sup>2</sup>

<sup>2</sup> United States Bureau of Land Management, National Park Service, U.S. Fish & Wildlife, and U.S. Forest Service. 2023. National Wild and Scenic Rivers System. National Wild and Scenic Rivers | [www.rivers.gov](http://www.rivers.gov) | Accessed May 2023.

### **Other Visual Resources**

Other visual resources within the coastal zone can also contribute to the unique visual character and quality of the study area, including non-designated coastal views. Other visual resources may include features such as landforms, historic sites, special communities, and visitor destinations, and other unique natural or manmade features.

**Prominent Landforms.** Prominent landforms are part of the terrain that are evident to the viewer and contribute to the visual character of an area. Prominent landforms within the study area include coastal bluffs, cliffs, ridgelines, and hillsides. A qualitative discussion of prominent landforms is provided in the impact discussion below, as they relate to the visual character of the proposed hub sites.

**National Register of Historic Places Sites.** There are approximately four listed and four eligible National Register sites identified within the study area, and there are none within 500 feet of the hub sites. National Register sites are those resources included on the official federal list of historic places worthy of preservation and may include buildings or structures with significant historic value. Historic bridges included on the Caltrans Historic Bridge Inventory in Categories 1 (Listed in National Register), 2 (Eligible for Listing on the National Register), or 3 (May be eligible for listing in the National Register) are considered National Register sites.

**Other Character-Defining Features.** Other character-defining features within the study area may include resources such as visitor destination centers, water bodies, and built features. For example, the Town of Mendocino is designated by the LCP as a special community, the character of which is to be maintained and enhanced.

### ***Relevant Project Activities and Effects***

Coastal scenic and visual resource topics that are addressed in this section due to potential impacts from project development include:

- Blocking or altering ocean views;
- Loss or alteration of views to open space, rural areas, or inland hillsides and mountains;
- Landform alteration through grading and earthwork;
- Compatibility with, and subordination to, surrounding areas and change in character;
- Night lighting and glare; and
- Design considerations such as height, color, aesthetic treatments, and landscaping choices.

Caltrans' California Scenic Highway Program serves to protect and preserve scenic highway corridors from changes that could diminish the aesthetic value of lands adjacent to highways. The program encourages quality development and infrastructure improvements that do not degrade the scenic value of the corridor to the traveling public. The analysis considers potential project impacts on designated scenic highways.

Project activities with potential to impact visual and scenic resources include construction activities that may temporarily or permanently impede views of scenic and visual resources, including views from scenic highways. Construction activities that alter landforms through grading or other earthwork may also have the potential to temporarily or permanently alter the



visual character of an area. A detailed discussion of these potential impacts for the underground and above-ground project components is provided below.

### **Construction & Operation of Underground Facilities**

The majority of the coastal MMBN project elements would be located underground. All underground components would be placed within the State Highway System right-of-way and no road realignment or reconstruction is anticipated. Underground installation of fiber-optic conduit and vaults requires removal of existing surfaces (paved or unpaved), earthwork, and restoring the surface, as needed. Conduit installation requiring plowing, trenching, or drilling would result in temporary ground or vegetation disturbance that may degrade the visual character of scenic highway corridors or scenic viewsheds, and similar impacts would be expected for vault installation. The *Middle Mile Broadband Network Design Guidelines*<sup>3</sup> (*Design Guidelines*) state that vaults should be installed flush to the original surface whenever possible, at or below existing grade. Given the small size of the vaults, no substantial alterations to topography or prominent landforms, such as hillsides, cliffs, or dunes, would occur as a result of the installation of the coastal MMBN project's underground components.

State highway lane closures during construction of the underground components could temporarily impact members of the public attempting to access scenic viewpoints, as some scenic viewpoints are located along highways and access roads or pullouts may be inaccessible during lane closures.

Temporary construction activities such as vegetation removal and open trenches, presence of construction equipment or lane closures that may impede access to scenic resources and add construction equipment within scenic highway corridors would move along the project corridor daily within approximately 40-foot-wide, 1,000-foot-long segments (approximately 100 feet/hour, assuming one work crew). Therefore, construction activities would not constitute a substantial effect on visual or scenic resources due to their small footprint and the short duration of work in any given area.

Operation of underground components would include occasional maintenance activities, which could require construction equipment that could also be inconsistent with the visual character of rural scenic roadways. However, presence of construction equipment for maintenance activities would be infrequent and temporary, such that travelers along the roadway would not encounter these features for a duration that could detract from the visual character of the area. Furthermore, as described in Section 2.7, Operation and Maintenance, ground-disturbing activities associated with ongoing operation and maintenance of telecommunications projects are normally minor to nonexistent. These activities are also typically associated with highways and not an unusual visual disturbance typically. As a result, no alterations to topography or landforms are anticipated from operations. For these reasons, no substantial impacts from operation of underground components would occur.

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<sup>3</sup> Caltrans and California Department of Technology (CDT), 2023. Middle-Mile Broadband Network Design Guidelines. April 2023.

### Construction & Operation of Aboveground Facilities

Aboveground coastal MMBN project elements are limited to (1) temporary construction staging areas, (2) installation of the network hub shelters, conduit installation on bridges or other aboveground structures, (3) paved maintenance vehicle pullouts, and (4) vault and conduit markers. As described in Section 2.5.4, *Staging Areas*, no new staging areas would be established in undisturbed areas. Per the Caltrans *Middle-Mile Broadband Network Coastal Zone Guidelines for Programmatic Permitting*<sup>4</sup> (*Guidelines for Programmatic Permitting*), the project is planned for underground installation only. Under rare circumstances, with approval from the California Department of Technology (CDT), aboveground conduit installation may be considered on bridges or other structures. Potential impacts from aboveground installation include impacts to scenic and visual resources (e.g., obstruction or alteration of a protected view, location within a designed scenic area) and may raise consistency issues with policies that prioritize the undergrounding utilities for the protection of scenic resources and visual character.

As described for the underground components of the project, construction areas including staging and access would include the presence of construction equipment, materials, and workers in areas where these components are inconsistent with the visual character of the surrounding area, particularly in rural scenic highways. Per the description of construction staging areas in Section 2.5.4, staging would occur in previously disturbed, graded, or paved areas. However, construction of aboveground components (e.g., construction staging areas, network hub shelters, etc.) could adversely affect scenic or visual resources of the coast if it were to require substantial ground disturbance, land alteration, or tree removal adjacent to the roadway in previously undisturbed areas, or if it were to impede views to and along the ocean and scenic coastal areas or be visually incompatible with the existing character of surrounding area.

Regarding conduit installation on bridges, five bridges within the project area have been identified as historic bridges, either listed or eligible for listing on the Caltrans Historic Bridge Inventory. Temporary construction activities would not alter the visual character of historic bridges. As described in Chapter 2, *Project Description*, consistent with Caltrans' *Guidance for Broadband Installation on Bridges*, conduits would be placed within existing unused conduit passages (if available) or within the bridge structure cells, attached underneath the structure, hung underneath the structure, or attached to the exterior the structure. Conduit would be painted or covered with an approved coating to match the color of the structure, if necessary, to avoid visual impacts to historic bridges. Conduit installation would also follow the guidelines within the Caltrans' *Encroachment Permit Manual*,<sup>5</sup> which require that utilities be installed out of sight and be enclosed to look like an integral part of the bridge.

Paved maintenance vehicle pullouts of roughly 12 feet by 85 feet would be constructed within coastal MMBN project segments, where required to provide parking for access to vaults for maintenance. These pullouts would be constructed within the existing State Highway System right-of-way adjacent to the existing pavement, by paving unvegetated shoulder areas. The additional

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<sup>4</sup> Caltrans. 2022. Middle-Mile Broadband Network Coastal Zone Guidelines for Programmatic Permitting. December 2022.

<sup>5</sup> Caltrans, 2022. Encroachment Permits Manual, Chapter 600 – Utility Permits. Table 6.4 Additional requirements for utility facilities located on bridges or other structures. July 2022.

paving for pullouts could detract from the character of designated scenic highways and other two-lane coastal highways. Careful consideration of the location and amount of these pullouts is necessary to minimize visual impacts under the Coastal Act.

The vault and conduit markers would constitute new vertical elements that could be visible from the roadway and may diminish coastal views. Caltrans' *Guidelines for Programmatic Permitting* encourages use of the disk marker, which would be flush with the ground surface, to minimize visual impacts. Other opportunities to install fiber optic markers on pre-existing signs, guard rails, or other transportation system infrastructure would also be utilized to further reduce the potential for visual impacts.

Construction and operation of the network hub locations could alter the visual character of the project setting through development of a 50-foot by 50-foot fenced area containing a shelter, standby generator, and fuel tanks. Access to each hub shelter would be provided by a 20-foot-wide minimum access road with a 20-foot-wide gate. No vegetation would be allowed to remain within 30 feet of the hub structures for fire protection. The fencing surrounding these sites would be high-security ornamental steel fencing extending to a height of 8 feet with pickets curved outward. The *Design Guidelines* call for exterior lighting for each hub site, which would introduce new sources of exterior lighting to some rural areas where existing sources of nighttime lighting are minimal. The standard design and dimensions of the hub shelters are described in the project description, and Figure 2-3 provides a conceptual rendering of the structures, including the required fencing, and lighting.

In accordance with Caltrans and CDT's *Design Guidelines* the network hub shelter locations have been sited largely within areas where the visual character is defined by other rest areas, maintenance yards, or similar non-highway operating right-of-way. However, the project corridor sections where the hub shelters are proposed are largely defined as a scenic, two-lane highway, within the coastal zone and land uses adjacent to many segments of the project are rural or undeveloped. Therefore, development of these hub shelters could be inconsistent with the general visual character of the project area. A detailed evaluation of each hub shelter location is provided in the *District Analysis* section below.

According to Caltrans' *Guidelines for Programmatic Permitting*, best management practices for above-ground components include consideration of aesthetic treatments such as architectural styling, colorization and other design options for the fence, shelter structure, and any other aboveground infrastructure to match the surrounding community character. As described in the *Design Guidelines*, exterior finishes of the hub sites are typically exposed aggregate finish. Due to the rural and undeveloped nature of much of the project area, this exterior finish may be inconsistent with the existing visual character of the hub site locations. However, the *Design Guidelines* allow for three tier levels of exterior finishes. Tier 1 exterior finishes are for projects with major environmental or aesthetic issues and would allow custom materials to be applied, helping minimize impacts and providing compatibility with the visual character of the area. Further vegetation screening measures for the hubs may also be necessary.

## District Analysis

A summary of the types of resources present within each district and potential project effects unique to those districts are presented in the subsections that follow. Implementation of most project elements could be expected to have similar types of temporary and permanent effects across multiple districts. As discussed in *Statewide Project Analysis*, above, conduit and vault installation would require vegetation removal and ground disturbance that may temporarily degrade the visual character of scenic highway corridors or scenic viewsheds. Installation of conduit on bridges could alter the aesthetic character of project area bridges. Additional paving for pullouts could detract from the rural and scenic aesthetic of two-lane coastal highways. Project markers, and new cable placed on bridges or other structures would constitute new above-ground elements that could diminish coastal views. As many of these effects would be substantially similar for each district, the impact discussion within *District Analysis* focuses on the visual impacts that would be unique to the individual districts.

### ***District 1***

#### **Scenic and Visual Qualities**

The coastline within District 1 is composed largely of rugged cliffs interspersed with small narrow beaches. Section 4.2, Biological Resources, describes the environmental setting in terms of vegetation and presents the types and amounts of different sensitive habitat communities within the biological resources study area, defined as 500 feet from the project area. The sensitive habitat descriptions are reflective of the notable landscape elements that contribute to the project area's visual character and quality. As shown in Table 4.2-3, sensitive habitats within the District 1 biological resources study area generally comprise woodland/forest (55 percent), riparian woodland/forest (20 percent), and grassland/herbaceous communities (14 percent). The remainder of the sensitive communities within District 1 include freshwater/saline marsh (4 percent), beach/dune (3 percent), scrub/chaparral (3 percent), fresh/marine open water (1 percent), and rock outcrop/bluff (less than 1 percent).

Throughout the visual study area of District 1, there are many densely forested and vegetated areas. Highways 1 and 101 generally sit at a higher elevation than the beaches and coastline, providing views of surrounding hillsides and topography. Development within the visual study area of District 1 is sparse, composed largely of intermittent rural development between stretches of open space and some agricultural lands. As described in Table 4.3-1 above, there are 10 Caltrans vista points, approximately 6 miles of Caltrans designated scenic highway, 3 wild and scenic river segments, and approximately 124 miles of Caltrans eligible scenic highway within the study area within District 1. The Caltrans vista points are located at Crescent City and Wilson Creek in Del Norte County; Orrick/Freshwater Lagoon, Harold G. Larsen, and McKinleyville/Mad River in Humboldt County; and Brewery Gulch, Big River, Caspar Creek, Mallo Pass Creek, and Schooner Gulch, in Mendocino County. The wild and scenic rivers include segments of the Smith River that intersects with the project area just north of Fort Dick, the Klamath River that intersects with the project area just south of Hoppaw, and the Eel River that intersects with the project area south of Fernbridge. A segment of the project also ends at an intersection with the Eel River just south of Alton. There are also 11 landscape preservation

project areas identified within the district, 8 of which intersect with the study area or are within the viewshed of the project.<sup>6</sup>

Other visual resources within the viewshed of the District 1 project corridor and network hub site locations include State Route 1 as a scenic two-lane highway, undeveloped agricultural land, and distant views of the coastline and Pacific Ocean. The project corridor also runs through jurisdictions along the Mendocino Coast identified for protection of their visual character in the Mendocino County LCP, including the Town of Mendocino, and the communities of Westport, Caspar, Little River, Albion, Elk, and Manchester (policy 3.5-2).

The Mendocino County LCP identifies four “Highly Scenic Areas,” in which new development shall provide for the protection of ocean and coastal views from public areas including highways, roads, coastal trails, vista points, beaches, parks, coastal streams, and waters used for recreational purposes and shall be subordinate to the character of its setting (policy 3.5-3). Development within designated highly scenic areas is limited to one-story (above natural grade) and should be subordinate to natural setting and minimize reflective surfaces. Prominent landforms identified in District 1 include coastal bluffs, sea cliffs, hillsides, gulches, dunes, and beaches.

There are also two listed National Register sites located in the Caltrans District 1 study area. The listed sites include Redwood Highway in Del Norte County and Fernbridge, an historic bridge, in Humboldt County. In addition, there are three bridges in Mendocino County that are eligible for listing – Albion River bridge, Russian Gulch bridge, and Schooner Gulch bridge.

### Visual Character

For aboveground components in District 1, the proposed location of hub site #107 is on the west side of State Route 1, southwest of the traffic circle of Old Coast Highway, State Route 1, and Simpson Road, in unincorporated Mendocino County (postmile MEN 59.237). This hub site is located approximately 0.5 miles south of the Boatyard Shopping area and is approximately 0.3 miles east of the Pacific Ocean coastline. The visual character of the area is defined by ornamental landscaping and minor commercial development surrounding the traffic circle including a gas station and thrift shop, along with some undeveloped land. Views beyond the immediate adjacent land uses include large trees that define the skyline in each direction. Due to this intervening vegetation, there are no views of the coastline or Pacific Ocean from this hub site location. However, State Route 1 is an eligible scenic highway at this location. Refer to **Figure 4.3-1** for a view of hub site #107, looking west from the Simpson Lane roundabout at State Route 1.

Hub site #107 is located within an area that is considered excluded from the Highly Scenic Area per the Mendocino County LCP (Map 14, Beaver).

<sup>6</sup> Landscape Preservation Projects Nos. 2, 3, 4, 5, 6, 7, 10, and 11 either intersect the study area or are within the project viewshed.



SOURCE: Google Earth, 2023.

**Figure 4.3-1**

View looking west from Simpson Lane roundabout towards hub site #135

Hub site #20 – option 1 is located on the west side of State Route 1, approximately 2.5 miles north of the community of Manchester, in unincorporated Mendocino County (postmile MEN 23.295). This hub site is located just south of Owl Creek Road and is 0.45 miles east of the Pacific Ocean coastline. The portion of State Route 1 adjacent to this hub site location is a two-lane road with berms and dense vegetation on the east and west sides of the roadway, creating a narrow visual corridor to the north and the south. The hub here is anticipated to be placed behind the roadside berm where it would largely not be visible from the highway or any public access locations. Land uses surrounding this segment of State Route 1 are agricultural. To the north and south, where topography and vegetation are not intervening, State Route 1 provides distant views of the Pacific Ocean and State Route 1 is an eligible scenic highway at this location. Refer to **Figure 4.3-2** for a view of hub site #20 – option 1, looking southwest from State Route 1.



SOURCE: Google Earth, 2023.

**Figure 4.3-2**

View looking southwest from State Route 1 towards hub site #20 – Option 1 (right)

Hub site #20 – option 2 is located on the west side of State Route 1, in the community of Manchester, in unincorporated Mendocino County, at an undeveloped pullout (postmile MEN

20.818). This site is located just south of Brush Creek and is 1.5 miles east of the Pacific Ocean coastline. The visual character of this location is defined by rural residences and agricultural land. Due to intervening vegetation to the west of State Route 1, there are no views of the Pacific Ocean or coastline available from the road right-of-way. However, State Route 1 is an eligible scenic highway at this location. Refer to **Figure 4.3-3** for a view of hub site #20 – option 2, looking north from State Route 1.

Both options for hub site #20 are located within a Highly Scenic Area per the Mendocino County LCP, which defines this area as west of State Route 1 between the Navarro River and the northern boundary of the City of Point Arena.



SOURCE: Google Earth, 2023.

**Figure 4.3-3**  
View looking north from State Route 1 towards hub site #20 –  
Option 2 (left)

### Impact Analysis

As described in Section 4.4, Cultural Resources, there is one listed historic bridge and three eligible historic bridges in District 1. Any mounting of conduit on bridges would comply with Caltrans' *Guidance for Broadband Installation on Bridges*<sup>7</sup> and the Caltrans' *Encroachment Permit Manual*,<sup>8</sup> which requires encroachments to be installed out of sight or, as a last resort, enclosed to look like an integral part of the bridge. If enclosed utilities are within sight where they are placed on eligible or listed historic bridges, there is the potential for a visual impact for features inconsistent with the historic character of the bridges. In addition, Redwood Highway in Del Norte is a listed site. The majority of project elements proposed along Redwood Highway would be at or below ground. The aboveground elements (i.e., markers and paved pullouts) would appear similar to existing development within the right-of-way and so would not substantially diminish scenic views, or otherwise impact the historic character of this site. New aboveground

<sup>7</sup> Caltrans. 2022. *Guidance for Broadband Installation on Bridges*. March 15, 2022.

<sup>8</sup> Caltrans, 2022. *Encroachment Permits Manual*, Chapter 600 – Utility Permits. Table 6.4 Additional requirements for utility facilities located on bridges or other structures. July 2022.

cable would similarly not diminish the visual quality of the project areas where existing utility lines exist.

The nearest scenic viewpoint to hub site #107 is Caspar Creek vista point, located 3.6 miles south of the hub site, and the hub site is not within the viewshed from this viewpoint. The nearest scenic viewpoint to both locations for hub site #20 is Mallo Pass Creek Vista, which is 1.7 miles north of option 1 and 4.1 miles north of option 2. Due to their distance, none of the hub shelters would be within the viewshed of these points. The hub sites within District 1 are not visible from the Pacific Ocean or shoreline.

Hub Site #107 would not impede or alter views of any scenic resources and would be consistent with the other land uses surrounding the roundabout (e.g., the gas station).

Hub site #20 – option 1 would potentially require grading of the berm adjacent to the road right-of-way and removal of vegetation. Distant views of the Pacific Ocean may be visible from this location once the existing vegetation is cleared and area is graded; although, no current views exist from the roadway. Therefore, the proposed structure would replace existing natural features within the project corridor and after grading, may partially impede views of surrounding agricultural land and the Pacific Ocean. However, this same grading may also provide new clearings and views to these same resources.

Hub site #20 – option 2 would impede views of the surrounding agricultural land; no other scenic or visual resources are present at this location. Due to the intermittent rural development in the area and existing clearing, the proposed development would be similar to the scale of development in the surrounding area. Hub site #20 – option 2 would not result in the alteration of any natural landforms. The hub sites within District 1 are not located on hillsides, ridgelines or within the middle of large open areas.

Both options for hub site #20 would represent new development within largely undeveloped Highly Scenic Areas. However, the proposed structures would be comparable in size to other existing developments in the region and would not be substantially larger or conspicuous relative to defining landscape features (e.g., topography and vegetation). While permanent vegetation removal or grading for hub site construction, if required, could alter the visual character of the sites, the structures would be subordinate to the character of their setting.

Depending upon final design, the architectural style and lighting associated with hub site #20 (both options) could result in potential visual impacts related to compatibility with the rural, agricultural, and generally undeveloped and minimally lit aesthetic of the surrounding areas. All hub shelters would be designed in accordance with the *Design Guidelines*, which includes three tiers of exterior finishes for the purpose of providing compatibility with surrounding areas. Tier 1 exterior finishes are for areas with major environmental or aesthetic issues, which would apply to Highly Scenic Areas.

Additional measures to minimize visual impacts of hubs may be warranted, such as potential landscaping, screening, and colorization.



## **District 4**

### **Scenic and Visual Qualities**

The coastline within District 4 is similar to that of District 1, composed largely of rugged cliffs interspersed with small to moderately sized narrow beaches. As the project area moves south, the beaches tend to become broader and sandier, such as Stinson Beach in Marin County, Ocean Beach in San Francisco County, and Half Moon Bay in San Mateo County. As described in Table 4.2-3, sensitive habitat communities within the District 4 biological resources study area comprise grassland/herbaceous communities (50 percent), woodland/forest (19 percent), and riparian woodland/forest (11 percent). The remainder of the sensitive habitats within District 4 consist of freshwater/marine open water (6 percent), freshwater/saline marsh (6 percent), scrub/chaparral (4 percent), beach/dune (2 percent), and rock outcrop/bluff (1 percent).

Throughout the visual study area of District 4, there are densely forested and vegetated areas in the northern portion of the district, and gradually more development and agricultural land is present moving south. The project largely follows the alignment of State Route 1 within this district, which is a more visually sensitive resource with more specific protection than larger Highway 101. Highway 1 here generally sits at a higher elevation than the beaches and coastline, providing views of surrounding hillsides and topography, such as the Bolinas Ridge and Mount Tamalpais in Marin County. Views of the mountain ranges within Point Reyes National Seashore are available from State Route 1 across Tomales Bay. Development within the visual study area of District 4 is sparse but gradually densifies moving south. Within San Mateo County, the project area runs largely through developed communities, as opposed to the rural and open space lands present through much of Marin and Sonoma counties.

As described in Table 4.3-1 above, there is one Caltrans vista point, approximately 5 miles of Caltrans designated scenic highway, and approximately 122 miles of Caltrans eligible scenic highway within the study area within District 4. The Caltrans vista point is the Muir Beach vista point in Marin County. There are also 8 landscape preservation project areas identified within the district, 3 of which intersect with the study area or are within the viewshed of the project.<sup>9</sup>

Other visual resources within the viewshed of the District 4 project corridor and network hub site locations include State Route 1 as a scenic two-lane highway, undeveloped agricultural land, and distant views of the coastline and Pacific Ocean. Other water features within the study area of District 4 include Bodega Bay, Tomales Bay, and Bolinas Lagoon. The Marin County LCP also includes design guidelines for development within Stinson Beach and Muir Beach. Prominent landforms identified in District 4 include ridgelines, the upland greenbelt, hillsides, dunes, coastal bluffs, cliffs, and sandy beaches.

There are two National Register sites within the District 4 study area. The Dipsea Trail in Marin County is a listed site, and the Pilarcitos Creek bridge in San Mateo County is eligible for listing.

<sup>9</sup> Landscape Preservation Projects Nos. 12, 13 and 15 either intersect the study area or are within the project viewshed.

### Visual Character

For above-ground components in District 4, the proposed location of hub site #23 is on the inland (northeast) side of State Route 1, in the community of Jenner, in unincorporated Sonoma County (postmile SON 35.327). The site is located partially within an existing Caltrans maintenance yard, approximately 200 feet northwest of Rossen Road, across from the Timber Cove Boat Landing, and approximately 0.05 miles east of the Pacific Ocean. The visual character is defined by the two-lane roadway of State Route 1, trees within the northern portion of the right-of-way, a Caltrans maintenance yard directly to the north, and recreational vehicles (RVs) parked along State Route 1 to the south. The Pacific Ocean is visible to the south of the location, as are distant views of the shoreline cliffs when traveling both north and southbound on State Route 1, an eligible scenic highway at this location. Refer to **Figure 4.3-4** for a view of hub site #23, looking north from State Route 1.



SOURCE: Google Earth, 2023.

**Figure 4.3-4**  
View looking north towards hub site #23 (right)

The proposed location of hub site #135 is on the east side of State Route 1, between Bodega Dunes Campground and Bay Hill Road/Ranch Road in the community of Bodega Bay, in unincorporated Sonoma County (postmile SON 11.585). This hub site is located approximately 0.66 miles north of Bodega Bay shoreline and 1 mile east of the Pacific Ocean shoreline at a Caltrans maintenance yard. The visual character is defined by the two-lane roadway of State Route 1 and trees within both the western and eastern portions of the right-of-way. The existing Caltrans maintenance yard and agricultural land are present to the east and Sonoma Coast State Beach is located to the west. Due to intervening vegetation, there are no views of the coastline or Pacific Ocean from this hub site location. However, State Route 1 is an eligible scenic highway at this location. Refer to **Figure 4.3-5** for a view of hub site #135, looking northeast from State Route 1.

Both hub sites #23 and #135 are located within Scenic Landscape Units which comprise all areas outside of developed communities within the coastal cone in Sonoma County.



SOURCE: Google Earth, 2023.

**Figure 4.3-5**  
View looking northeast towards hub site #135 (right)

The proposed location of hub site #136 (Marin County) is on the west side of State Route 1, within an existing Caltrans maintenance yard in the community of Point Reyes Station, in unincorporated Marin County. This hub site is located approximately 0.6 miles southeast of the Tomales Bay shoreline and 4 miles northeast of the Pacific Ocean shoreline. The visual character of the area is defined by sloped undeveloped land to east, the existing maintenance yard and undeveloped land to the west, and trees within the two-lane State Route 1 right-of-way. Views beyond the immediate adjacent land uses include the Inverness Ridge, which defines the skyline to the west. Due to this intervening topography, there are no views of the coastline or Pacific Ocean from this hub site location. State Route 1 is an eligible scenic highway at this location. Refer to **Figure 4.3-6** for a view of hub site #136, looking northwest from State Route 1.



SOURCE: Google Earth, 2023.

**Figure 4.3-6**  
View looking northwest towards hub site #136 (left)

### Impact Analysis

As described above, there is one eligible historic bridge within District 4. Any mounting of conduit on bridges would comply with Caltrans' *Guidance for Broadband Installation on Bridges*<sup>10</sup> and the Caltrans' *Encroachment Permit Manual*,<sup>11</sup> which requires encroachments to be

<sup>10</sup> Caltrans. 2022. *Guidance for Broadband Installation on Bridges*. March 15, 2022.

<sup>11</sup> Caltrans, 2022. *Encroachment Permits Manual*, Chapter 600 – Utility Permits. Table 6.4 Additional requirements for utility facilities located on bridges or other structures. July 2022.

installed out of sight or, as a last resort, enclosed to look like an integral part of the bridge. If enclosed utilities are within sight where they are placed on eligible or listed historic bridges, there is the potential for a visual impact for features inconsistent with the historic character of the bridges.

While hub site #23 is located near the Pacific Ocean, due to the intervening topography of the cliffs, presence of the existing RV park, and location of the hub site on the eastern side of State Route 1, it is unlikely that the hub site would be visible from the ocean. Furthermore, hub site #23 would be located within an existing Caltrans maintenance facility and would therefore be consistent with the existing visual character of the site. Due to its location on the east side of State Route 1, the hub site would not block blue water views or impede views of the coastline.

Hub site #135 may require tree removal within a scenic highway corridor but would be located near an existing Caltrans maintenance yard and rural development. Vegetation alteration and removal that exposes new development to views within a scenic corridor could result in a potentially substantial visual impact. This hub site would not impede views of the surrounding agricultural land as those views are currently screened by trees and development. No other scenic or visual resources are present at this location. Due to the intermittent rural development in the area and existing clearing, the proposed development would be consistent with the area's visual character.

Hub site #136 would be located within an existing maintenance yard which is mostly screened by large trees from view of the public traveling on State Route 1. Construction of this hub site is not anticipated to impact the existing screening trees; therefore, it would not be conspicuous from the scenic highway corridor and would not be expected to impact views of surrounding agricultural land.

Depending upon final design, the architectural style and lighting associated with the hub sites #23 and #135 could result in potential visual impacts related to incompatibility with the rural, agricultural, and generally undeveloped aesthetic of the surrounding areas. All hub shelters would be designed in accordance with the *Design Guidelines*, which includes three tiers of exterior finishes for the purpose of providing compatibility with surrounding areas. Tier 1 exterior finishes are for areas with major environmental or aesthetic issues, which would apply to scenic viewshed areas, scenic corridors, and other areas with substantial scenic and visual resources. Additional measures to minimize visual impacts of hubs may be warranted, such as potential landscaping, screening, and colorization.

The other aboveground elements (i.e., markers and paved pullouts) would appear similar to existing development within the right-of-way and so would not substantially diminish the scenic or visual qualities, or otherwise impact the historic character of the site. New aboveground cable would similarly not diminish the visual quality of the project areas where existing utility lines exist. District 4's decision to use existing maintenance yards largely eliminates visual resource concerns and represents a significantly beneficial approach.

## **District 5**

Within District 5, the coastline is generally characterized by cliffs and coastal bluffs, backed by the rolling coast range mountains. However, several bays exist along this stretch of coast, such as Monterey Bay, Morro Bay, San Luis Obispo Bay, that have shorelines defined by their broad sandy beaches and dunes, backed by broad coastal valleys. As described in Table 4.2-3 sensitive habitat communities within the District 5 biological resources study area comprise grassland/herbaceous (34 percent), woodland/forest (21 percent), and scrub chaparral (19 percent). The remainder of the sensitive habitats within District 5 consist of beach/dune (12 percent), riparian woodland/forest (6 percent), fresh/marine open water (4 percent), freshwater/saline marsh (4 percent), and rock outcrop/bluff (less than 1 percent).

Throughout the visual study area of District 5, there are a wide variety of larger coastal cities, including the cities of Santa Cruz, Monterey, Morro Bay, Pismo Beach, and Santa Barbara, along with agricultural corridors, and the Santa Cruz, Santa Lucia, and Santa Ynez mountains. The project largely follows the alignment of State Route 1 within this district, and varies from higher elevations providing landscape vistas, to lower elevations almost at sea level with more limited views. Development within the visual study area of District 5 is generally concentrated within coastal valleys between mountain ranges, with dense residential and commercial development along the Monterey Bay coastline between the Santa Cruz Mountains and Santa Lucia Range, and minimal development between this region and the Morro Bay area. Within Santa Barbara County, the project area extends mainly through urban communities.

As described in Table 4.3-1 above, there is 1 Caltrans vista point, approximately 64 miles of Caltrans designated scenic highway, and approximately 102 miles of Caltrans eligible scenic highway within the study area within District 5. The Caltrans vista point is the Monterey Bay vista point in Santa Cruz County. There are also 10 landscape preservation project areas identified within the district, 5 of which intersect with the study area or are within the viewshed of the project.<sup>12</sup>

Other visual resources within the viewshed of the District 5 project corridor include State Route 1 as a scenic two-lane highway, undeveloped agricultural land, and distant views of the coastline and Pacific Ocean.

There are no network hub shelter sites proposed within District 5. There are no National Register Sites or historic bridges within the District 5 study area. The aboveground elements (i.e., markers, paved pullouts, cable placed on structures) would appear similar to existing development within the right-of-way and so would not substantially diminish scenic or visual quality of the area.

## **District 7**

The coastline within District 7 includes broad sandy beaches throughout much of Ventura County, with significant wetlands near Point Mugu. South of Point Mugu, State Route 1 follows a narrow coastline, with several hills and canyons to the north as part of the Santa Monica

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<sup>12</sup> Landscape Preservation Projects Nos. 20, 21, 22, 25, and 26 either intersect the study area or are within the project viewshed.

Mountain range. The coastline through Malibu includes low-lying coastal development, sandy beaches, canyons and the Malibu Lagoon. South of Malibu, the beaches become broader with development set farther back and east of the beaches. The topography becomes flatter towards the south, except for the Palos Verdes Hills region west of Long Beach. The Ports of Los Angeles and Port of Long Beach are also prominent developed features of the coastline within District 7. As described in Table 4.2-3, sensitive habitat communities within the District 7 biological resources study area comprise scrub/chaparral (55 percent), riparian woodland/forest (17 percent), and woodland/forest (17 percent). The remainder of the sensitive habitat within District 7 consists of beach/dune (11 percent), fresh/marine open water (3 percent), freshwater/saline marsh (1 percent), and rock outcrop/bluff (less than 1 percent).

With the exception of the areas north of Ventura and along Topanga Canyon, the District 7 project area is urban and developed. The project largely follows the alignment of State Route 1 within this district and is low in elevation, near sea level. However, the portion of the project along Topanga Canyon Road extends from the coastline into the Santa Monica Mountains. As described in Table 4.3-1 above, there are no Caltrans vista points, approximately 3 miles of Caltrans designated scenic highway, and approximately 25 miles of Caltrans eligible scenic highway within the study area within District 7. There are also 5 landscape preservation project areas identified within the district, none of which intersect with the study area or are within the viewshed of the project.

There are no network hub shelter sites proposed within District 7. There are no National Register Sites or historic bridges within the Caltrans District 7 study area and no visual impacts are anticipated. The aboveground elements (i.e., markers, paved pullouts, cable placed on structures) would appear similar to existing development within the right-of-way and so would not substantially diminish the scenic or visual quality of the area.

### ***District 12***

The coastline within District 12 is similar to that described for Districts 5 and 7, with a majority of the coast characterized by broad sandy beaches, and in some areas backed by cliffs and coastal bluffs (e.g., near Laguna Beach and Dana Point). As described in Table 4.2-3, sensitive habitat communities within the District 12 biological resources study area comprise scrub/chaparral (54 percent), grassland/herbaceous (17 percent), and woodland/forest (10 percent). The remainder of the sensitive habitats within District 12 consist of riparian woodland/forest (7 percent), fresh/marine open water (6 percent), freshwater/saline marsh (4 percent), beach/dune (3 percent) and rocky outcrop/bluff (1 percent).

Throughout the visual study area of District 12, there is a substantial amount of residential and commercial development adjacent to the coastline. Areas such as Newport Beach and Dana Point include substantial development west of State Route 1 within Lido Isle and Dana Point Harbor, but also offer views of the ocean and distant coastal hills. The portion of the project area along Laguna Canyon Road meanders through the San Joaquin Hills as it climbs from State Route 1 near the beach to State Route 73 at nearly 300 feet above sea level. Laguna Canyon Road is bounded by residential and commercial development to the east, and steeply sloping undeveloped mountainous terrain to the west. As described in Table 4.3-1 above, there are no Caltrans vista

points or Caltrans designated scenic highways, and there are approximately 3 miles of Caltrans eligible scenic highway within the study area within District 12. There are also 2 landscape preservation project areas identified within the district, neither of which intersect with the study area or are within the viewshed of the project.

There are no network hub shelter sites proposed within District 12. There are no National Register sites or historic bridges within the Caltrans District 12 study area and no visual impacts are anticipated. The aboveground elements (i.e., markers, paved pullouts, cable placed on structures) would appear similar to existing development within the right-of-way and so would not substantially diminish scenic or visual quality of the area.

### **District 11**

The coastline within District 11 is similar to Districts 5, 7, and 12 with intermittent cliffs broader sandy beaches. The coastline with the northern portion of District 11 is largely undeveloped slopes with canyons and San Onofre Mountain to the northeast, with minor development for Camp Pendleton military operations. Beaches south of this area are largely broad sandy beaches, with intermittent lagoons, and coastal bluffs in areas such as Cardiff, Del Mar, and La Jolla. As described in Table 4.2-3, sensitive habitat communities within the District 11 biological resources study are beach/dune (30 percent), fresh/marine open water (28 percent), scrub/chaparral (20 percent). The remainder of the sensitive habitats within District 11 consist of freshwater/saline marsh (16 percent), riparian woodland/forest (4 percent) and grassland/herbaceous (2 percent). The District 11 visual study area is predominantly urban, with a substantial amount of institutional, residential and commercial development along the coast, adjacent to the project area.

The District 11 project area offers coastal and ocean views the west, and coastal hills and the distant Cuyamaca Mountains to the east. While most of the coast south of Camp Pendleton is developed, a few exceptions exist, such as State marine reserves and lagoons, Torrey Pines State Nature Reserve, Silver Strand State Beach, and the Tijuana River National Estuarine Research Reserve. Mission Bay and San Diego Bay, including Coronado Island and the Port of San Diego, are also major features visible from the coast within District 11. As described in Table 4.3-1 above, there is 1 Caltrans vista point, approximately 9 miles of Caltrans designated scenic highway, and approximately 27 miles of Caltrans eligible scenic highway within the study area within District 11. The Caltrans vista point is the Manchester vista point in San Diego County. There are also 2 landscape preservation project areas identified within the district, neither of which intersect with the study area or are within the viewshed of the project.

There are no network hub shelter sites proposed within District 11. There is one National Register listed site in the Caltrans District 11 project area. This one site is the San Diego Coronado Bat Bridge, an eligible historic bridge. Any mounting of conduit on bridges would comply with Caltrans' *Guidance for Broadband Installation on Bridges* and the Caltrans' *Encroachment Permit Manual* (July 2022), which requires encroachments to be installed out of sight, or as a last resort, enclosed to look like an integral part of the bridge. If enclosed utilities are within sight where they are placed on eligible or listed historic bridges, there is the potential for a visual impact for features inconsistent with the historic character of the bridges. The aboveground

elements (i.e., markers, paved pullouts, cable placed on structures) would appear similar to existing development within the right-of-way and so would not substantially diminish scenic or visual quality of the area.

### 4.3.3 Consistency Analysis

This section provides an assessment of whether any project elements or activities could raise consistency issues with Coastal Act or LCP visual resources policies (Section 4.3.1, *Policy Considerations*). Where the analysis finds that project activities potentially raise such issues, avoidance and minimization measures are recommended to prevent or reduce impacts and address potential policy conflicts. The full text of the recommended measures is presented in Section 4.3.4, *Avoidance and Minimization Measures*.

#### Scenic Resources

Project staging and construction may require vegetation removal or grading which could diminish the scenic and visual quality of coastal areas, raising potential issues with Coastal Act section 30251. **Avoidance and Minimization Measure VIS-1, Minimize Construction Disturbance**, is recommended to avoid or minimize such impacts. Avoidance and Minimization Measure VIS-1 would require that staging be limited to previously disturbed areas, that construction minimize landform alteration and vegetation removal, and that all disturbed areas beyond the project footprint be returned to their approximate pre-construction condition or better.

#### Visual Qualities

The project would introduce new features into the coastal zone, potentially including markers, aboveground conduit, and network hub shelters which could diminish the visual quality and character of the project area. Avoidance and Minimization Measure VIS-2 would prioritize the use of disk markers or placement on existing infrastructure over new facilities, utilize underground cable installation techniques wherever feasible, and ensure visually compatible aesthetic treatments for network hub shelters.

#### Historic Bridges

Within districts 1, 4, and 11 the project may require installation of conduit on an historic bridge. Historic bridges contribute to the visual character of an area through their unique characteristics, including architectural design. Therefore, the placement of a new utility conduit on an historic bridge could raise issues regarding consistency with Coastal Act section 30251 if it were visually incompatible with the character of the bridge or surrounding areas.

The following avoidance and minimization measure is recommended to minimize the impact of aboveground components placed on bridges, including those eligible or listed on the National Register and that provide scenic value to an area. **Avoidance and Minimization Measure VIS-2, Facility Siting and Surface Treatments** requires the use of exterior finishes for enclosures on bridges where utilities cannot be installed out of sight in order to ensure the enclosure is consistent with the materials and/or visual character of the bridge, such that they appear as an integral part of the bridge.



## Scenic Highways

The project would involve installation of underground and aboveground components along coastal routes in all districts, including portions of State Route 1 within rural areas. Potential impacts along designated scenic highways would be the same as potential impacts in other areas of significant scenic resources, as discussed above.

## Conclusion

In conclusion, the project as proposed could raise some Coastal Act or LCP policy consistency issues through construction and operation of project facilities within scenic highway corridors. With implementation of **Avoidance and Minimization Measures VIS-1 and VIS-2**, the project would substantially reduce the potential impacts of new development on the scenic and visual qualities of coastal areas by minimizing and restoring disturbed areas and limiting and ensuring compatibility of new vertical elements. Therefore, with implementation of the recommended measures, the project would appear to be consistent with Coastal Act sections 30251, 30253, 30254, and relevant LCP policies.

### 4.3.4 Avoidance and Minimization Measures

#### **VIS-1: Minimize Construction Disturbance.**

Construction and staging areas shall be the minimum size necessary to feasibly implement the project while having the least impact on coastal resources. Staging and equipment storage areas shall be limited to paved areas or previously disturbed areas where vegetation removal and grading are not required. Staging areas shall be sited where there will be the fewest impacts on visual, biological, and other coastal resources. Project grading and vegetation removal shall be limited to the minimum necessary to construct the project, unless such limitation would result in a greater net environmental effect. All construction disturbance areas beyond the project's aboveground footprints, including access areas, staging areas, and other temporary use areas, shall be recontoured and revegetated to match their approximate original, pre-construction condition or better. Site restoration for sensitive habitat impacts, if approved, shall be conducted in accordance with Avoidance and Minimization Measure BIO-17, as applicable.

#### **VIS-2: Facility Siting and Surface Treatments.**

The Permittee shall ensure all visual elements of the project, including design, colors, and other aesthetic treatments of the marker postings, hubs, and any other visual elements of the development are sited and designed to protect views to and along the ocean and scenic coastal areas, minimize the alteration of natural land forms, and are visually compatible with the character of surrounding areas through measures such as (but not limited to) visually permeable design, minimizing reflective surfaces, and use of colors that blend in hue and brightness with the surroundings. Accordingly, the Permittee shall incorporate the following scenic and visual quality protection measures into the project design:

- **Conduit on Bridges:** In accordance with the *Encroachment Permit Manual*,<sup>13</sup> install the fiber optic cable or conduit in areas where it will not be visible to the public. Whenever possible, install the fiber optic cable in the interior of the bridge (e.g., within existing conduit, between the girders). Where interior installation is not possible, enclose the conduit to look like an integral part of the bridge. Exterior finishes including coating or painting shall be used in order to ensure any enclosures match the materials and/or visual character of the bridge.
- **Aboveground Cables:** Use underground installation methods wherever feasible; or, where underground installation is not feasible or would cause greater environmental impacts, aboveground installation shall utilize existing utility infrastructure. Visual impact analyses with project renderings shall be prepared and submitted to the Executive Director for review and approval prior to construction of project segments where aboveground cable is proposed within or visible from a designated scenic area.
- **Markers:** Utilize the disk marker instead of vertical markers wherever feasible. Where disk markers are not feasible, install fiber optic markers on pre-existing signs, guard rails, or other transportation system infrastructure where available.
- **Network Hub Shelters:** Utilize exterior finishes for Tier 1 Major Environmental or Aesthetic Issues, as provided in the *Middle-Mile Broadband Network Design Guidelines*. The network hub shelter designs shall incorporate aesthetic treatments, such as architectural styling, colorization and other design options for the fence, shelter structure, and any other above-ground infrastructure to be visually compatible with the surrounding community character. Native, drought tolerant vegetation shall be incorporated into the site design where feasible to screen the hub site from public view, outside of the 30-foot perimeter fuel break or as otherwise approved by Caltrans under a design exemption. Other alternative screening should be proposed when no vegetation screening is feasible. Visual impact analyses with project renderings shall be prepared and submitted to the Executive Director for review and approval prior to construction of project segments where hub shelters are proposed.

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<sup>13</sup> Caltrans, 2022. *Encroachment Permits Manual*, Chapter 600 – Utility Permits. Table 6.4 Additional requirements for utility facilities located on bridges or other structures. July 2022.

## 4.4 Cultural and Paleontological Resources

The Coastal Act requires that reasonable mitigation measures be employed where development could adversely impact archaeological and paleontological resources. The Coastal Commission's tribal consultation policy recognizes the importance of protecting tribal cultural resources, improving communication and coordination with Tribes, and establishing a tribal consultation process that is consistent with and complementary of applicable Coastal Act policy. This section summarizes applicable Coastal Commission, Coastal Act and LCP policies, describes the various types of paleontological and cultural resources, including archaeological, tribal, and other cultural resources that could occur in the project area, and assesses the potential impacts of project activities on those resources. The section then evaluates the project's consistency with the Coastal Act and applicable LCP policies and identifies measures to avoid or minimize potential project impacts and related policy conflicts.

### 4.4.1 Policy Considerations

The Coastal Act, Coastal Commission policy, and LCPs require protection of cultural and paleontological resources and that reasonable avoidance and minimization measures be employed where development could adversely impact such resources.

#### Relevant Coastal Act Provisions

The Coastal Act requires that development impacts on archaeological and paleontological resources be reasonably mitigated:

Coastal Act section 30244 states:

*Archaeological or paleontological resources. Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

In practice, the Commission has generally interpreted this policy liberally (consistent with Coastal Act section 30009) to avoid impacts to cultural resources whenever feasible and, in addition to the consultation process discussed below, to require direct coordination with tribal representatives at the time of development construction.

#### California Coastal Commission Tribal Consultation Policy

In August 2018, the Coastal Commission adopted a tribal consultation policy (policy) to guide staff consultation with California Native American Tribes in the context of administrative actions taken by the Commission. The policy describes the process by which the Commission's consultation is to occur and enumerates the principles which effective consultation should fulfill. Among these principles, the Commission's policy recognizes the value of coordinating the Commission's consultation efforts with those of federal, state, and local government partners, when applicable. Such consolidation conserves both tribal and government resources, simplifies the consultation process for Tribes, and generally provides for more efficient decision-making and governance.

In November 2022, the Commission completed guidance on how to conduct tribal consultation for coastal development permit (CDP) applications for Caltrans projects. As noted in the guidance memorandum, the Commission's policy serves to ensure that meaningful tribal consultation takes place before development occurs. Because state and federal laws require Caltrans to follow a robust tribal consultation process conducted by specialized staff for all projects, the Commission can fulfill its policy obligations by building on Caltrans' existing process. Steps provided in the 2022 Commission guidance memorandum include:

1. Review Caltrans' cultural resources submittal requirements as part of the CDP application to identify key Tribal issues for the project.
2. Determine whether Caltrans conducted tribal consultation adequately.
3. If consultation occurred, review the documentation to ensure that all tribes identified by the Native American Heritage Commission were contacted, informed of the project, and provided an opportunity to consult on the project. Review proposed measures requested by Tribes (such as monitoring) and determine if Caltrans adopted those measures.
4. Commission staff should send a tribal notice letter to the Tribe(s) to briefly describe the project, Caltrans' site investigations and consultation process to date, the role of the Commission in the approval process; and to provide an opportunity to ask questions, provide comments, or engage in government-to-government consultation if desired by the Tribe(s).

Additional direction is provided in the California Coastal Commission Adopted Tribal Consultation Policy<sup>1</sup> and California Coastal Commission Tribal Consultation for Caltrans Projects.<sup>2</sup>

## Applicable LCP Provisions

Certified LCPs generally reflect the broad Coastal Act mandate to avoid or mitigate impacts to cultural and paleontological resources. For example, the LCPs contain policies that reflect the section 30244 restrictions on development affecting archaeological and paleontological resources (e.g., Mendocino County General Plan Coastal Element (Coastal Element) policy 3.5-10, Sonoma County Local Coastal Plan (LCP) policy Archaeological Resources 79, Marin County Local Coastal Program (LCP) policy C-HAR-2 and -3). To the extent that LCP policies mirror the Coastal Act and are advisory, no more specific elaboration is warranted here. However, many LCPs contain more specific definitions or policies for the protection of cultural and paleontological resources.

Relevant LCP policies are those which contain information specific to the site in question or requirements in excess of Coastal Act policies. The full text of these policies is presented in **Appendix E**. This section summarizes archaeological and paleontological resources LCP policies that relate to those locations where the hubs are proposed in Mendocino, Sonoma, and Marin counties.

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<sup>1</sup> California Coastal Commission, 2018, Adopted Tribal Consultation Policy. August 2018.

<sup>2</sup> California Coastal Commission, 2022, Tribal Consultation for Caltrans Projects. November 2022.

The Mendocino County Coastal Element includes policies related to the protection of archaeological and paleontological resources. Prior to the approval of a coastal project permit for any development proposed within an area of known or likely archaeological or paleontological significance, a field survey is required to determine the extent of archaeological or paleontological resources on the site. Where development could adversely impact identified resources, the policy requires mitigation measures, as appropriate, including avoidance and permanent protection as open space, if feasible.

The Sonoma County LCP includes general policies pertaining to archaeological and paleontological resources protection and requires a study when proposed projects are within designated archaeological site areas, as well as implementation of reasonable mitigation measures when recommended by the study.

The Marin County LCP includes policies related to the protection of archaeological and paleontological resources. Prior to the approval of a coastal project permit for any development proposed within an area of known or likely archaeological or paleontological significance, a field survey is required to determine the extent of archaeological or paleontological resources on the site. Where development would adversely impact identified resources, the policy requires mitigation measures, as appropriate, including avoidance and permanent protection as open space, if feasible. Policies also include monitoring of archaeologically sensitive areas during ground disturbing activities.

## **Caltrans Standard Environmental Reference, Volume 2. Cultural Resources and Cultural Context Statements**

Caltrans Standard Environmental Reference, Volume 2, Cultural Resources (SERv2) provides guidance to identify and evaluate cultural resources, process cultural resource documents, and implement all cultural resource-related construction, maintenance, and encroachment activities. SERv2 addresses general issues related to cultural resource management, such as complying with federal and state environmental laws, the procedures that should be followed when dealing with effects to cultural resources, developing appropriate mitigation, and addressing emergency situations or unanticipated effects. SERv2 includes the following components:

- Caltrans policies and procedures regarding cultural resources;
- Procedures and activities required by law, regulation, and executive order pertaining to cultural resources;
- Cultural resource management roles and responsibilities; and
- Guidelines to promote consistency, uniformity, and effective handling of cultural resources in the conduct of Caltrans' activities.

Caltrans has produced a series of cultural resources context statements for various topics related to specific cultural resources property types, identification, and evaluation including:

- General Guidelines for Identifying and Evaluating Historic Landscapes;

- Water Conveyance Systems in California, Historic Context Development and Evaluation Procedures;
- Historical Context and Archaeological Research Design for Agricultural Properties in California;
- Historical Context and Archaeological Research Design for Mining Properties in California;
- Historical Context and Archaeological Research Design for Townsite Properties in California;
- Historical Context and Archaeological Research Design for Work Camp Properties in California;
- Historical Context and Methodology for Evaluating Trails, Roads, and Highways in California;
- San Francisco Bay–Delta Regional Context and Research Design for Native American Archaeological Resources; and
- Bedrock Milling Features in California: Archaeological Context and Research Design.

Caltrans uses these research designs to further explore whether an identified resource may have the potential to qualify as a significant resource according to the criteria for evaluation (i.e., a historic property). Each research design contains research themes and topics relevant to the expected materials and site types being investigated, explains why the themes and topics are important, and how the anticipated information will advance our knowledge and understanding of history.

## **National Historic Preservation Act**

When a project has a federal nexus, the cultural resources compliance process is subject to federal law and regulations. Under federal environmental law, consideration of historic properties is primarily carried out under section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

Cultural resources are considered through the NHPA and its implementing regulations. Under NHPA section 106, before implementing an “undertaking” (e.g., federal funding or issuance of a federal permit), federal agencies must consider the effects of the undertaking on historic properties (i.e., properties listed in or eligible for listing in the National Register) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register. Under the NHPA, a property is significant if it meets the National Register listing criteria 36 CFR 60.4:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:

- (a) Are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) Are associated with the lives of persons significant in our past; or

- (c) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (d) Have yielded, or may be likely to yield, information important in prehistory or history.

Federal review of projects is normally referred to as the *section 106 process*. This process is the responsibility of the federal lead agency. However, Caltrans has been delegated authority by the Federal Highway Administration to act on behalf of the federal government for purposes of section 106. The section 106 review normally involves a four-step procedure, which is described in detail in the implementing regulations (36 CFR 800):

- Identify historic properties in consultation with the State Historic Preservation Officer (SHPO) and interested parties;
- Assess the effects of the undertaking on historic properties;
- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and
- Proceed with the project according to the conditions of the agreement.

## 4.4.2 Coastal Resources and Impacts

This section provides a discussion of coastal cultural resources, which includes:

- Pre-contact Native American archaeological resources;
- Historic-era archaeological resources; and
- Historic-era architectural resources.

Definition and examples of these resource types are provided in the Cultural Resources Property Types section below.

This section also discusses paleontological resources.

### Statewide Project Analysis

The setting for the cultural and paleontological resources analysis comprises those segments of California State Highway System right-of-way within the coastal zone where project elements are proposed, and areas within or near the project area that could be directly or indirectly impacted by project activities. The project area is shown in **Figures 2-4A** through **2-4F**.

### Cultural Resources Summary

The following setting is approached by describing general archaeological data, ethnographic/linguistic studies, and historical background that illustrate the settlement patterns, lifeways, languages, and cultures of California. Each of these topical areas is described briefly

below, followed by a discussion of property types that are commonly found along California's coastal area.

### **Pre-Contact Context**

Current archaeological evidence indicates that human occupation in California began at least 15,000 years ago; earlier occupation dates have been debated though not firmly established.<sup>3</sup> Perceptions of human colonization of the Americas have shifted in the past 20 years. Terrestrial migration, where big-game hunters crossed over the ice bridge from northeastern Asia and traveled down the ice-free corridor into the central plains, has recently been remodeled. Archaeologists now understand that coastal migrations as well as multiple periods of migration should be included in a viable discussion about California's first human settlement.<sup>4</sup>

Categorizing pre-contact human occupation into broad environmental regions and cultural stages allows researchers to describe a wide number of archaeological sites with similar cultural patterns and components in a particular location, during a given period of time, thereby creating a regional chronology. Numerous and varying cultural chronologies have been developed for California's regions (generally referred to as the Northwest, Northeast, San Francisco Bay Area, Central Valley, Sierra Nevada, Central Coast, Northern Bight, Southern Bight, Mojave Desert, and Colorado Desert); however, interregional diversity cannot be simplified. The variation of environments in California has created differences in both the cultural behavior of the pre-contact inhabitants as well as in the approach of archaeological methods and research, thereby creating a complex and expanding understanding of the California pre-contact period.<sup>5</sup>

While the names and dates of California's pre-contact periods vary by region, time has generally been divided into broad periods that reflect major changes in material culture and settlement patterns (i.e., the Paleoindian Period, the Early Period, the Middle Period, and the Late Period). Economic and technological types, socio-politics, trade networks, population density, and variations of artifact types further delineate cultural periods.

The Paleoindian Period (ca. 15,000 to 8000 B.C.) was characterized by big-game hunters occupying broad geographic areas. During the Early Period (ca. 8000 to 500 B.C.) geographic mobility continued and is characterized by the millingslab and handstone, as well as large wide-stemmed and leaf-shaped projectile points. Cut shell beads and the mortar and pestle are first documented in burials during this period, indicating the beginnings of a shift to more sedentary ways. During the Middle Period (ca. 500 B.C. to A.D. 1200) geographic mobility may have continued, although groups began to establish longer-term base camps in localities from which a more diverse range of resources could be exploited. The occurrence of sites in a wider range of environments suggests that the economic base was more diverse and mobility was slowly

<sup>3</sup> Erlandson, Jon M., Torben C. Rick, Terry L. Jones, and Judith F. Porcasi, 2007. One if by Land, Two if by Sea: Who Were the First Californians? In *Prehistoric California: Colonization, Culture, and Complexity*. Edited by T.L. Jones and K.A. Klar, pp. 53–62, AltaMira Press.

<sup>4</sup> Erlandson, Jon M., Torben C. Rick, Terry L. Jones, and Judith F. Porcasi, 2007. One if by Land, Two if by Sea: Who Were the First Californians? In *Prehistoric California: Colonization, Culture, and Complexity*. Edited by T.L. Jones and K.A. Klar, pp. 53–62, AltaMira Press.

<sup>5</sup> Moratto, Michael J., and Joseph L. Chartkoff, 2007. Archaeological Progress since 1984, In *Prehistoric California: Colonization, Culture, and Complexity*. Edited by T.L. Jones and K.A. Klar, pp. 1–10, AltaMira Press.



replaced by the development of small villages. During the Late Period (ca. A.D. 1200 to 1550), social complexity developed toward lifeways of large, central villages with resident political leaders and specialized activity sites. Artifacts associated with the Late Period include the bow and arrow, small corner-notched points, and a diversity of beads and ornaments.

### **Ethnohistory**

Beginning in the early 16<sup>th</sup> century, but primarily during the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, Native American lifeways and languages (i.e., ethnographic data) were documented throughout California. Whether by professional ethnographers/archaeologists, field personnel from government agencies such as the Bureau of Indian Affairs, soldiers, merchants, settlers, or travelers, ethnographic accounts partly illuminate the traditions, beliefs, and cultures of Native American groups during specific points in time. Synthesized narratives such as the *Handbook of North American Indians, California: Volume 8*<sup>6</sup> categorize Native traditions and practices.

There are at least six primary language families in California, with perhaps over 300 different dialects of approximately 100 languages. The “geolinguistic mosaic of the ethnographic period, with a startling diversity of languages and language families” indicates numerous major population shifts and migrations.<sup>7</sup> Ethnographers have also quantified at least 60 greater Indian cultures with as many as 250 specific tribes.

Similarities between California’s native populations crossed geographic, climatic, and cultural boundaries. Acorns, where available, were a staple throughout California. Deer, elk, small mammals, birds, and fish were relied upon. Resources were used to their fullest extent, with little to no waste product. Ethnographically documented communities were generally focused on a central tribe with smaller satellite groups; however, this varied from region to region. Shamanism and ceremonialism played important roles in the lives of most California Native Americans. Basketry was well-practiced, although some southeastern tribes manufactured pottery. Hunting, trapping, and fishing technologies were shared across tribal and cultural boundaries yet varied depending on environmental conditions.

Native American fishing techniques along inland waterways included the construction of fish weirs or dams across rivers to trap anadromous fish during upstream migration. Weirs were constructed of wood poles, logs, and small stakes to completely obstruct fish passage up a waterway. While some fish weirs were built and used by small groups, mainly individual families, communal constructions were also common.<sup>8</sup> Other methods of fishing included net traps, harpoons, spears, platforms, and clubs.<sup>9</sup> Tule balsa canoes and dugout canoes were also

<sup>6</sup> Heizer, Robert F, 1978. Trade and Trails in California, edited by Robert F. Heizer, pp. 485–495. *Handbook of North American Indians, Volume 8*, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

<sup>7</sup> Golla, Victor, 2007. Linguistic Prehistory, In *Prehistoric California: Colonization, Culture, and Complexity*. Edited by T.L. Jones and K.A. Klar, pp. 71–82, AltaMira Press.

<sup>8</sup> Gould, R. A, 1975. Ecology and Adaptive Response Among the Tolowa Indians of Northwestern California. *Journal of California Anthropology*, 2(2), Retrieved from: <http://escholarship.org/uc/item/65t181bq>.

<sup>9</sup> Kroeber, Alfred L. and Samuel A. Barrett, 1960. Fishing among the Indians of Northwestern California. *University of California Anthropological Records* 21(1):1–210. Berkeley.

used in fishing.<sup>10</sup> Other important riverine subsistence species included steelhead, candlefish, lamprey, eel, and trout among others.

Trade was well developed in California. Shell beads as currency began as early as the later part of the Middle Period. Food, ornaments, household items, clothing, industrial materials such as obsidian, finished items including canoes, pottery, and basketry, and tobacco were used for trade items. Trade networks were well established, and although it appears that there were no professional traders, central villages served as focal points for trading.<sup>11</sup>

While regional differences are significant among Native American beliefs, there is a common identity and relationship with the environment. California Native peoples believe that nature is interrelated and immersed with sacred power. Creation stories are told in most California tribes, often explaining the origins of the earth, human existence, and individual cultural attributes. Stories often pointed to morality or defined the establishment of elements. Modern Native American beliefs vary but are rooted in their ancestral land and traditions.

The 2020 U.S. Census recorded 778,593 American Indians in California, for those designating only one race, including Alaska Natives. Of that number, some come from tribes outside the modern boundaries of California. Currently there are 107 federally recognized tribes in California and approximately 40 groups seeking to gain recognition. While the devastation brought about by the introduction of disease and displacement following European contact was overwhelming, Native American individuals and communities have continued to protect their cultural heritage and identity and maintain their languages and traditions.

### **Historic Era Background**

The earliest European presence in California came with the Spanish discovery and exploration of the California coast in the mid-sixteenth century. Alta California had been claimed for Spain in 1542 by the Portuguese Juan Cabrillo, who sailed up the Pacific Coast as far as Fort Ross. Due to the prosperity of its more southern colonies and the great distances required to travel so far north, Spain largely ceased overland and maritime exploration of Alta California until the eighteenth century. Spain had originally focused its energy and attention on its southern colonies in New Spain; however, in the eighteenth century the increased presence of Russian settlements along the northwest coast and the British acquisition of Canada in 1763 encouraged Spain to explore and occupy Alta California in order to prevent Russian and British encroachment from the north.

European expansion into Alta California began when Spanish Mexico instigated the establishment of a string of Franciscan missions throughout the region. The California mission system had two goals: to Christianize and “civilize” the native population of California and to gain political and social control of the area for the Spanish government in Mexico. Mission San Diego de Alcalá, the first of 21 California missions, was founded in July 1769. Over the next 50 years the mission

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<sup>10</sup> Wilson Norman L., and Arlean H. Towne, 1978. Nisenan, in California, edited by Robert F. Heizer, pp. 485–495. Handbook of North American Indians, Volume 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

<sup>11</sup> Heizer, Robert F, 1978. Trade and Trails in California, edited by Robert F. Heizer, pp. 485–495. Handbook of North American Indians, Volume 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

system was extended further north. Alongside the missions came a network of military establishments or presidios and civilian settlements or pueblos. Exploration of the California hinterland focused predominantly on the identification of rancho sites to support the mission network as well as the recapture of runaway Natives.

Although the original Spanish plan for the mission system included secularization, the process did not begin until Mexican independence from Spain. Fueled by reports of Franciscans padres degrading the native peoples and failing to provide food and services to the military, the Mexican government began secularization in mid-1834. During the process, the mission lands were to be divided among the Native American neophytes, although rarely did this happen. More often the mission lands were granted to high-ranking Mexican Californian soldiers, politicians, and socialites.

Mexican Californians, or Californios, were well known for their hospitality and easygoing lifeways. Early accounts describe ranchos with large and lazy households, operated by a large Native American labor force. Most ranchos were intensively involved in the hide-and-tallow trade, supporting huge herds of cattle on their vast landholdings. The cattle were driven to matanzas, or slaughter sites, that were usually as near to water transportation as possible for easy transport onto foreign trade vessels. The relationship between the Californios and the foreign ships had been active since the early 1820s. The ships imported all manner of trade goods, since little refined manufacturing occurred in Mexican California.

Beginning in the 1830s, Euroamericans from the East Coast began to migrate to California. Many became Mexican citizens, married into prominent Californio families, and were granted lands from the governor. These first immigrants became acculturated into Mexican society and politics, while many were prominent businessmen and landowners.

The discovery of gold in California in 1848 instigated one of the largest migrations in history. Thousands came by land and sea in search of their fortunes. Most came to dig for the gold, but many came with the foresight that miners needed supplies. Earlier residents of California, including many Californios and previous Euroamerican immigrants, capitalized on the new immigrant population. Many Californios also struggled to hold on to their vast landholdings. Although the Treaty of Guadalupe Hidalgo promised that property belonging to the Mexicans be “inviolably respected,” the new Americans generally believed that the lands in California should be public property as a privilege of military victory. The vague land-grant maps, or diseños, that marked the boundaries of each rancho territory were protested and ignored by the land-hungry immigrants. “Squatters” settled on land officially owned by Mexicans and violence often erupted. Many Californios lost substantial amounts of land, despite legal efforts to hold on to it. Although many claims were confirmed, the Mexican landowners were often bankrupt by the end of the long and costly proceedings.

Mining camps and towns were established almost immediately throughout California’s gold-bearing regions, which are generally located along the western foothills of the Sierra Nevada mountain range and along the Klamath and Trinity river basins. At the outset, the mining population was made up almost exclusively of single men. But miners needed food and supplies, and people who could provide those goods followed. Ultimately women and children also

relocated to mining communities. The influx also brought an extreme diversity of cultures and nationalities. California gold mining was very successful; in 1852 California produced more than \$81,000,000 worth of gold—60 percent of the world production for that year. Almost immediately after the discovery of gold, investors began talking about the construction of a transcontinental railroad that would connect eastern goods, money, and services to the new western enterprises. Prior to construction of the railroad; however, the extensive inland waterway network of California was crucial for travel to the interior.

### **Cultural Resource Property Types**

Cultural resource property types include archaeological resources (both pre-contact Native American and historic-era resources) and historic-era architectural resources.

Pre-contact Native American archaeological resources found along California’s coastal areas include permanent or semi-permanent habitation sites, temporary camps or food processing localities, and isolated artifacts. Archaeological materials that could be identified include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Native American human remains can also be found at pre-contact archaeological sites.

Historic-era archaeological resources that could be located along California’s coastal areas include submerged vessels or shipwrecks, as well as historic occupation sites and resource procurement areas representing the remnants of fishing, mining, and lumber industrial uses, as well as residential, agriculture, and ranching. Historic-era archaeological resources could include building or structure footings and walls; fence lines and water conveyance features; and deposits of metal, glass, and/or ceramic refuse.

Historic-era architectural resource types that could be located along California’s coastal area include resources of the built environment, including buildings and structures such as bridges, tunnels, or other transportation features.

### **Paleontological Resources Summary**

As defined by the Society for Vertebrate Paleontology,<sup>12</sup> significant nonrenewable paleontological resources are:

*Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).*

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<sup>12</sup> Society of Vertebrate Paleontology, 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. [http://vertpaleo.org/Membership/Member-Resources/SVP\\_Impact\\_Mitigation\\_Guidelines.aspx](http://vertpaleo.org/Membership/Member-Resources/SVP_Impact_Mitigation_Guidelines.aspx).

Paleontological potential is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, the past history of the geologic unit in producing significant fossils, and the fossil localities recorded from that unit. Paleontological potential is derived from the known fossil data collected from the entire geologic unit and not just from one specific survey. In its “Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources,” the SVP (2010) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential.

- **High Potential.** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rock units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcanoclastic formations (e.g., ashes or tephra), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.).
- **Low Potential.** Reports in paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e.g., basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
- **Undetermined Potential.** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.
- **No Potential.** Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources. [SVP, 2010].

Numerous paleontological studies have developed criteria for the assessment of significance for fossil discoveries.<sup>13,14</sup> In general, these studies assess fossils as significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

In summary, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important.

Geologic units in the project area include Holocene, Pleistocene, Pliocene, Miocene, Jurassic, and Cretaceous-age deposits. Jurassic and Cretaceous-age deposits are largely metamorphosed and fragmented blocks of rock. These deposits have a low to no potential to contain paleontological resources due to exposure to extreme heat and pressure. Generally, Holocene-age sedimentary deposits have low paleontological sensitivity due to the recent age of these deposits. However, the deeper, older layers of Holocene-age deposits increase in paleontological potential; therefore, deeper layers of these deposits have the potential to contain significant paleontological resources. In general, Pleistocene-age sedimentary deposits have the potential to contain significant paleontological resources, as is evident by fossil discoveries made within Pleistocene-age deposits. The Pliocene and Miocene-age deposits may also contain fossiliferous deposits.

### ***Relevant Project Activities and Effects***

The project involves installing fiber-optic cable conduit, vaults, markers, paved pullouts, and network hub shelters, as described in Section 2.5, Project Elements, and Section 2.6, Construction Methods. This work will include possible trenching, drilling, or other ground disturbing activities.

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<sup>13</sup> Eisentraut, P.J., and Cooper, J.D. 2002. Final Report, Development of a model curation program for Orange County's Archaeological & Paleontological Collections. Unpublished report prepared for the County of Orange, Public Facilities and Resources Department, Harbors, Beaches and Parks, Santa Ana.

<sup>14</sup> Scott, Eric, and Kathleen B. Springer, 2003. CEQA and Fossil Preservation in California. Environmental Monitor Fall:4-10. Association of Environmental Professionals, Sacramento.

Project activities involving ground disturbance could result in permanent adverse effects on pre-contact Native American archaeological resources and historic-era archaeological resources as well as historic-era architectural resources. A description of the potential project effects for the types of cultural and paleontological resources that may occur within the project area is presented below.

### **Archaeological Resources**

Pre-contact Native American and historic-era archaeological resources may be located throughout the project area. Location specific cultural resources studies completed by Caltrans will identify the locations of archaeological resources through background research and survey efforts. Construction activities for underground conduit and vault installation that could affect archaeological resources includes plowing, trenching, horizontal directional drilling, jack and drill casing, and excavation. Construction activities for above-ground facilities that could affect archaeological resources include excavation for the construction of network shelter hubs. Ground disturbance, including grading, could also be required for paved pullout installation. Plowing, trenching, drilling, grading, and excavation all involve ground disturbance that could directly impact pre-contact Native American and historic-era archaeological resources should any such resources exist in the area of ground disturbance.

### **Historic-era Architectural Resources**

Historic era architectural resources such as bridges, roads, and trails are located in the project area. Location specific cultural resources studies completed by Caltrans will identify the locations of architectural resources through background research and survey efforts. Construction activities for aboveground facilities that could affect historic-era architectural resources include construction of network shelter hubs and bridge mounting. Mounting conduit on bridges could affect the significance of bridges designated Categories 1, 2, or 3 in the Caltrans Historic Bridge Inventory.

### **Paleontological Resources**

Although paleontological resources are known to occur within identified paleontologically sensitive geologic deposits throughout coastal California, they are generally only known to occur in the deeper and undisturbed layers of these deposits. Project construction activities would generally not require excavation to depths that would impact paleontological resources should any such resources exist in the project area. Aboveground construction activities would not affect paleontological resources.

## **District Analysis**

The following sections describe the expected cultural and paleontological resources within each Caltrans district. As described in Section 4.4.2, *Statewide Project Analysis*, project elements could affect cultural and paleontological resources.

### ***District 1***

#### **Archaeological Resources**

Project activities in District 1 could result in permanent impacts on pre-contact Native American resources or historic-era archaeological resources. As detailed assessments of proposed project

sites have yet to be completed, potentially affected archaeological resources could be of any type, as outlined in the *Cultural Resource Property Types*, above. Ethnographic cultural regions include Tolowa, Yurok, Wiyot, Mattole, Sinkyone, and Pomo; numerous tribal groups and organizations are affiliated with these ethnographic delineations (see **Appendix G**).

### **Historic Architectural Resources**

Available information indicates there are five historic properties in District 1 – four bridges and one highway – that could be affected by the project. Fernbridge Bridge (04-0134), in Humboldt County, is a Category 1 bridge, indicating it is listed in the National Register. The Albion River Bridge (10-0136), Russian Gulch Bridge (10-0151), and Schooner Gulch Bridge (10-0111), all in Mendocino County, are Category 2 bridges, indicating they are eligible for listing in the National Register. In addition, Redwood Highway is a National Register-listed historic property (National Register #79000253) that intersects with project area in Humboldt County.

### **Paleontological Resources**

Due to the relatively minor and shallow (4 feet deep for conduit and vaults) area of disturbance for the project, there is a low potential to impact paleontological resources.

## ***District 4***

### **Archaeological Resources**

Project activities in District 4 could result in permanent impacts on pre-contact Native American resources or historic-era archaeological resources. As detailed assessments of proposed project sites have yet to be completed, potentially affected archaeological resources could be of any type, as outlined in the *Cultural Resource Property Types*, above. Ethnographic cultural regions include Pomo, Coast Miwok, and Ohlone; numerous tribal groups and organizations are affiliated with these ethnographic delineations (see Appendix G).

### **Historic Architectural Resources**

Available information indicates there are three historic properties in District 4 – one bridge and one trail – that could be affected by the project. The Pilarcitos Creek Bridge, in San Mateo County, is a Category 1 bridge, indicating it is listed in the National Register (National Register #14000110). In addition, the Dipsea Trail is a National Register-listed historic property (National Register #10000356) that intersects with project area in Marin County.

### **Paleontological Resources**

Due to the relatively minor and shallow (4 feet for conduit and vaults) area of disturbance for the project, there is a low potential to impact paleontological resources.

## ***District 5***

### **Archaeological Resources**

Project activities in District 5 could result in permanent impacts on pre-contact Native American resources or historic-era archaeological resources. As detailed assessments of proposed project sites have yet to be completed, potentially affected archaeological resources could be of any type, as outlined in the *Cultural Resource Property Types*, above. Ethnographic cultural regions



include Ohlone, Esselen, Salinan, and Chumash; numerous tribal groups and organizations are affiliated with these ethnographic delineations (see Appendix G).

### **Historic Architectural Resources**

Available information indicates there are no National Register-listed historic properties in District 5.

### **Paleontological Resources**

Due to the relatively minor and shallow (4 feet deep for conduit and vaults) area of disturbance for the project, there is a low potential to impact paleontological resources.

## ***District 7***

### **Archaeological Resources**

Project activities in District 7 could result in permanent impacts on pre-contact Native American resources or historic-era archaeological resources. As detailed assessments of proposed project sites have yet to be completed, potentially affected archaeological resources could be of any type, as outlined in the *Cultural Resource Property Types*, above. Ethnographic cultural regions include Chumash and Gabrieliño; numerous tribal groups and organizations are affiliated with these ethnographic delineations (see Appendix G).

### **Historic Architectural Resources**

Available information indicates there are no National Register-listed historic properties in District 7.

### **Paleontological Resources**

Due to the relatively minor and shallow (4 feet deep for conduit and vaults) area of disturbance for the project, there is a low potential to impact paleontological resources.

## ***District 11***

### **Archaeological Resources**

Project activities in District 11 could result in permanent impacts on pre-contact Native American resources or historic-era archaeological resources. As detailed assessments of proposed project sites have yet to be completed, potentially affected archaeological resources could be of any type, as outlined in Section 4.4.2, *Cultural Resource Property Types*, above. Ethnographic cultural regions include Luiseño and Kumeyaay; numerous tribal groups and organizations are affiliated with these ethnographic delineations (see Appendix G).

### **Historic Architectural Resources**

Available information indicates there is one historic property in District 11 that could be affected by the project. The San Diego Coronado Bay Bridge (57-0857) is a Category 2 bridge, indicating it is eligible for listing in the National Register and is therefore considered a historic property. This bridge is located in San Diego County.

### **Paleontological Resources**

Due to the relatively minor and shallow (4 feet deep for conduit and vaults) area of disturbance for the project, there is a low potential to impact paleontological resources.

## **District 12**

### **Archaeological Resources**

Project activities in District 12 could result in permanent impacts on pre-contact Native American resources or historic-era archaeological resources. As detailed assessments of proposed project sites have yet to be completed, potentially affected archaeological resources could be of any type, as outlined in Section 4.4.2, *Cultural Resource Property Types*, above. Ethnographic cultural regions include Gabrieliño, Juaneño, and Luiseño; numerous tribal groups and organizations are affiliated with these ethnographic delineations (see Appendix G).

### **Historic Architectural Resources**

Available information indicates there are no National Register-listed historic properties in District 12.

### **Paleontological Resources**

Due to the relatively minor and shallow (4 feet deep for conduit and vaults) area of disturbance for the project, there is a low potential to impact paleontological resources.

## **4.4.3 Consistency Analysis**

This section provides an assessment of whether any project elements or activities could raise consistency issues with Coastal Commission, Coastal Act or LCP cultural resources policies (Section 4.4.1, *Policy Considerations*). Where the analysis finds that project activities raise such issues, avoidance and minimization measures are recommended to prevent or reduce impacts and address potential policy conflicts. The full text of the recommended measures is presented in Section 4.4.4, *Mitigation Measures*.

### **Archaeological Resources**

Pre-contact Native American and historic-era archaeological resources may be located throughout the project area. Location specific cultural resources studies completed by Caltrans will identify the locations of archaeological resources through background research and survey efforts. As discussed more fully in Section 4.7, Environmental Justice, under subsection *Environmental Justice Summary*, Caltrans, CDT, and other state agencies have conducted outreach to Native American tribal entities.<sup>15</sup> This outreach is expected to continue through project design and include location specific tribal outreach and consultation. Caltrans is expected to provide a summary of relevant tribal consultation to Commission staff with each permit application.

### **Historic-era Architectural Resources**

Historic era architectural resources such as bridges, roads, and trails are located in the project area. Location specific cultural resources studies completed by Caltrans will identify the locations of architectural resources through background research and survey efforts. Analysis of potential project effects on the aesthetic character of historic bridges and associated avoidance and

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<sup>15</sup> See for example the California ALL Middle-Mile Advisory Committee's Regional Tribal Engagement Series, available at: <https://middle-mile-broadband-initiative.cdt.ca.gov/pages/mmbi-advisory-committee>

minimization measure recommendations are addressed in Section 4.3, *Visual and Scenic Resources, and Community Character*.

## Paleontological Resources

There is a low potential for the project to impact paleontological resources.

### Conclusion

In conclusion, the project as proposed could raise Coastal Commission, Coastal Act or LCP cultural resources policy consistency issues through inadvertent direct or indirect effects on archaeological and architectural resources. Through completion of cultural resources studies according to the requirements of the Standard Environmental Reference, Volume 2, Cultural Resources, which is a CDP filing requirement, and with implementation of **Avoidance and Minimization Measure CUL-1, Protection of Cultural Resources**, the proposed project would protect cultural resources through Native American Tribal engagement, identifying and avoiding work within sensitive areas, using Tribal monitors when requested or appropriate, and applying mitigation where potential remains for inadvertent discovery or effect. Therefore, with implementation of the recommended measure, the project would appear to be consistent with Coastal Commission, Coastal Act section 30244, and relevant LCP policies.

### 4.4.4 Avoidance and Minimization Measure

#### **CUL-1: Protection of Cultural Resources.**

The Permittee shall undertake development in compliance with the following measures:

- A. Ensure that tribal consultations are timely and coordinated with Coastal Commission staff, and that results of those consultations inform appropriate best management practices for constructing in or near areas of known or potential cultural resources.
- B. Ensure cultural resource awareness training with construction crews occurs prior to commencement of construction of project segments in or near such resource areas.
- C. Prior to construction of project segments, complete cultural “clearance” surveys for sensitive archaeological and tribal resources by qualified cultural resources professionals and flag off the boundaries of any identified resource areas with temporary construction fencing, flags, or similar means. Exact installation locations or methods may need to be adjusted to avoid these areas accordingly.
- D. Avoid ground-disturbing activities in areas that contain known cultural resources to the extent feasible. A cultural monitor should be present in areas of known or potential cultural resources if avoidance is not feasible. If cultural resources would be impacted, additional treatment measures such as data recovery may be required.
- E. Should any cultural resources be encountered during ground-disturbing work, the Permittee shall cease all project activities in the immediate vicinity and immediately notify representatives of all potentially relevant Native American Tribes. The permittee shall retain a qualified archaeologist to analyze the significance of the find in consultation with all potentially relevant Tribal Representatives. An “exclusion zone” where unauthorized equipment and personnel are not permitted shall be established (e.g., taped off) in an area not

less than a 50-foot-wide buffer around the discovery. Construction may continue outside of the exclusion zone area.

- F. If the Permittee seeks to recommence project activities within the sensitive area following discovery of cultural resources, the Permittee shall submit written documentation to the Commission's Executive Director, in consultation with all potentially relevant Tribal Representatives, of any proposed measures or changes to construction activities to address the discovery. The Executive Director will review the proposed changes and/or additional measures for conformance with the Coastal Act. Implementation of the changes or additional measures and recommencement of construction in the sensitive area shall not occur until the Executive Director provides written notice that no amendment to the CDP is legally required, or the Commission approves an amendment to the CDP.

## 4.5 Hazards

The Coastal Act requires that new development minimize risk to life and property in areas of high geologic, flood, and fire hazard and assure stability and structural integrity while not requiring the construction of protective devices that would substantially alter natural landforms. It also limits approval of shoreline armoring to those situations required to serve coastal-dependent uses or to protect existing structures or public beaches in danger of erosion, if impacts are mitigated, including to local sand supply.

Because the MMBN is intended to provide equitable internet access to all, including coastal communities, and follows along existing coastal highways within state highway right-of-way, the network is by its very nature exposed to a range of coastal hazards. This section summarizes Coastal Act and LCP hazards policies, describes the various types of hazards within the project area, and assesses the potential effects of the project in relation to those hazards. The section then evaluates the project's consistency with the Coastal Act and applicable LCP policies and identifies avoidance and minimization measures to address potential project impacts and related policy conflicts.

### 4.5.1 Policy Considerations

The Coastal Act and LCPs restrict new development in areas where it could present a risk to life or property, cause instability or destruction of the surrounding area, or substantially alter natural landforms. Inasmuch as sea-level rise will contribute to shoreline hazards such as erosion and flooding, the Coastal Act and corresponding LCP policies also require that sea-level rise be considered in planning and regulatory decisions to assure that new development will minimize risks and avoid future shoreline armoring; and that planning and management policies and activities identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea-level rise.

### Relevant Coastal Act Provisions

Coastal Act section 30253 requires that new development do all of the following:

- (a) *Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
- (b) *Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that will substantially alter natural landforms along bluffs and cliffs.*

Coastal Act section 30235 requires:

*Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fishkills should be phased out or upgraded where feasible.*

Additionally, Coastal Act section 30270 addresses sea-level rise as follows:

*The commission shall take into account the effects of sea level rise in coastal resources planning and management policies and activities in order to identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise.*

## Relevant LCP Provisions

Certified LCPs generally reflect the broad Coastal Act requirements to minimize the hazard risk from new development and avoid shoreline structures for new development. For example, the LCPs contain policies that either mimic or reflect the section 30253 restrictions on development within areas of high hazard (e.g., Mendocino County General Plan Coastal Element (Coastal Element) policy 3.4-1 and Sonoma County Local Coastal Plan (LCP) policy Geologic Hazards 2, Marin County Local Coastal Program (LCP) policy Hazards 2). To the extent that LCP policies mirror the Coastal Act and are advisory, no more specific elaboration is warranted here.

However, many LCPs contain more specific definitions or policies for addressing hazards. In addition, because Coastal Act section 30270 is a recent addition to the law (2021), many LCPs have yet to systematically consider this requirement. However, multiple LCPs have been updated or are considering updates to address sea-level rise.

Most of the project will ultimately be underground along an existing highway, and the project does not include any habitable structures, or expand or otherwise modify an existing structure. Project activities within a given hazard area would generally be limited to a few hours to a few days during the construction phase. However, even the underground portions of the project will need to observe applicable hazard avoidance policies (like section 30253 and corresponding LCP policies). Therefore, certain LCP hazards policies such as specific bluff top or shoreline setback requirements may be directly relevant for consideration, though still only then as guidance. Relevant LCP policies are those which contain information specific to the site in question or requirements that further elaborate on the requirements of the Coastal Act. The full text of these policies is presented in **Appendix E**. This section summarizes LCP policies that relate to those locations where the hubs are proposed in Mendocino, Sonoma, and Marin counties; these sites would include permanent aboveground structures that could cause or be subject to hazards during their useful operating life.

The Mendocino County Coastal Element identifies, defines, and provides policies for the following types of hazards within the coastal zone: geologic, such as seismic, tsunami, landslide, beach erosion; flood; and fire. Coastal Element policies 3.4-1 and 3.4-4 require additional investigations or standards for development, including transmission and distribution lines, on sites of known or suspected geologic hazards. The Coastal Element policy 3.4-5 requires residential, commercial, and industrial structures be sited a minimum of 50 feet from a potentially, currently, or historically active fault. The Coastal Element contains general policies and statements regarding tsunami, landslide, erosion, flood, and fire hazards, but does not contain any such policy that is particularly relevant to the hub sites.

The Sonoma County LCP identifies, defines, and contains policies for the following types of hazards in the coastal zone: seismic, including surface fault rupture, ground shaking, ground

failure, and tsunami; landslides and erosion, flooding, and fire hazards. The LCP includes several general policies pertaining to geologic hazards. None of the LCP policies are particularly relevant to the hub sites.

The Marin County LCP includes general seismic hazards policies.<sup>1</sup> The LCP also includes more detailed policies restricting development near eroding bluffs and shoreline development protective structures. None of the LCP policies are particularly relevant to the hub sites.

## 4.5.2 Coastal Hazards and Impacts

Hazards discussed within this section include the following categories:

- Hazards related to sea-level rise including tidal inundation, groundwater emergence, coastal erosion (shorelines, dunes and bluffs), coastal storm (100-year event) flooding and wave run-up.
- Hazards that do not relate to sea-level rise including Federal Emergency Management Agency (FEMA) flood hazard areas (100-year coastal or fluvial event), tsunami hazard area, earthquake hazards (fault zones, landslide and liquefaction susceptibility) and wildfire severity.

## Statewide Project Analysis

### *Hazard Summary*

This section provides an overview of the hazards present throughout the project area. The MMBN follows the California State Highway System to connect coastal communities, and therefore the setting for the hazards analysis comprises those segments of State Highway System right-of-way (ROW) within the coastal zone where project elements are proposed, and the various mapped hazard areas that overlap the project area. As described further in Section 2.2, *Project Location*, the project area (i.e., ROW) discussed below includes areas seaward and inland of the existing highway road surface, including shoulders and in some cases adjacent parcels. The project area is shown in **Figures 2-4A** through **2-4F**. The project area traverses low-lying coastal wetlands, beach and waterfront areas that are subject to coastal erosion and flooding, and coastal bluffs above rocky shores that are susceptible to coastal erosion. The project area also extends along and crosses seismic fault zones; areas of landslide, liquefaction and wildfire susceptibility; and multiple rivers and creeks susceptible to fluvial flooding. Each type of hazard evaluated is summarized below. **Table 4.5-1** shows the amount of the project area potentially subject to each type of hazard considered. **Table 4.5-2** describes the hazards in the vicinity of the hub sites. With respect to hazards that will be exacerbated by sea level rise, the tables show cumulative exposure with increasing sea level amounts. For example, project acres projected to be exposed to tidal inundation at 6.6 feet of sea-level rise include the area exposed to tidal inundation at lower sea level scenarios. Note that the extent of the project area that is projected to be exposed to groundwater decreases from 3.3 feet to 6.6 feet sea-level rise because some areas exposed to groundwater emergence at 3.3 feet become tidally inundated and thus mapped in this different

<sup>1</sup> In February 2019, the Coastal Commission certified a comprehensive update of the Marin County LUP. The Environmental Hazards chapter was omitted from the update and is undergoing a separate certification process. The Environmental Hazards chapter of 1981 LCP, as amended, remains in effect.

category. Similarly, within the tidal inundation hazard type, project acreages in the ‘low-lying’ subzone decrease with sea-level rise in some cases because low-lying areas are projected to become ‘connected’ to the tides with greater amounts of sea-level rise. There are 5 hub sites proposed, but six hub site locations are evaluated since there are two options being considered for hub shelter site #20. Coastal hazards exposure results were developed from three primary sources that map hazards at existing sea level and various sea-level rise projection amounts (see **Table 4.5-3**). The geographic coverage of the coastal hazards data sources is summarized in the notes after each of the following two tables. Details on “connected” versus “low lying” inundation and flooding are provided in the following section on *Flooding, Inundation, and Groundwater*.

**TABLE 4.5-1  
 ALL DISTRICTS PROJECT AREA HAZARD EXPOSURE SUMMARY**

Hazard Type	Sub Zones	Exposed project area and percent total (of 10,815 ac)			
Earthquake (Fault Zone)	n/a	330.1 (3%)			
Landslide Hazard Zone (Grades 7 to 10)	n/a	4,412.0 (41%)			
Liquefaction Hazard Zone	n/a	728.3 (7%)			
No Liquefaction Assessment	n/a	9,250.8 (86%)			
Wildfire Severity (LRA & SRA)	Very High	1,084.1 (10%)			
	High	1,610.1 (15%)			
	Moderate	2,578.9 (24%)			
Tsunami Hazard Zone	n/a	1,848.6 (17%)			
Flood Hazard Area (FEMA)	100-yr event	1,291.5 (12%)			
	500-yr event	407.1 (4%)			
USGS CoSMoS Coastal Hazards with Sea-Level Rise (SLR)		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Cliff Erosion	n/a	n/a	47.8 (0%)	113.4 (1%)	260.2 (2%)
Monthly Tidal Inundation	Connected	129.8 (1%)	156.9 (1%)	202.3 (2%)	415.7 (4%)
	Low Lying	12.4 (0%)	5.8 (0%)	11.9 (0%)	24.8 (0%)
Coastal Storm Flooding & Wave Runup	Connected	270.4 (3%)	355.3 (3%)	406.0 (4%)	812.2 (8%)
	Low Lying	11.1 (0%)	14.8 (0%)	23.5 (0%)	30.1 (0%)
Groundwater	Emergent	502.6 (5%)	506.6 (5%)	455.4 (4%)	396.1 (4%)
NOAA Coastal Hazards with Sea-Level Rise (SLR)		None	1 ft SLR	3 ft SLR	6 ft SLR
Tidal Inundation	Connected	61.3 (2%)	72.6 (2%)	131.9 (4%)	254.4 (7%)
	Low Lying	23.4 (1%)	34.2 (1%)	25.0 (1%)	8.9 (0%)
Pacific Institute Coastal Hazards with Sea-Level Rise (SLR)		None	0.7 ft SLR	1.3 ft SLR	4.6 ft SLR
Coastal Storm Flooding	n/a	489.4 (14%)	n/a	n/a	754.3 (22%)
Cliff & Dune Erosion	n/a	n/a	113.1 (3%)	155.7 (4%)	322.1 (9%)

**NOTE:**

Data sources apply to all Caltrans districts other than the sources noted below:

- Liquefaction Hazard zone covers districts 4, 7 and 12
- CoSMoS shoreline erosion covers districts 5, 7, 12 and 11 (cliff erosion covers all)
- CoSMoS tidal inundation and coastal storm flooding cover districts 4, 5, 7, 12 and 11
- CoSMoS coastal storm wave runup covers districts 5 (partial), 7, 12 and 11
- NOAA tidal inundation covers District 1
- Pacific Institute Coastal Storm Flooding covers District 1
- Pacific Institute cliff and dune erosion covers District 1, 4 and 5



**TABLE 4.5-2  
ALL DISTRICTS NETWORK HUB SHELTER SITE HAZARD EXPOSURE SUMMARY**

Hazard Type	Sub Zone	Exposed hubs (5 total in District)			
Earthquake (Fault Zone)	n/a	Hub site #20- option 1, hub site #136			
Landslide Hazard Zone	n/a	Hub site #23, hub site #135			
Liquefaction Hazard Zone	n/a	n/a			
No Liquefaction Assessment	n/a	Hub site #107, hub site #20 (both options), hub site #23, hub site #135, hub site #136			
Wildfire Severity (LRA & SRA)	Very High	None			
	High	Hub site #23			
	Moderate	Hub site #107, hub site #20 (both options), hub site #135, hub site #136			
Tsunami Hazard Zone	n/a	None			
Flood Hazard Area (FEMA)	100-yr event	Hub site #136			
	500-yr event	None			
USGS CoSMoS Coastal Hazards with Sea-Level Rise (SLR)		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Cliff Erosion	n/a	n/a	None	none	none
Monthly Tidal Inundation	Connected	n/a	None	none	none
	Low Lying	n/a	None	none	none
Coastal Storm Flooding & Wave Runup	Connected	n/a	None	none	none
	Low Lying	n/a	None	none	none
Groundwater	Emergent	none	None	none	none
NOAA Coastal Hazards with Sea-Level Rise (SLR)		None	1 ft SLR	3 ft SLR	6 ft SLR
Tidal Inundation	Connected	none	None	none	none
	Low Lying	none	None	none	none
Pacific Institute Coastal Hazards with Sea-Level Rise (SLR)		None	0.7 ft SLR	1.3 ft SLR	4.6 ft SLR
Coastal Storm Flooding	n/a	none	n/a	Hub site #23	Hub site #23
Cliff & Dune Erosion	n/a	n/a	None	none	none

**NOTE:**

Data sources apply to all Caltrans districts other than the sources noted below:

- Liquefaction Hazard zone covers districts 4, 7 and 12
- CoSMoS shoreline erosion covers districts 5, 7, 12 and 11 (cliff erosion covers all)
- CoSMoS tidal inundation and coastal storm flooding cover districts 4, 5, 7, 12 and 11
- CoSMoS coastal storm wave runup covers districts 5 (partial), 7, 12 and 11
- NOAA tidal inundation covers District 1
- Pacific Institute Coastal Storm Flooding covers District 1
- Pacific Institute cliff and dune erosion covers District 1, 4 and 5

**TABLE 4.5-3  
 SEA-LEVEL RISE PROJECTIONS ASSOCIATED WITH COASTAL HAZARD DATA SOURCES (IN FEET)**

Data Source	Sea-Level Rise Scenarios Considered (feet)	Mapped Hazard Types
USGS CoSMoS	0, 1.6, 3.3, 6.6	<ul style="list-style-type: none"> <li>Coastal Erosion (bluff/shoreline)</li> <li>Tidal Inundation</li> <li>Coastal storm flooding and wave run-up</li> <li>Groundwater levels and emergence</li> </ul>
NOAA SLR	0, 1, 3, 6	<ul style="list-style-type: none"> <li>Tidal Inundation</li> </ul>
Pacific Institute	0, 0.7, 1.3, 4.6	<ul style="list-style-type: none"> <li>Coastal erosion (dune/bluff)</li> <li>Coastal storm flooding</li> </ul>

**Flooding, Inundation, and Groundwater**

Coastal and fluvial (river) storm flooding, regular tidal inundation, and shallow or emergent groundwater are prevalent hazards along the California coastline. These hazards occur in inland low-lying areas and in river valleys and floodplains within portions of the project area. Coastal flooding, tidal inundation, and groundwater are evaluated at existing sea level and with future sea-level rise projections, while fluvial flooding is only evaluated at existing sea level. The following paragraphs describe these four hydrologic hazards.

Coastal storm flooding along the California coastline is driven by storm surge and waves on the open coast. Coastal storm flooding occurs in areas adjacent to the ocean that are exposed by wave action (beaches, low dunes and bluffs, etc.) and within low lying areas at or near a tidal connection to the ocean (wetlands, harbors, bays, lagoons, river floodplains, etc.). Coastal storm flooding and wave run-up hazards were evaluated for the 100-year recurrence frequency event using U.S. Geological Survey’s (USGS) Coastal Storm Modeling System (CoSMoS) and Pacific Institute data sources. Hazard zones are mapped for different sea-level rise scenarios in these two sources (see **Table 4.5-3**). Each maps coastal storm flooding for areas that are “directly connected” to the ocean during flooding events as well as adjacent “low-lying” areas that may not be connected to ocean flooding but the ground is below the adjacent flooding elevations and as such may experience flooding due to flowpaths that are not represented in the topography (i.e. narrow ditches, stormwater drains, etc.), or may experience reduced stormwater drainage or wave overtopping during a coastal storm.

River flooding was evaluated for the 100-year and 500-year recurrence events using FEMA National Flood Hazard Layer (NFHL) data. Exposure to river flooding is designated for three zones: A zone (river/coastal still water flooding or river floodway) and V zone (wave action) for the 100-year recurrence flooding event as well as additional areas in the X zone for 500-year recurrence flooding event. River flooding is anticipated to worsen with climate change and sea-level rise, but this is not factored into the area covered by these FEMA flood zones.

The extents of regular tidal inundation were evaluated using the USGS CoSMoS and National Oceanic and Atmospheric Administration (NOAA) data sources. Tidal inundation is mapped for different inundation frequencies in these two sources: inundation of monthly high tide (i.e., spring

high tides) are mapped by USGS CoSMoS (primary source for districts 4, 5, 7, 12 and 11) while the inundation of mean higher high water is mapped by the NOAA Sea-Level Rise Viewer (available for all coastal districts, primary source for District 1). Exposure to tidal inundation is classified by two types: for areas that are directly connected to the ocean as well as adjacent “low-lying” areas that are not directly connected to tides via local topography but may be affected by high tides (e.g., limited storm drainage capacity during high tide events).

Coastal groundwater levels (at a depth below ground surface) and emergence areas (water ponding at ground surface) are mapped by USGS CoSMoS for all of the California coastal areas. This study evaluates the equilibrium groundwater modeling scenario with low hydraulic conductivity soils and a mean higher high water tailwater boundary condition. Areas within the emergent groundwater zones are likely to experience chronic “sunny day” surface flooding (i.e., surface flooding in the absence of heavy precipitation) and compound flooding from surface runoff during storms.<sup>2</sup>

### Coastal Erosion

Projections of shoreline and cliff erosion with sea-level rise are provided by USGS CoSMoS for much of the California coastline (shoreline erosion north of the Golden Gate is not available at the time of this report). A secondary source of coastal bluff and dune erosion projections is provided by the Pacific Institute, which was used for districts 1 and 4 since CoSMoS shoreline erosion is not available in these areas. The project area is situated close to shorelines, beaches, dunes, and bluffs that are eroding due to ongoing coastal and/or terrestrial processes. Coastal erosion will increase with future sea-level rise and will impact these coastal landforms.

### Sea-Level Rise

The severity of coastal and fluvial flooding events, tidal inundation, coastal erosion, and coastal groundwater will increase with sea-level rise. This study considers future sea-level rise projected for the California coastline based on the best available science and State guidance for sea-level rise planning.

In 2018, the California Ocean Protection Council (OPC) last updated the State of California Sea-Level Rise Guidance,<sup>3</sup> which includes projections for sea-level rise at various locations along the coast of California through 2150. The guidance is based on the sea-level rise science update prepared by the OPC and the California Natural Resources Agency in 2017, in collaboration with the Governor’s Office of Planning and Research, the California Energy Commission, and the

<sup>2</sup> U.S. Geological Survey (various years). Coastal Storm Modeling System (CoSMoS) for North-central California (outer coast), v2.0, Southern California, v3.0, Phase 2, Central California, v3.1, Northern California v3.2, and Statewide groundwater projections CoSMoS-GW. Data accessed at [data pointblue.org](https://www.usgs.gov/centers/pcmssc/science/cosmos-groundwater).  
<https://www.usgs.gov/centers/pcmssc/science/cosmos-groundwater>

<sup>3</sup> Ocean Protection Council, 2018. State of California Sea level Rise Guidance 2018 Update. Available at:  
[https://opc.ca.gov/webmaster/ftp/pdf/agenda\\_items/20180314/Item3\\_Exhibit-A\\_OPC\\_SLR\\_Guidance-rd3.pdf](https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf)

California Ocean Science Trust.<sup>4</sup> The California Coastal Commission Sea-Level Rise Policy Guidance<sup>5</sup> references the OPC 2018 sea-level rise projection values.

OPC<sup>6</sup> guidance provides sea-level rise projections at 12 tide gauge locations along the California coastline in 10-year increments from 2030 to 2150. **Table 4.5-4** below shows the range of projected sea-level rise along the coastline from tide gauges spanning from Crescent City in the north to San Diego in the south. Sea level rise projections are typically analyzed for the “life of a project,” that is, the estimated time frame for the development, though longer sea level rise projections may also be used for a fuller understanding of potential risks. Additionally, although the medium-high risk scenario is most applicable for design and siting considerations, OPC and Coastal Commission guidance<sup>7</sup> recommends analyzing the extreme risk scenario for “critical infrastructure” to provide a fuller understanding of potential risks. This project would be co-located with highways that are considered to be critical transportation infrastructure; therefore, the impact analysis conservatively considers a range of sea level rise projections that cover both the medium high and extreme scenarios for the project's anticipated life span. Considering a broadband network design life of 20 to 40 years and an anticipated construction completion by 2026, areas of the project may experience approximately 1 to 3 feet of sea level rise by 2046 or approximately 3 to 5 feet of sea level rise by 2066, depending on location, based on the range of projections shown in Table 4.5-4.

Following CCC and OPC guidance, the analysis performed for the coastal MMBN project considers a range of sea-level rise amounts that could occur through the end of the century, to account for the many uncertainties associated with greenhouse gas emissions trajectories and climate modeling. The sea-level rise amounts considered for analysis within each county and Caltrans district ultimately depend on the available hazard mapping data. Additionally, multiple types and sources of data are available to analyze sea-level rise effects for each hazard type. Table 4.5-3 lists the sea-level rise amounts that correspond to the hazard mapping data selected to represent different coastal hazards for this study. Coastal hazard data from USGS CoSMoS (including groundwater, tidal inundation, coastal storm flooding and wave runup and coastal erosion) were selected for sea-level rise amounts of 0 feet (existing), 1.6 feet, 3.3 feet and 6.6 feet. NOAA tidal inundation mapping (considered for District 1) was selected for sea-level rise amounts of 0 feet (existing), 1 foot, 3 feet, and 6 feet. The Pacific Institute study, which provides a secondary source of coastal erosion and coastal storm flooding data that is considered for District 1, provides erosion projections at sea-level rise amounts of 0.7 feet, 1.3 feet and 4.6 feet. These data were downloaded and processed for the hazard exposure analysis along with

<sup>4</sup> Griggs, G., Árvai, J., Cayan, D., DeConto, R., Fox, J., Fricker, H.A., Kopp, R.E., Tebaldi, C., Whiteman, E.A. (California Ocean Protection Council Science Advisory Team Working Group), 2017, *Rising Seas in California: An Update on Sea-Level Rise Science*, California Ocean Science Trust, April 2017.

<sup>5</sup> California Coastal Commission, 2018. *California Coastal Commission Sea level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea level Rise in Local Coastal Programs and Coastal Development Permits*. Available at: [https://documents.coastal.ca.gov/assets/slr/guidance/2018/0\\_Full\\_2018AdoptedSLRGuidanceUpdate.pdf](https://documents.coastal.ca.gov/assets/slr/guidance/2018/0_Full_2018AdoptedSLRGuidanceUpdate.pdf)

<sup>6</sup> Ocean Protection Council, 2018. *State of California Sea level Rise Guidance 2018 Update*. Available at: [https://opc.ca.gov/webmaster/ftp/pdf/agenda\\_items/20180314/Item3\\_Exhibit-A\\_OPC\\_SLR\\_Guidance-rd3.pdf](https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf)

<sup>7</sup> California Coastal Commission, 2021. *Critical Infrastructure at Risk: Sea Level Rise Guidance for California's Coastal Zone. Final Adopted Guidance November 17, 2021*. Available at: [https://documents.coastal.ca.gov/assets/slr/SLR%20Guidance\\_Critical%20Infrastructure\\_12.6.2021.pdf](https://documents.coastal.ca.gov/assets/slr/SLR%20Guidance_Critical%20Infrastructure_12.6.2021.pdf)

the other hazards considered. Summaries of project hazard exposure for each district (next section) highlight the applicable sources and sea-level rise amounts considered.

Note that other hazards such as tsunami (California Geological Survey) and river flooding (FEMA) are only mapped for existing sea level, and sea-level rise is not relevant for other geologic (e.g., inland landslide, seismic) and wildfire hazards.

**TABLE 4.5-4  
 SUMMARY OF SEA-LEVEL RISE PROJECTIONS ALONG CALIFORNIA COASTLINE (IN FEET)**

Year	Medium High Risk Aversion Scenario	Extreme Risk Aversion Scenario
2030	0.5 to 1	0.8 to 1.2
2040	0.9 to 1.6	1.4 to 2
2050	1.5 to 2.3	2.3 to 3.1
2060	2.1 to 3.1	3.3 to 4.3
2070	2.8 to 4	4.5 to 5.6
2080	3.7 to 5.1	5.9 to 7.2
2090	4.7 to 6.2	7.4 to 8.9
2100	6.2 to 8	11 to 12.7
2120	7.4 to 9.4	13.1 to 15
2130	8.7 to 10.9	15.3 to 17.4
2140	10.1 to 12.5	17.8 to 20.1
2150	11.6 to 14.1	20.6 to 23

SOURCE: OPC 2018

**Seismic Hazards**

**Earthquake, Landslide and Liquefaction**

The project area traverses zones that are subject to earthquake-induced shaking and liquefaction, as well as landslide hazards that can occur without an earthquake. These seismic hazard zones include fault zones, landslide, and liquefaction zones. Fault zones were mapped by California Geological Survey as required by the Alquist-Priolo Earthquake Fault Zoning Act. Landslide and liquefaction zones are mapped by California Geological Survey.<sup>8</sup>

**Tsunami**

The tsunami hazard zone covers the California coastline and low-lying areas and is mapped by the California Geological Survey and others for emergency evacuation planning purposes. Areas within the tsunami hazard zone may be flooded and heavily damaged during a tsunami event. Available tsunami hazard zone mapping does not consider sea-level rise but tsunami hazard impacts would extend further landward with sea-level rise.

<sup>8</sup> This study also includes evaluation of areas not evaluated by the California Geological Survey (CGS) for earthquake-induced liquefaction or landslides to highlight potential analysis gaps.

## Wildfire

Wildfire severity zones for California are published by the California Department of Forestry and Fire Protection (CAL FIRE). Mapping is provided for both Local Responsibility Areas (LRAs) and State Responsibility Areas (SRAs). SRAs are the official boundaries where the State of California (through CAL FIRE) has the primary legal and financial responsibility for the prevention and suppression of wildland fires. LRAs include incorporated cities and densely populated areas. Fire protection within LRAs is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local governments. These maps give fire hazards either a “moderate,” “high,” or “very high” rating classification. Wildfire hazard exposure reported in Section 4.5.2, *Relevant Project Activities and Effects*, sums the SRA and LRA totals together.

## Relevant Project Activities and Effects

This section provides an overview of the proposed project elements and potential impacts related to coastal hazards. As discussed in Section 2.5, *Project Elements*, the project involves the installation of fiber-optic cable conduit, vaults, markers, paved pullouts, and network hub shelters within the State Highway System right-of-way. In rare circumstances, where no other installation method is feasible, the project may require aerial installation of fiber optic cable on existing utility poles.

### Flooding, Inundation, Groundwater, Tsunami

As shown in Table 4.5-1, portions of the project area within each district could be subject to the following hazards under existing conditions (i.e., with present-day sea levels):

- Storm flooding (1,291.5 acres (12%) of project area exposed based on FEMA 100-year floodplain mapping for creeks and coastal areas, or 770.9 acres (7%) based on coastal storm flooding and wave run-up from CoSMoS connected/low-lying areas and Pacific Institute 100-year floodplain mapping)
- Tidal inundation (191.1 acres (2%) of project area is shown to be regularly inundated (connected to ocean) based on CoSMoS monthly tidal inundation south of Point Arena and NOAA mean high tide inundation north of Point Arena), with an additional 35.8 acres of project area shown as low lying from CoSMoS and NOAA)
- Groundwater emergence (502.6 acres (5%) of project area based on CoSMoS groundwater mapping)
- Tsunami hazards (1,848.6 acres (17%) of project area based on California Geological Survey tsunami evacuation mapping)

Since the coastal MMBN project elements proposed underground, including the fiber optic cables, are primarily water-resistant, flooding will have limited impacts within most of the project area. MMBN project elements can also be carefully sited to minimize or avoid such threats. Project elements proposed at or aboveground may be affected by flood hazards. Coastal storm flooding and/or river flooding may cause water damage to vaults, hubs, or markers, and result in temporary access disruptions. River flooding under bridge crossings could pose issues to the network cable crossing if the water surface meets the structure.

Typical impacts of monthly tidal inundation include corrosion, access disruption, saltwater infiltration in vaults or other at-grade features, or potentially other damages of features and structures near the ground. Emergent groundwater may lead to infiltration at above ground or at-grade features, impaired access to facilities, and corrosion of structures and supporting systems.

Potential level of damage in the tsunami hazard zone depends on facility location and depth of tsunami bore; however, impacts to project elements could generally be limited to flooding or structural damage to the network hub structures, or markers. Inundation during a tsunami event could also lead to seawater infiltration in at-grade features such as vault covers.

The frequency or extent of exposure of the above-described hazards is expected to increase with sea-level rise. Depending on the hatch design on each vault, flooding, tidal inundation, and elevated groundwater around the vaults may result in minor water infiltrating the vaults, including saltwater infiltration in the cases of tidal inundation or coastal flooding/wave run-up.

The project would not be expected to increase risks to life from flooding, inundation, groundwater, or tsunami hazards, as the project would not cause or contribute to such hazards and the hubs are not habitable structures.

### Coastal Erosion

Coastal erosion may undermine the project area along stretches that run along or close to the edge of a bluff, along a low-lying beach, or within or behind coastal dunes. Portions of the project area within districts 1, 4, 5, 7, and 11 would be subject to cliff, dune or shoreline erosion hazards over time with sea-level rise. As shown in Table 4.5-1, the project area may become exposed to coastal erosion in the near term as summarized below:

- Pacific Institute coastal erosion projections with 1.3 feet sea-level rise include 233.0 acres (5%) of project area within districts 1 and 4. Hub site #23 in District 4 is shown to be exposed to bluff erosion with 1.3 feet of sea-level rise.
- CoSMoS coastal erosion projections with 1.6 feet of sea-level rise include 17.1 acres (0.3%) of the project area within districts 5 and 7 (no erosion exposure is projected in districts 12 and 11 with 1.6 feet sea-level rise).

Coastal erosion could expose buried conduit, vaults, markers, or a network hub shelter, making them vulnerable to damage or failure from lack of structural support, wave attack, and bluff failure, among others. Erosion impacts could lead to damage and loss of service.

The project would not be expected to increase risks to life associated with coastal erosion, as the project would not cause or contribute to coastal erosion and the hubs are not habitable structures.

### Earthquake

As shown in Table 4.5-1, seismic hazards may impact the project area as summarized below:

- Fault zones are mapped for 330.1 acres (3%) of the project area and include hub sites #20 – option 1 and #136.

- High risk landslide hazard zones (Grades 7 to 10) include 4,412.0 acres (41%) of project area as well as hub sites #23 and #135.
- Liquefaction hazard zone is mapped for 728.3 acres (7%) of project area within districts 4, 7 and 12 (no liquefaction hazard mapping is available for districts 1, 5 and 11).

Network hub shelters could be damaged by an earthquake, landslide or liquefaction. The buried conduit and aerial cable could be damaged or severed in an earthquake hazard zone, whether from shaking, liquefaction or landslide impacts. Hubs would not be habitable structures and would be built in compliance with the California Building Code requirements for seismic stability.

The project would not be expected to increase risks to life from earthquake hazards, as the project would not cause or contribute to earthquake hazards and hubs are not habitable structures.

### Wildfire

As shown in Table 4.5-1, 5,273.1 acres (49%) of the project area is located in a moderate, high, or very high wildfire hazard severity zone. Wildfire could damage network hub shelters, markers, and aerial cable, while buried conduit and vaults would likely not be affected by wildfires.

The use of equipment and vehicles required for construction could increase wildfire risk through the increased presence of ignition sources (e.g., hot surfaces, sparks, frictional heat) in the vicinity of dry fuel along project area roadways and hub sites. In addition, the potential for smoking in the area could create sparks and ignite a fire. Thus, project construction could increase risk to life or property from wildfire hazards.

Project operation would involve minimal maintenance and the fiber optic lines are not a source of heat or combustion. All network hub shelters would be located within areas mapped as high or moderate wildfire hazard severity zones. Each hub site would be enclosed within a 50-foot by 50-foot fenced area, with a 30-foot vegetation clearing around the structure. This would help to minimize, but would not eliminate, the wildfire hazard exposure risk. For these reasons, project operations would not be expected to increase risk to life from wildfire hazards.

## District Analysis

The following sections describe the project setting within each Caltrans district, including the geographic/hydrologic conditions, significant features and relevant hazards. As described in Section 4.5.2, *Statewide Project Analysis*, project elements proposed for flood, tidal inundation, or groundwater emergence areas could be regularly exposed to water, including seawater, which could increase potential for water-related damage. Erosion hazards could expose buried conduit, vaults, or a network hub shelter, making them vulnerable to damage or failure from lack of structural support, wave attack, and bluff failure, among others. Such exposure could lead to future requests for shoreline structure protection. Earthquake hazards, such as seismic shaking, fault rupture, liquefaction, or landslide could damage or destroy project features by severing conduit or aerial cable, cracking vaults and paved pullouts, or collapsing network hub shelters. Project elements proposed within wildfire hazard zones could temporarily increase risk of wildfire during construction, and could be susceptible to damage from future wildfires in such



areas. These hazards would be the same for each district where the respective hazards and project elements occur.

**Tables 4.5-5 through 4.5-12** below summarize project exposure to coastal hazards for each district. With respect to sea level hazards, the tables show cumulative exposure with increasing sea level projection amounts. For example, project acres projected to be exposed to tidal inundation at 6.6 feet of sea-level rise include the area exposed to tidal inundation at lower sea level scenarios. The geographic coverage of the coastal hazards data sources are summarized in the notes after each of the following two tables. Note that in Tables 4.5-5 through 4.5-12, project area exposure to groundwater emergence decreases with increasing sea-level rise in some cases because groundwater emergence areas are projected to become tidally inundated and thus mapped in this different category. Similarly, within the tidal inundation hazard type, project acreages in the ‘low-lying’ subzone decrease with sea-level rise in some cases because low-lying areas are projected to become ‘connected’ to the tides with greater amounts of sea-level rise. Note the following sections refer to hazard exposures for the project area (ROW) in each district; the exposures do not cover the entire project area but rather portions of project area detailed in Tables 4.5-5 through 4.5-12 below. The exposed project area is summarized as a means of identifying districts with high portions of exposed ROW that warrant further analysis and careful consideration of where the network cable should be sited with respect to the roadway.

## ***District 1***

### **Overview of District geography and significant features**

District 1 includes Del Norte, Humboldt, and Mendocino counties. The following paragraphs summarize notable geographic setting and/or features in the project area within this district that may be susceptible to hazards with or without sea-level rise. The project area follows the existing highway – primarily Highway 101, with some segments on Highway 1.

In Del Norte County, the project area begins along the top of coastal bluffs at the border of California and Oregon and then crosses the Smith River. In Crescent City, the project area crosses the Elk Creek floodplain that is exposed to storm flooding and could become exposed to regular tidal inundation with future sea-level rise. This area is also shown to be exposed to tsunami hazards. Moving south, a portion of the project area traverses Crescent Beach that is exposed to coastal erosion and wave run up that will worsen with sea-level rise. The project area then moves inland from the coastal bluff area and down along the beach near Wilson Creek that is subject to all coastal hazards. Farther south, the project area crosses the Klamath River floodplain and is exposed to tidal inundation and coastal and fluvial storm flooding. Del Norte County is not mapped for liquefaction hazards, but the project area crosses through areas with high landslide susceptibility. The project area is within coastal plains and hills in Del Norte County that are mostly designated moderate to high wildfire hazard severity zones.

In Humboldt County, the project area crosses the floodplain of a branch of Redwood Creek near Orick and remains at a low elevation traveling south past Freshwater Lagoon and Stone Lagoon. South of Stone Lagoon, the project area crosses the Big Lagoon floodplain. The project area in these areas is exposed to flooding, inundation, and coastal erosion. South of Big Lagoon, the project area primarily proceeds inland from the coastal bluffs until reaching Little River. Between

Little River and McKinleyville, the project area traverses Clam Beach, where it is exposed to coastal erosion with sea-level rise, and climbs in elevation to reach McKinleyville. South of McKinleyville, the project area crosses the Mad River floodplain. Near Arcata, the project area crosses the floodplain of Arcata Bay and travels down the low-lying area of Samoa before crossing over the Samoa Bridge into Eureka. The project area remains at low elevation in Eureka next to Humboldt Bay, then crosses the Elk River floodplain. The project area in these areas is exposed to coastal and fluvial flooding and tidal inundation that will worsen with sea-level rise. The project area traverses multiple fault zones in the vicinity of Humboldt Bay, and crosses through areas with high landslide susceptibility. The project area is within coastal plains and hills in Humboldt County that are designated moderate to high wildfire hazard severity zones.

In Mendocino County, the project area is located just south and inland of the dunes at Ten Mile Beach and remains inland of the dunes and bluffs, crossing a few small floodplain areas before crossing the Pudding Creek floodplain in Fort Bragg. After remaining high and inland on the bluffs in Fort Bragg, the project area crosses the Noyo River floodplain. Traveling south, the project area remains farther inland from the coastal bluffs until approaching the town of Mendocino, where the project area traverses coastal bluffs and crosses the Big River floodplain. South of the town of Mendocino, the project area continues to traverse coastal bluffs and crosses the Albion and Navarro River floodplains. Near Point Arena, the project area drops to a lower elevation and crosses the Garcia River floodplain, before climbing up and traversing coastal bluffs. At the south end of District 1, the project corridor enters the Gualala River floodplain. Primary hazards along this stretch of the project route include flooding in creek drainages and coastal erosion along blufftop segments. The project area traverses fault zones in Manchester, and crosses through areas with high landslide susceptibility. The project area is within coastal plains and hills in Mendocino County that are mostly designated moderate to high wildfire hazard severity zones.

#### **Overview of relevant hazards that are present within the district.**

Hazard exposure for the District 1 project area and network hub shelters is summarized in **Tables 4.5-5** and **4.5-6**, respectively. The following paragraphs summarize notable areas that are exposed to each hazard analyzed. Note that for District 1, CoSMoS tidal inundation and coastal storm flooding is only available for Mendocino County south of Point Arena lighthouse; the corresponding tidal and coastal flooding exposure north of Point Arena is determined by NOAA tidal inundation and Pacific Institute coastal flooding, respectively. Both CoSMoS and Pacific Institute erosion is included in District 1 because CoSMoS only provides cliff erosion, whereas Pacific Institute covers cliff and dune shorelines for District 1.

**Flooding, Inundation, & Groundwater:** Existing flooding hazard exposure of the project area is focused on river canyon and floodplain crossings, routes along and across bays and lagoons. With sea-level rise, additional portions of the project area will be exposed to storm flooding and regular tidal inundation or groundwater emergence.

**Coastal Erosion:** Portions of the project area may become exposed to coastal erosion in Del Norte (bluffs in north county, Crescent Beach, bluffs around Wilson Creek), Humboldt

(dunes and shorelines at Humboldt Lagoons and Clam Beach), and Mendocino Counties (multiple bluff areas along coast).

**Earthquake Hazards:** Segments of the project area could be subject to earthquake hazards along mapped fault lines to the north and east of Humboldt Bay and near the town of Manchester. In addition, portions of the project are proposed in areas with high landslide susceptibility in Del Norte (coastal mountains south of Crescent City, Klamath River valley), Humboldt (hillslopes from Orick to Humboldt Bay and Eel River), and Mendocino Counties (river canyon side slopes). Liquefaction zones are not mapped for District 1. Hub site #20 – option 1 is within the earthquake fault zone. No hub sites are within liquefaction analysis areas so their exposure is undetermined.

**Tsunami Hazards:** Portions of the project area could be exposed to tsunami hazards in Del Norte (low-lying areas north of Smith River, Crescent City, river valley crossings), Humboldt (river valley, lagoon and Humboldt Bay crossing/adjacent) and Mendocino counties (river valley crossings).

**Wildfire:** The project would be constructed in areas mapped as high and very high wildfire hazard severity zone along south half of Del Norte County, small areas in Humboldt County, and much of the Mendocino County coast. All hub sites are within the Moderate wildfire severity zone.

#### **District-specific summary of impacts**

Potential project hazards in District 1 include increased risk of wildfire ignition during construction and exposure of aboveground project elements (including hubs) to wildfire hazards; exposure and potential failure of underground project elements due to geologic hazards and coastal erosion and exposure of hub site #20 – option 1 to earthquake hazards; and corrosion of vaults from future tidal inundation.

**TABLE 4.5-5  
 DISTRICT 1 PROJECT AREA HAZARD EXPOSURE SUMMARY**

Hazard Type	Sub Zones	Exposed right-of-way area and percent total (of 3,465 ac)			
Earthquake (Fault Zone)	n/a	140.6 (4%)			
Landslide Hazard Zone (Grades 7 to 10)	n/a	1,360.0 (39%)			
Liquefaction Hazard Zone	n/a	n/a			
No Liquefaction Assessment	n/a	3,464.7 (100%)			
Wildfire Severity (LRA & SRA)	Very High	70.4 (2%)			
	High	967.8 (28%)			
	Moderate	1,341.6 (39%)			
Tsunami Hazard Zone	n/a	805.2 (23%)			
Flood Hazard Area (FEMA)	100-yr event	649.6 (19%)			
	500-yr event	10.6 (0%)			
USGS CoSMoS Coastal Hazards with Sea-Level Rise (SLR)		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Cliff Erosion	n/a	n/a	14.6 (0%)	33.1 (1%)	48.2 (1%)
Monthly Tidal Inundation	Connected	0.8 (0%)	1.0 (0%)	1.1 (0%)	4.7 (0%)
	Low Lying	0.0 (0%)	0.1 (0%)	0.1 (0%)	0.1 (0%)
Coastal Storm Flooding & Wave Runup	Connected	5.5 (0%)	6.3 (0%)	6.7 (0%)	8.3 (0%)
	Low Lying	0.2 (0%)	0.1 (0%)	0.1 (0%)	0.4 (0%)
Groundwater	Emergent	329.1 (9%)	330.3 (10%)	276.6 (8%)	225.2 (7%)
NOAA Coastal Hazards with Sea-Level Rise (SLR)		None	1 ft SLR	3 ft SLR	6 ft SLR
Tidal Inundation	Connected	61.3 (2%)	72.6 (2%)	131.9 (4%)	254.4 (7%)
	Low Lying	23.4 (1%)	34.2 (1%)	25.0 (1%)	8.9 (0%)
Pacific Institute Coastal Hazards with Sea-Level Rise (SLR)		None	0.7 ft SLR	1.3 ft SLR	4.6 ft SLR
Coastal Storm Flooding	n/a	489.4 (14%)	n/a	n/a	754.3 (22%)
Cliff & Dune Erosion	n/a	n/a	113.1 (3%)	155.7 (4%)	322.1 (9%)

NOTES:

- CoSMoS shoreline erosion is not available for District 1
- CoSMoS tidal inundation and coastal storm flooding covers areas south of Point Arena Lighthouse
- NOAA tidal inundation and Pacific Institute coastal storm flooding cover areas north of Point Arena Lighthouse

**TABLE 4.5-6  
DISTRICT 1 NETWORK HUBS HAZARD EXPOSURE SUMMARY**

Hazard Type	Sub Zone	Exposed hubs (2 total in District)			
Earthquake (Fault Zone)	n/a	Hub site #20 (north location)			
Landslide Hazard Zone	n/a	None			
Liquefaction Hazard Zone	n/a	n/a			
No Liquefaction Assessment	n/a	Hub sites #107, hub site #20 (both locations)			
Wildfire Severity (LRA & SRA)	Very High	None			
	High	None			
	Moderate	Hub site #107, hub sites #20 (both locations)			
Tsunami Hazard Zone	n/a	None			
Flood Hazard Area (FEMA)	100-yr event	None			
	500-yr event	None			
USGS CoSMoS Coastal Hazards with Sea-Level Rise (SLR)		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Cliff Erosion	n/a	n/a	none	None	none
Monthly Tidal Inundation	Connected	n/a	none	None	none
	Low Lying	n/a	none	None	none
Coastal Storm Flooding & Wave Runup	Connected	n/a	none	None	none
	Low Lying	n/a	none	None	none
Groundwater	Emergent	none	none	None	none
NOAA Coastal Hazards with Sea-Level Rise (SLR)		None	1 ft SLR	3 ft SLR	6 ft SLR
Tidal Inundation	Connected	none	none	None	none
	Low Lying	none	none	None	none
Pacific Institute Coastal Hazards with Sea-Level Rise (SLR)		None	0.7 ft SLR	1.3 ft SLR	4.6 ft SLR
Coastal Storm Flooding	n/a	none	n/a	n/a	none
Cliff & Dune Erosion	n/a	n/a	none	None	none

NOTES:

- CoSMoS shoreline erosion is not available for District 1
- CoSMoS tidal inundation and coastal storm flooding covers areas south of Point Arena Lighthouse
- NOAA tidal inundation and Pacific Institute coastal storm flooding cover areas north of Point Arena Lighthouse

## **District 4**

### **Overview of District geography and significant features**

District 4 includes Sonoma, Marin, San Francisco, and San Mateo counties. The following paragraphs summarize notable geographic setting and/or features in the project area within District 4 that may be susceptible to hazards with or without sea-level rise. The project area follows the existing highway – primarily Highway 1.

In Sonoma County, after exiting the Navarro River floodplain, the project area is situated inland from the coastal bluffs at the north end of the county, venturing closer to the bluffs in some small areas as the project area extends south. Upon reaching the Russian River, the project area drops in elevation and crosses the floodplain before climbing and traversing the coastal bluffs. The project area then follows the eastern edge of Bodega Harbor before turning east and traveling inland into the foothills. The project area traverses multiple fault zones including in Bodega Bay and Fort Ross. The project area is within coastal plains and hills in Sonoma County that are mostly designated high wildfire hazard severity zones with some areas of moderate severity. The project area also crosses through areas with high landslide susceptibility.

In Marin County, the project area travels through the hillside, adjacent to Estero de San Antonio, then moves back towards the coast near Keys Creek. The area then traverses the eastern edge of Tomales Bay. Farther south, the project area follows the edge of Bolinas Lagoon, crosses Easkoot Creek, then travels along the coastal bluffs until reaching Muir Beach. The project area traverses fault zones near Bolinas Lagoon and Tomales Bay. The project area is within coastal plains and hills in Marin County that are mostly designated moderate wildfire hazard severity zones with some areas of high severity. The project area also crosses through areas with high landslide susceptibility.

In San Francisco County, only a small portion of the project area exists at the south border of the county, and is inland from the coastal bluffs.

In San Mateo County, the project area winds along the blufftop, venturing inland then closer to the coast several times and crossing several small floodplains. The project area moves inland from the coastal bluffs before crossing the San Vicente and Deniston Creek floodplains. The project area then ventures close to the coastline near Surfer's Beach in El Granada, then moves slightly inland and crosses Frenchmans Creek. In Half Moon Bay, the project area turns and travels east along Pilarcitos Creek. The project area traverses a fault zone in Pacifica. The project area is within coastal plains and hills in San Mateo County that are designated very high wildfire hazard severity zones with smaller areas of moderate and high severity. The project area also crosses through areas with high landslide susceptibility.

### **Overview of relevant hazards that are present within the district.**

Hazard exposure for District 4 project area and hub shelter locations is summarized in **Tables 4.5-7** and **4.5-8** respectively. The following paragraphs summarize notable areas that are exposed to each hazard analyzed.

**Flooding, Inundation, & Groundwater:** Existing flooding hazard exposure of the project area is focused on river canyon and floodplain crossings, routes along and across bays, harbors, and lagoons. With sea-level rise, additional portions of the project area will be exposed to storm flooding and regular tidal inundation or groundwater emergence. Hub site #136 is within the 100-year floodplain of Olema Creek.

**Coastal Erosion:** Portions of the project area may become exposed to coastal erosion in Sonoma (blufftop), Marin (bluffs between Stinson Beach and Muir Beach), and San Mateo counties (bluffs along Pacifica and Montara, Surfers Beach). Hub site #23 is within the mid-century bluff erosion hazard zone mapped for the Pacific Institute (1.3 feet at 2050 and 4.6 feet at 2100) but not within bluff erosion hazard zone mapped by USGS CoSMoS (up to 6.6 feet at 2100).

**Earthquake Hazards:** Segments of the project area cross multiple liquefaction zones in San Mateo County in the low-lying areas and canyons including the stretch of Highway 92. Liquefaction zones are not mapped for Sonoma and Marin counties. Multiple segments of project area with high landslide susceptibility are located in Sonoma (Fort Ross to Bodega), Marin (Shoreline Highway segments from Valley Ford to Olema, and Woodville to Muir Beach), and San Mateo counties (hills of Pacifica and San Pedro Mountain as well as the stretch of Highway 92). Segments of the project area could be subject to earthquake hazards along mapped fault lines near Fort Ross, Carmet, Salmon Creek, Bodega Bay, Point Reyes Station, Olema, Woodville/Bolinas Lagoon and Pacifica. In addition, hub site #136 is within the earthquake fault zone. Hub sites #23 and #135 are in areas with high landslide hazards. All hub shelter sites are within areas not evaluated for liquefaction, so their exposure is undetermined.

**Tsunami Hazards:** Much of the project area would be exposed to tsunami hazards in Sonoma County. Specific exposed portions of the project area include lower Willow Creek, on low bluffs and drainages from Death Rock to Salmon Creek, and along Bodega Bay. In Marin County, tsunami hazards expose portions of the project area in Tomales Bay, Bolinas Lagoon, Stinson Beach and Muir Beach. In San Mateo County, the tsunami hazards extend through lowlands in Pacifica, Montara, Moss Beach, and much of Half Moon Bay.

**Wildfire:** The project area is mapped as high and very high wildfire hazard severity zones in Sonoma County (mostly along coastline north of Jenner), Marin County (small area near Tomales Bay mouth, hills around Bolinas Lagoon to Muir Beach), and San Mateo County (mountains between Pacifica and Montara along Highway 1, Highway 92 into the mountains behind Half Moon Bay). Hub site #23 is in a high wildfire severity zone, while hub sites #135 and #136 are within the medium severity zone.

### **District-specific summary of impacts**

Potential project hazards in District 4 include increased risk of wildfire ignition during construction and exposure of aboveground project elements (including hubs) to wildfire hazards; exposure and potential failure of underground project elements due to geologic hazards and coastal erosion, exposure of hub sites #23 #135 and #136 to geologic hazards and hub site #23 to coastal erosion; exposure of hub site #136 to creek flooding and corrosion of vaults from future tidal inundation.

**TABLE 4.5-7  
DISTRICT 4 PROJECT AREA HAZARD EXPOSURE SUMMARY**

Hazard Type	Sub Zone	Exposed project area and percent total (of 1,615 ac)			
Earthquake (Fault Zone)	n/a	108.3 (7%)			
Landslide Hazard Zone (Grades 7 to 10)	n/a	888.5 (55%)			
Liquefaction Hazard Zone	n/a	178.0 (11%)			
No Liquefaction Assessment	n/a	981.5 (61%)			
Wildfire Severity (LRA & SRA)	Very High	228.8 (14%)			
	High	278.4 (17%)			
	Moderate	582.8 (36%)			
Tsunami Hazard Zone	n/a	273.1 (17%)			
Flood Hazard Area (FEMA)	100-yr event	46.1 (3%)			
	500-yr event	16.8 (1%)			
USGS CoSMoS Coastal Hazards with Sea-Level Rise (SLR)		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Cliff & Shoreline Erosion	n/a	n/a	16.0 (1%)	34.7 (2%)	60.6 (4%)
Monthly Tidal Inundation	Connected	9.1 (1%)	14.3 (1%)	24.9 (2%)	57.7 (4%)
	Low Lying	0.1 (0%)	0.3 (0%)	0.4 (0%)	1.9 (0%)
Coastal Storm Flooding & Wave Runup	Connected	19.1 (1%)	38.1 (2%)	41.8 (3%)	86.1 (5%)
	Low Lying	0.4 (0%)	0.4 (0%)	0.7 (0%)	0.6 (0%)
Groundwater	Emergent	33.1 (2%)	34.2 (2%)	35.4 (2%)	34.9 (2%)
Pacific Institute Coastal Hazards with Sea-Level Rise (SLR)		None	0.7 ft SLR	1.3 ft SLR	4.6 ft SLR
Cliff & Dune Erosion	n/a	n/a	34.6 (2%)	62.1 (4%)	179.3 (11%)

## NOTES:

- CoSMoS shoreline erosion is only available south of the Golden Gate.



**TABLE 4.5-8  
DISTRICT 4 NETWORK HUBS HAZARD EXPOSURE SUMMARY**

Hazard Type	Sub Zone	Exposed hubs (3 total in District)			
Earthquake (Fault Zone)	n/a	Hub site #136			
Landslide Hazard Zone	n/a	Hub site #23, hub site #135			
Liquefaction Hazard Zone	n/a	n/a			
No Liquefaction Assessment	n/a	Hub site #23, hub site #135, hub site #136			
Wildfire Severity (LRA & SRA)	Very High	none			
	High	Hub site #23			
	Moderate	Hub site #135, hub site #136			
Tsunami Hazard Zone	n/a	none			
Flood Hazard Area (FEMA)	100-yr event	Hub site #7			
	500-yr event	none			
USGS CoSMoS Coastal Hazards with Sea-Level Rise (SLR)		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Cliff & Shoreline Erosion	n/a	n/a	none	none	none
Monthly Tidal Inundation	Connected	n/a	none	none	none
	Low Lying	n/a	none	none	none
Coastal Storm Flooding & Wave Runup	Connected	n/a	none	none	none
	Low Lying	n/a	none	none	none
Groundwater	Emergent	none	none	none	none
Pacific Institute Coastal Hazards with Sea-Level Rise (SLR)		None	0.7 ft SLR	1.3 ft SLR	4.6 ft SLR
Cliff & Dune Erosion	n/a	n/a	none	Hub site #23	Hub site #23

NOTES:

- CoSMoS shoreline erosion is only available south of the Golden Gate bridge.

## **District 5**

### **Overview of District geography and significant features**

District 5 includes Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara counties. The following paragraphs summarize notable geographic setting and/or features in the project area within District 5 that may be susceptible to hazards with or without sea-level rise.

In Santa Cruz County, a portion of the project area is near San Vicente Creek. Traveling south, the project area moves slightly inland from the coastal bluffs and crosses several small floodplains. South of the City of Santa Cruz, the project area ventures inland to the hillside before approaching the Pajaro River.

In Monterey County, the project area begins along the Pajaro River. Farther south, the project area crosses Elkhorn Slough and remains at low elevation near the Salinas River. The project area then traverses the back of the coastal dunes into the City of Monterey. A small portion of project area in Pacific Grove is situated just inland of the coastal dunes at Sunset Beach, and a second portion is located farther inland. Portions of the project area are within coastal hills in San Mateo County that are designated very high wildfire hazard severity zones.

In San Luis Obispo County, the project area sits inland of the coastal bluffs before crossing San Simeon Creek. South of San Simeon Creek, the project area traverses the coastal bluffs before moving inland near the town of Cambria. After crossing Santa Rosa Creek, the project area moves farther inland and along hills, passing through Perry Creek and Villa Creek. Approaching the town of Cayucos, the project area ventures closer to the coastline and just inland of the coastal bluffs before crossing Cayucos Creek and passing inland of the town of Cayucos. Between Cayucos and the town of Morro Bay, the project area is at a low elevation behind the coastal dunes and crosses Toro Creek. Upon reaching Morro Bay, the project area moves inland but remains at a low elevation, crossing several floodplains including Morro Creek, then turns east and follows the valley inland until reaching the Cuesta College campus. Farther south, the project area is situated inland from the coastal bluffs near Shell Beach, moving closer to the bluff edge just north of Pismo Beach. The project area crosses Pismo Creek and follows along Meadow Creek. A portion of the project area is located inland of the Oceano Dunes. Portions of the project area are within coastal hills in San Luis Obispo County that are mostly designated moderate wildfire hazard severity zones with smaller areas of high and very high severity. The project area also crosses through areas with high landslide susceptibility.

In Santa Barbara County, a portion of project area follows San Jose Creek, just east of the Santa Barbara Airport. Beginning in the City of Santa Barbara and traveling east, the project area travels at low elevations and crosses Mission, Sycamore, Montecito, Oak, San Ysidro, and Romero Creeks. The project area follows the coastal cliffs in the town of Summerland, then moves slightly inland and crosses Toro and Garrapata Creeks. The project area then approaches Arroyo Paredon Creek, then remains at low elevation, passing behind Carpinteria Salt Marsh and crossing the Franklin and Carpinteria Creek estuaries. The project area then follows coastal dunes to the County line. Small segments of the project area are within coastal hills in Santa Barbara County that are designated very high wildfire hazard severity zones. The project area also crosses through areas with high landslide susceptibility.

There are no network hub shelter sites located in the coastal zone of District 5.

**Overview of relevant hazards that are present within the district**

Hazard exposure for District 5 project area is summarized in **Table 4.5-9**. The following paragraphs summarize notable areas that are exposed to each hazard analyzed.

**Flooding, Inundation, & Groundwater:** Existing flooding hazard exposure of the project area is focused on river canyon and floodplain crossings, routes along and across bays, estuaries and lagoons and some routes along the coast. With sea-level rise, additional project areas will be exposed to storm flooding and regular tidal inundation or groundwater emergence.

**Coastal Erosion:** Portions of the project area may become exposed to coastal erosion in the counties of Monterey (southern Monterey Bay), San Luis Obispo (a few bluff areas between San Simeon to Morro Bay and at Pismo Beach), and Santa Barbara (Goleta Beach, Summerland, Serena, Rincon Point).

**Earthquake Hazards:** Liquefaction zones are not mapped for District 5. The project area crosses multiple areas with high landslide susceptibility in Santa Cruz (coastal mountains and creek/river valleys from Davenport to Watsonville), Monterey (southern hillslope into Pajaro Valley, hills of Monterey and behind dunes along southern Monterey Bay), San Luis Obispo (various locations along mountains from San Simeon to Cayucos, along Chorro Creek Canyon to Morro Bay, below mountains in Pismo, Nipomo Mesa), and Santa Barbara Counties (Summerland, Rincon Point).

**Tsunami Hazards:** Portions of the project area could be exposed to tsunami hazards in Santa Cruz County at Aptos Creek; in Monterey County around the middle of Monterey Bay; in San Luis Obispo County in San Simeon and Santa Rosa Creek floodplains, and several low lying coastal plains and drainages from Villa Creek to north side of Morrow Bay in the vicinity of Pismo Beach; and in Santa Barbara County at Goleta Beach and Slough, low lying downtown Santa Barbara, Serena, and Sandyland.

**Wildfire:** The project would be constructed in areas mapped as high and very high wildfire hazard severity zone in the counties of Santa Cruz (coastal mountains around Davenport and northwest of Watsonville), Monterey (Del Monte Forest), San Luis Obispo (Cambria, Pismo Beach, Nipomo Mesa), and Santa Barbara (Montecito/Summerland).

**District-specific summary of impacts**

Potential project hazards in District 5 include increased risk of wildfire ignition during construction and risk of property damage due to wildfire in high severity wildfire zones along the project area; exposure and potential failure of underground project elements due to geologic hazards and coastal erosion; and corrosion of vaults from future tidal inundation.

**TABLE 4.5-9  
 DISTRICT 5 PROJECT AREA HAZARD EXPOSURE SUMMARY**

Hazard Type	Sub Zone	Exposed project area and percent total (of 3,141 ac)			
Earthquake (Fault Zone)	n/a	0.0 (0%)			
Landslide Hazard Zone (Grades 7 to 10)	n/a	1230.2 (39%)			
Liquefaction Hazard Zone	n/a	n/a			
No Liquefaction Assessment	n/a	3141.1 (100%)			
Wildfire Severity (LRA & SRA)	Very High	110.7 (4%)			
	High	348.6 (11%)			
	Moderate	651.9 (21%)			
Tsunami Hazard Zone	n/a	410.7 (13%)			
Flood Hazard Area (FEMA)	100-yr event	313.0 (10%)			
	500-yr event	328.3 (10%)			
USGS CoSMoS Coastal Hazards with Sea-Level Rise (SLR)		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Cliff & Shoreline Erosion	n/a	n/a	6.0 (0%)	16.9 (1%)	51.1 (2%)
Monthly Tidal Inundation	Connected	7.6 (0%)	10.4 (0%)	22.1 (1%)	67.1 (2%)
	Low Lying	2.8 (0%)	3.9 (0%)	4.1 (0%)	4.9 (0%)
Coastal Storm Flooding & Wave Runup	Connected	20.6 (1%)	26.2 (1%)	41.9 (1%)	207.1 (7%)
	Low Lying	4.2 (0%)	4.1 (0%)	4.1 (0%)	8.1 (0%)
Groundwater	Emergent	83.2 (3%)	82.7 (3%)	82.7 (3%)	81.8 (3%)

NOTES:

- Liquefaction hazards are not mapped in District 5.

## **District 7**

### **Overview of District geography and significant features**

District 7 includes the coastal counties of Ventura and Los Angeles. The following paragraphs summarize notable geographic setting and/or features in the project area within District 7 that may be susceptible to hazards with or without sea-level rise.

In west Ventura County, the project area parallels the coastline between the Pacific Ocean and the coastal mountains, following the toe of the range and sometimes traversing former beach and dune areas. Further south the project area crosses the Ventura River. The project area remains at low elevation through the county before turning east and upland of Pierpont Bay and the Ventura Harbor. Two faults traverse the project area in west Ventura County. Segments of the project area are within coastal hills in Ventura County that are designated very high wildfire hazard severity zones. The project area also crosses through areas with high landslide susceptibility and crosses fault zones in western Ventura County.

In Los Angeles County, a section of the project area travels north to south along Topanga Canyon to the creek mouth. A second portion of project area is located between Redondo Beach and Torrance Beach, inland and upland of the Redondo Harbor, beach, dunes, bluffs, and development. A third portion of project area is located in a low-lying area north of Alamitos Bay and El Cerrito Channel. One fault traverses the project area in Long Beach. All of the project area within Topanga Canyon in Los Angeles County is within the very high wildfire hazard severity zone. The project area also crosses through areas with high landslide susceptibility.

There are no network hub shelter sites located in the coastal zone of District 7.

### **Overview of relevant hazards that are present within the district**

Hazard exposure for District 7 project area is summarized in **Table 4.5-10**. The following paragraphs summarize notable areas that are exposed to each hazard analyzed.

**Flooding, Inundation, & Groundwater:** Existing flooding hazard exposure of the project area may occur at river canyon crossings and along the Pacific Ocean. With sea-level rise, additional project areas will be exposed to storm flooding and regular tidal inundation or groundwater emergence.

**Tsunami Hazards:** Portions of the project area would be exposed to tsunami hazards along Highway 101 in North Ventura County, up the Ventura River and Sanjon Barranca, across Pierpont Bay and low-lying coastal plain, and inland across Los Alamitos Bay.

**Coastal Erosion:** Project area may become exposed to coastal erosion in Ventura County (western county coastline) and Los Angeles County (Topanga Beach).

**Earthquake Hazards:** In west Ventura County, segments of project area cross two fault zones and multiple areas with very high landslide susceptibility. In Los Angeles County, the project area crosses a fault zone north of Los Cerritos Channel and is within the liquefaction zone. Much

of the project area in Topanga Canyon is classified as very high landslide susceptibility with portions also in the liquefaction zone. Liquefaction zones are not mapped for Ventura County.

**Wildfire:** The project would be constructed in areas mapped as high and very high wildfire hazard severity zone in the counties of Ventura (county line to Ventura River) and Los Angeles (Topanga Canyon).

**District-specific summary of impacts**

Potential project hazards in District 7 increased risk of wildfire ignition during construction and risk of property damage due to wildfire, exposure and potential failure of underground project elements due to geologic hazards and coastal erosion, and corrosion of vaults from future tidal inundation.

**TABLE 4.5-10  
 DISTRICT 7 PROJECT AREA HAZARD EXPOSURE SUMMARY**

Hazard Type	Sub Zone	Exposed project area and percent total (of 789 ac)			
Earthquake (Fault Zone)	n/a	22.6 (3%)			
Landslide Hazard Zone (Grades 7 to 10)	n/a	494.7 (63%)			
Liquefaction Hazard Zone	n/a	469.3 (59%)			
No Liquefaction Assessment	n/a	24.5 (3%)			
Wildfire Severity (LRA & SRA)	Very High	512.0 (65%)			
	High	15.2 (2%)			
	Moderate	2.6 (0%)			
Tsunami Hazard Zone	n/a	84.8 (11%)			
Flood Hazard Area (FEMA)	100-yr event	87.0 (11%)			
	500-yr event	6.2 (1%)			
USGS CoSMoS Coastal Hazards with Sea-Level Rise (SLR)		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Cliff & Shoreline Erosion	n/a	n/a	11.2 (1%)	28.7 (4%)	91.0 (12%)
Monthly Tidal Inundation	Connected	7.4 (1%)	13.7 (2%)	19.6 (2%)	50.4 (6%)
	Low Lying	1.4 (0%)	0.3 (0%)	3.7 (0%)	7.1 (1%)
Coastal Storm Flooding & Wave Runup	Connected	56.4 (7%)	62.9 (8%)	75.8 (10%)	189.1 (24%)
	Low Lying	2.7 (0%)	6.8 (1%)	1.6 (0%)	6.7 (1%)
Groundwater	Emergent	14.1 (2%)	14.8 (2%)	15.6 (2%)	15.6 (2%)

## **District 12**

### **Overview of District geography and significant features**

District 12 covers Orange County. The following paragraphs summarize notable geographic setting and/or features in the project area within District 12 that may be susceptible to hazards with or without sea-level rise.

In Orange County, a small section of project area is located within a low-lying area adjacent to the Huntington Beach Channel. Another section is located in a low-lying area adjacent to the northwest end of Newport Bay. A third project area portion is located along Laguna Canyon, stretching from south of State Route 73 to the coastline. A fourth project area segment is located near Doheny Beach in Dana Point and crosses San Juan Creek. The fifth project area portion is located on the hillside far from the bluff edge in San Clemente. Most of the project area are within Laguna Canyon is designated as very high wildfire hazard severity zone. The project area also crosses through areas with high landslide susceptibility.

There are no network hub shelter sites located in the coastal zone of District 12.

### **Overview of relevant hazards that are present within the district.**

Hazard exposure for the District 12 project area is summarized in **Table 4.5-11**. The following paragraphs summarize notable areas that are exposed to each hazard analyzed.

**Flooding, Inundation, & Groundwater:** Existing flooding hazard exposure of the project area is focused on Laguna Canyon. With sea-level rise, additional project area will be exposed to storm flooding and regular tidal inundation or groundwater emergence.

**Earthquake Hazards:** Portions of each project area segment in District 12 are within the liquefaction zone, while the segment next to Newport Bay has the greatest landslide susceptibility.

**Tsunami Hazards:** Portions of the project area would be exposed to tsunami hazards up the bluff face in Huntington Beach, across Newport Harbor, up lower Laguna Canyon and San Juan Creek.

**Wildfire:** The project would be constructed in areas mapped as high and very high wildfire hazard severity zone along Laguna Canyon.

### **District-specific summary of impacts**

Potential hazard related impacts in the District 12 project areas include increased risk of wildfire ignition during construction and risk of property damage due to wildfire in high severity wildfire zones along the project area; exposure and potential failure of underground project elements due to geologic hazards; and corrosion of vaults from future tidal inundation.

**TABLE 4.5-11  
 DISTRICT 12 PROJECT AREA HAZARD EXPOSURE SUMMARY**

Hazard Type	Sub Zone	Exposed project area and percent total (of 166 ac)			
		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Earthquake (Fault Zone)	n/a	0.0 (0%)			
Landslide Hazard Zone (Grades 7 to 10)	n/a	71.9 (43%)			
Liquefaction Hazard Zone	n/a	81.0 (49%)			
No Liquefaction Assessment	n/a	0.2 (0%)			
Wildfire Severity (LRA & SRA)	Very High	39.7 (24%)			
	High	0.0 (0%)			
	Moderate	0.0 (0%)			
Tsunami Hazard Zone	n/a	8.4 (5%)			
Flood Hazard Area (FEMA)	100-yr event	40.2 (24%)			
	500-yr event	3.1 (2%)			
USGS CoSMoS Coastal Hazards with Sea-Level Rise (SLR)		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Cliff & Shoreline Erosion	n/a	n/a	0.0 (0%)	0.0 (0%)	0.0 (0%)
Monthly Tidal Inundation	Connected	0.7 (0%)	0.7 (0%)	0.8 (0%)	6.0 (4%)
	Low Lying	0.0 (0%)	0.0 (0%)	0.4 (0%)	0.8 (0%)
Coastal Storm Flooding & Wave Runup	Connected	1.7 (1%)	1.5 (1%)	5.2 (3%)	21.3 (13%)
	Low Lying	0.0 (0%)	0.3 (0%)	2.7 (2%)	0.0 (0%)
Groundwater	Emergent	12.1 (7%)	12.7 (8%)	13.8 (8%)	1.7 (1%)



## **District 11**

### **Overview of District geography and significant features**

District 11 covers San Diego County. The following paragraphs summarize notable geographic setting and/or features in the project area within District 11 that may be susceptible to hazards with or without sea-level rise.

Project area segments traverse the coastal foothills about 1/2 to 1 mile from the coast/bluff edge and cross numerous drainages and lagoons including San Luis Rey River, Buena Vista Lagoon, Agua Hedionda, Batiquitos Lagoon and San Elijo Lagoon. Another large project area segment travels along and across San Diego Bay, including along much of the peninsula from Imperial Beach to Coronado, across the middle of the bay and along the eastern side of the bay from San Diego to Palm City. Segments of the project area traverse fault zones in Coronado and San Diego Bay. Small segments of the project area in northern San Diego County are designated very high wildfire hazard severity zones. The project area also crosses through areas with high landslide susceptibility.

There are no network hub shelter sites located in the coastal zone of District 11.

### **Overview of relevant hazards that are present within the district**

Hazard exposure for the District 11 project area is summarized in **Table 4.5-12**. The following paragraphs summarize notable areas that are exposed to each hazard analyzed.

**Flooding, Inundation, & Groundwater:** Under existing conditions, the project area is exposed to storm flooding hazards at river and lagoon crossings along north San Diego County, coastal flooding in San Diego Bay along San Diego Peninsula. With sea-level rise, these flooding hazards will worsen and multiple project area segments of along the San Diego Peninsula will become regularly inundated by tides at 6.6 feet sea-level rise.

**Coastal Erosion:** The project area may become exposed to coastal erosion along the southern half of the San Diego Peninsula (Silver Strand Beach).

**Tsunami Hazards:** Portions of the project area would be exposed to tsunami hazards extending across the San Diego Peninsula and up the drainages that feed eastern San Diego Bay.

**Earthquake Hazards:** The project area along the north county coast includes some areas with moderate landslide susceptibility and fewer areas of high landslide susceptibility. Liquefaction zones are not mapped for San Diego County. Some segments of the project area would be subject to earthquake hazards along mapped fault zones in Coronado/San Diego Bay.

**Wildfire:** The project would be constructed in areas mapped as high and very high wildfire hazard severity zones in Carlsbad, Leucadia, and Solana Beach.

### **District-specific summary of impacts**

Potential project hazards in District 11 include increased risk of wildfire ignition during construction and risk of property damage due to wildfire in high severity wildfire zones along the project area; exposure and potential failure of underground project elements due to geologic hazards and coastal erosion; and corrosion of vaults from tidal inundation.

**TABLE 4.5-12  
 DISTRICT 11 PROJECT AREA HAZARD EXPOSURE SUMMARY**

Hazard Type	Sub Zone	Exposed project area and percent total (of 1,638 ac)			
Earthquake (Fault Zone)	n/a	58.7 (4%)			
Landslide Hazard Zone (Grades 7 to 10)	n/a	366.7 (22%)			
Liquefaction Hazard Zone	n/a	n/a			
No Liquefaction Assessment	n/a	1638.8 (100%)			
Wildfire Severity (LRA & SRA)	Very High	122.4 (7%)			
	High	0.0 (0%)			
	Moderate	0.0 (0%)			
Tsunami Hazard Zone	n/a	266.4 (16%)			
Flood Hazard Area (FEMA)	100-yr event	155.6 (9%)			
	500-yr event	42.1 (3%)			
USGS CoSMoS Coastal Hazards with Sea-Level Rise (SLR)		None	1.6 ft SLR	3.3 ft SLR	6.6 ft SLR
Cliff & Shoreline Erosion	n/a	n/a	0.0 (0%)	0.0 (0%)	9.3 (1%)
Monthly Tidal Inundation	Connected	104.3 (6%)	116.8 (7%)	133.8 (8%)	229.8 (14%)
	Low Lying	8.1 (0%)	1.2 (0%)	3.2 (0%)	10.1 (1%)
Coastal Storm Flooding & Wave Runup	Connected	167.1 (10%)	220.2 (13%)	234.6 (14%)	300.3 (18%)
	Low Lying	3.7 (0%)	3.1 (0%)	14.2 (1%)	14.2 (1%)
Groundwater	Emergent	31.0 (2%)	32.0 (2%)	31.3 (2%)	36.9 (2%)

### 4.5.3 Consistency Analysis

This section provides an assessment of whether any project elements or activities could raise consistency issues with relevant Coastal Act or LCP hazards policies (Section 4.5.1, *Policy Considerations*). Where the analysis finds that project activities raise such issues, avoidance and minimization measures are recommended to prevent or reduce impacts and address potential policy conflicts. The full text of the recommended measures is presented in Section 4.5.4, *Avoidance and Minimization Measures*.

### Flooding, Inundation, Groundwater, and Tsunami

Portions of the project area within each district could be subject to flooding, tidal inundation, groundwater intrusion and tsunami hazards under current conditions, and the frequency or extent of exposure could be expected to increase with sea-level rise. Because the project by necessity follows existing coastal highways and remains in state right-of-way, and serves to connect coastal communities, options to relocate the project appear limited; although, there are careful siting options within that framework. Project elements proposed for placement at or below ground surface are expected to be composed of water-resistant materials, and so would not be expected to experience substantial adverse impacts from periodic flooding or inundation. Nevertheless, regular exposure to water, and especially seawater, could increase potential for water-related damage. Hub site #136 within District 4 is proposed within an existing Caltrans maintenance

yard, among other existing facilities, all of which are within the 100-year floodplain of Olema Creek. In the event of severe fluvial flooding, hub site #136 could experience flood damage. The placement of project elements within high flood, tidal inundation, groundwater, and tsunami hazard areas may raise consistency issues with Coastal Act section 30253(a) and relevant LCP policies because of the potential risk of property damage and future possibility of requests for protective measures that themselves might raise Coastal Act issues.

The following avoidance and minimization measures are recommended to prevent or reduce the risk to property from placement of project facilities in flood, inundation, groundwater, or tsunami hazard areas. **Avoidance and Minimization Measure HAZ-1, Assumption of Risk, Waiver of Liability, and Indemnity Agreement**, provides notice to the permittee that portions of the project area contain hazards, that the Permittee would be required to assume the risk of developing within such areas, that that the Commission would not be liable for any damage resulting from such hazards, that future protective measures that would alter natural shorelines is prohibited, and that the development would be removed or relocated if and when it reaches the end of its useful life. **Avoidance and Minimization Measure HAZ-2, Siting and Design to Avoid and Minimize Hazard Risk**, requires that all project components be sited outside of areas prone to coastal hazards within the project lifetime, including with sea-level rise, to the maximum extent feasible. The measure calls for incorporation of design features, such as flood-proofing, to minimize hazard risks.

### Coastal Erosion

Portions of the project area within districts 1, 4, 5, 7 and 11 could be subject to cliff or shoreline erosion hazards over time with projected sea-level rise (up to the maximum evaluated 6.6 feet sea-level rise). Erosion hazards could expose buried conduit, vaults, markers, or a network hub shelter, making them vulnerable to damage or failure from lack of structural support, wave attack, and bluff failure, among others. The placement of project elements within high coastal erosion hazard areas may raise consistency issues with Coastal Act section 30253(a) because of the potential risk of property damage and the possibility of future requests for shoreline protection. Furthermore, pursuant to Coastal Act sections 30235 and 30253(b), such project elements would likely not qualify for future shore protection.

The following measures are recommended to avoid or minimize the risk to property, coastal processes, and natural landforms from placement of project facilities in coastal erosion hazard areas. **Avoidance and Minimization Measure HAZ-1** provides notice to the Permittee that portions of the project area contain hazards, that the applicant would be required to assume the risk of developing within such areas, and that that the Commission would not be liable for any damage resulting from such hazards. **Avoidance and Minimization Measure HAZ-2** requires that all project components be sited outside of areas prone to coastal hazards within the project lifetime, including with sea-level rise, to the maximum extent feasible. The measure calls for incorporation of design features, such as locating project features as landward as possible, to minimize hazard risks. **Avoidance and Minimization Measure HAZ-3, Waiver of Right to Future Shoreline Protective Devices**, requires the Permittee to acknowledge that the development approved in the CDP is not entitled to shoreline protection under the Coastal Act,

and to agree to waive any right to construct such shoreline protection; and the development would be removed or relocated if and when it reaches the end of its useful life.

### Earthquake

Portions of the project area within districts 1, 4, 7 and 11 would be subject to seismic shaking hazards or fault rupture, due to their proximity to a mapped fault zone. These include conduit, vaults, paved pullouts, hub site #20 - option 1 in District 1 and hub site #136 in District 4, and possibly aerial cable. A substantial portion of the project area would also be subject to earthquake-induced landslide hazards. These include conduit, vaults, paved pullouts, hub sites #23 and #135 in District 4, and possibly aerial cable. The hub shelters would be constructed in accordance with California Building Code standards, which would reduce the seismic hazard risk. Nevertheless, earthquake hazards could damage or destroy project features, including by severing conduit or aerial cable, cracking vaults and paved pullouts, and collapsing network hub shelters. The placement of project elements within high geologic hazard areas may be considered to raise consistency issues with Coastal Act section 30253(a) because of the potential risk of property damage.

The following measures are recommended to avoid or minimize the risk to property from placement of project facilities in earthquake hazard areas. **Avoidance and Minimization Measure HAZ-1** provides notice to the Permittee that portions of the project area contain hazards, that the applicant would be required to assume the risk of developing within such areas, and that the Commission would not be liable for any damage resulting from such hazards. **Avoidance and Minimization Measure HAZ-2** requires that all project components be sited outside of areas prone to coastal hazards within the project lifetime to the maximum extent feasible. The measure calls for incorporation of appropriate design features, such as strengthening project elements, to minimize hazard risks.

### Wildfire

Approximately 50 percent of the project area is located in a moderate, high, or very high wildfire hazard severity zone. The use of equipment and vehicles required for construction could increase wildfire risk through the increased presence of ignition sources (e.g., hot surfaces, sparks, frictional heat) in the vicinity of dry fuel along project area roadways and hub sites. In addition, certain worker behavior, such as smoking cigarettes, could ignite a fire. Hub site #23 in District 4 would be located in a high fire hazard severity zone. Hub sites #20 (both locations) and #107 in District 1 and hub sites #135 and #136 in District 4 would be located in moderate fire hazard severity zones. Network hub shelters would be located within a 50-foot by 50-foot fenced site, with a 30-foot vegetation clearing around the structure, which would reduce but not eliminate the fire hazard risk for these structures. The placement of project elements within very high or high fire hazard severity zones could raise issues with Coastal Act section 30253(a) because of the potential risk to life and property damage.

The following measures are recommended to avoid or minimize the risk to property from placement of project facilities in coastal wildfire areas. **Avoidance and Minimization Measure HAZ-1** provides notice to the applicant that portions of the project area contain hazards, that the Permittee would be required to assume the risk of developing within such areas, and that the

Commission would not be liable for any damage resulting from such hazards. **Avoidance and Minimization Measure HAZ-2** requires that all project components be sited outside of areas prone to coastal hazards within the project lifetime to the maximum extent feasible. The measure calls for incorporation of design features, such as fireproofing, to minimize hazard risks.

**Avoidance and Minimization Measure HAZ-4, Wildfire Hazard Prevention**, requires the Permittee to develop and implement a wildfire hazard prevention plan that addresses worker training, fire suppression equipment, prohibitions on smoking and use of other ignition sources in fire prone areas, and restrictions for work during periods of high fire threat.

## Conclusion

In conclusion, the project as proposed could raise Coastal Act or LCP policy consistency issues through placement of project facilities within areas subject to current or future hazards with sea-level rise. With implementation of **Avoidance and Minimization Measures HAZ-1 through HAZ-4**, the project would minimize the risk to new development from hazards by notifying the applicant of the hazard risk, requiring siting or design modifications where feasible to minimize property risk, avoiding future shoreline protection, and requiring hazard prevention measures during construction. Therefore, with avoidance and minimization measures, the project would appear to be consistent with Coastal Act sections 30253 and 30270 relevant LCP policies.

### 4.5.4 Impact Avoidance and Minimization Measures

#### **HAZ-1: Assumption of Risk, Waiver of Liability, and Indemnity Agreement.**

Require, as a special condition of permit approval, that the Permittee acknowledge and agree (A) that the site may be subject to hazards from waves, storms, flooding, erosion, groundwater, earth movement, and other natural hazards, many of which will worsen with future sea-level rise; (B) to assume the risks to the Permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (C) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (D) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

#### **HAZ-2: Siting and Design to Avoid and Minimize Hazard Risk.**

The Permittee shall avoid placing project facilities within areas of high fire, flood, geologic, or other environmental hazards, including areas where these hazards will be exacerbated by sea-level rise, to the maximum extent feasible. Where hazard areas cannot be avoided, provide appropriate design features to minimize hazards risks and support safe, on-going operations of the coastal MMBN project, based upon site conditions and the recommendations of a qualified professional. Examples of appropriate design features may include, but not be limited to:

- (1) waterproofing project elements that could be subject to flood, tidal inundation, groundwater infiltration, or tsunami hazard
- (2) elevating aboveground structures that may be subject to flood exposure

- (3) locating conduit as landward as possible or increasing placement depth to avoid coastal erosion hazards
- (4) strengthening the conduit or network hub shelter to reduce potential damage from earthquake hazards
- (5) fireproofing project elements that would be at- or above ground level within areas of high or very high fire hazard severity.

**HAZ-3: Waiver of Right to Future Shoreline Protective Devices.**

Require, as a special condition of permit approval, that the Permittee acknowledge and agree that the development approved in the CDP is not entitled to shoreline protection under the Coastal Act, and the Permittee waives, on behalf of itself and all successors and assigns, any rights to construct a shoreline protective device to protect the development that may exist under the Coastal Act, certified Local Coastal Program, or other applicable laws.

**HAZ-4: Wildfire Hazard Prevention.**

The Permittee shall develop and implement a wildfire hazard prevention plan to prevent and address wildfires. The plan shall address the following at a minimum:

- (1) Training of construction personnel in fire safety, including how to extinguish small fires to prevent them from growing into more serious threats.
- (2) The types and locations of fire-fighting equipment to be present onsite.
- (3) Requirement that internal combustion engines, stationary and mobile, shall be equipped with spark arresters, and that spark arresters shall be maintained in good working order.
- (4) Restrict equipment staging areas to those that are cleared of flammable materials.
- (5) Prohibitions on smoking and other activities involving ignition sources in vegetated areas.
- (6) Restrictions on work during periods of high fire threat, such as red flag warnings issued by the National Weather Service.

## 4.6 Agriculture

The Coastal Act requires that prime agricultural lands be maintained in production, restricts conversion of other agricultural lands, and protects the long-term productivity of soils. This section summarizes Coastal Act and local coastal program (LCP) agricultural resources policies, and describes the project area's agricultural land uses and the potential for project activities to impact these uses. It then evaluates the project's consistency with the Coastal Act and applicable LCP policies and identifies avoidance and minimization measures to address potential project impacts and related policy conflicts.

### 4.6.1 Policy Considerations

The Coastal Act and LCPs identify agriculture as a priority coastal land use and contain numerous policies aimed at preserving agricultural lands, minimizing conflicts between agriculture and development, and limiting conversions to non-agricultural uses.

#### Relevant Coastal Act Provisions

Coastal Act section 30241 states, in part:

*The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the areas' agricultural economy, and conflicts shall be minimized between agricultural and urban land uses through all of the following:*

[...]

- (b) By limiting conversions of agricultural lands around the periphery of urban areas to the lands where the viability of existing agricultural use is already severely limited by conflicts with urban uses or where the conversion of the lands would complete a logical and viable neighborhood and contribute to the establishment of a stable limit to urban development.*
- (c) By permitting the conversion of agricultural land surrounded by urban uses where the conversion of the land would be consistent with Section 30250.*
- (d) By developing available lands not suited for agriculture prior to the conversion of agricultural lands.*
- (e) By assuring that public service and facility expansions and nonagricultural development do not impair agricultural viability, either through increased assessment costs or degraded air and water quality.*

Coastal Act section 30242 states:

*All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (1) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.*

Coastal Act section 30243 states, in part:

*The long-term productivity of soils . . . shall be protected, . . .*

Coastal Act section 30250 states, in part:

*(a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.*

## Relevant LCP Provisions

Certified LCPs generally reflect the Coastal Act requirements to preserve agricultural lands, minimize conflicts between agricultural and non-agricultural land uses, and limit conversion of agricultural lands. For example, the LCPs contain policies that either mimic or reflect the section 30242 requirement that lands suitable for agricultural use not be converted (e.g., Mendocino County General Plan Coastal Element (Coastal Element) policy 3.2-5 and 3.2-16, Sonoma County Local Coastal Plan (LCP) policy Land Use 4, Marin County Local Coastal Program (LCP) policy C-AG-1). To the extent that LCP policies mirror the Coastal Act and are advisory, no more specific elaboration is warranted here.

The project would be constructed within the State Highway System right-of-way (comprising lands that vary in width but generally are approximately 100 feet on either side of the paved roadway centerline), within or adjacent to existing transportation development. Ground disturbance would be limited to a few hours to days within a narrow corridor and the affected areas beyond the project footprint would be restored. Most of the project would ultimately be located at- or below ground surface. Therefore, only a handful of LCP agricultural resource policies are directly relevant for consideration, and only then as guidance. Relevant LCP policies are those which contain information specific to the site in question or requirements that further elaborate on the requirements of the Coastal Act. The full text of these policies is presented in **Appendix E**. This section summarizes agricultural LCP policies that relate to those locations where the above-ground hubs are proposed.

All three counties with proposed hub shelters in the coastal zone (Mendocino, Sonoma, and Marin) have relevant agriculture policies that apply to hub sites on agricultural lands. Three of the hub shelters are proposed for sites mapped either as agricultural lands based on the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP)<sup>1</sup> or zoned as

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<sup>1</sup> California Department of Conservation, 2020, Farmland Mapping & Monitoring Important Farmland. Available at: [https://gis.conservation.ca.gov/server/rest/services/DLRP/CaliforniaImportantFarmland\\_2020/MapServer](https://gis.conservation.ca.gov/server/rest/services/DLRP/CaliforniaImportantFarmland_2020/MapServer).



agricultural lands under the respective county’s zoning ordinances.<sup>2</sup> The FMMP agricultural lands categories are described further in Section 4.6.2 below.

Hub shelters are proposed for sites mapped and/or zoned as agricultural lands in Mendocino and Sonoma counties. In Mendocino County, hub site #20 – option 1 is within the Rangeland zoning designation, and hub site #20 – option 2 is within the Agricultural Lands zoning designation under the County’s Coastal Zoning Code.<sup>3</sup> Mendocino County Coastal Element policies 3.2-5 and 3.2-16 prohibit the conversion of lands suitable for agricultural use except in special circumstances, and where compatible with continued agricultural use on surrounding lands. In Sonoma County, hub site #135 is on land zoned Public Facilities<sup>4</sup> but mapped as Grazing Land. Sonoma County LCP policy Land Use 4 calls for consideration of resource compatibility and continued productivity as primary considerations in parcel design and development siting. The other hub site locations are not on lands mapped or zoned for agricultural use.

## 4.6.2 Coastal Resources and Impacts

### Statewide Project Analysis

#### *Resource Summary*

The setting for the coastal MMBN project comprises those segments of the California State Highway System where project elements are proposed. The project area is shown in **Figures 2-4A** through **2-4F**. The agricultural resources study area consists of mapped or zoned agricultural resources within the project area, defined as the State Highway System right-of-way. The types of agricultural resources within the study area are described below, both generally and by approximate quantity.

As noted above, Coastal Act policies address both “Prime Agricultural Land” and “other lands suitable for agricultural use.” The Coastal Act definition of Prime Agricultural Land (section 30113) incorporates a portion of the Williamson Act’s definition of Prime Agricultural Land in Government Code section 51201 (Part (c), paragraphs 1-4). Statewide mapping of Prime Agricultural Land, as defined in the Coastal Act, does not presently exist. Therefore, the project setting and impact discussions presented in this section rely upon the best available statewide data for agricultural lands, which is the California Department of Conservation’s Farmland Mapping and Monitoring Program (FMMP) data, supplemented by local data where State data are missing. As explained further below, the FMMP’s Prime Farmland category, supplemented by local data where necessary, is used as a surrogate for Prime Agricultural Land for purposes of this analysis. Additional FMMP categories are used to define “other lands suitable for agricultural use.”

<sup>2</sup> For Del Norte and Humboldt counties, where Farmland Mapping and Monitoring Program data are unavailable.

<sup>3</sup> County of Mendocino, 2023. Mendocino County Code of Ordinances, Title 20, Division II – Mendocino County Coastal Zoning Code. Available at: [https://library.municode.com/ca/mendocino\\_county/codes/code\\_of\\_ordinances?nodeId=MECOCO\\_TIT20ZOOR\\_DIV\\_IIMECOCOZOZO](https://library.municode.com/ca/mendocino_county/codes/code_of_ordinances?nodeId=MECOCO_TIT20ZOOR_DIV_IIMECOCOZOZO)

<sup>4</sup> County of Sonoma, 2023. Sonoma County Code of Ordinances, Chapter 26C – Coastal Zoning Resource Districts. Available at: [https://library.municode.com/ca/sonoma\\_county/codes/code\\_of\\_ordinances?nodeId=CH26CCOZOREDI](https://library.municode.com/ca/sonoma_county/codes/code_of_ordinances?nodeId=CH26CCOZOREDI)

### **Williamson Act**

The Williamson Act, also known as the California Land Conservation Act of 1965 (Government Code sections 51200 et seq.), enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are lower than normal because they are based upon farming and open space uses as opposed to full market value. Within the project area, all but the counties of Del Norte, Marin, San Francisco, and Los Angeles participate in the Williamson Act program.

Williamson Act section 51201(c) defines Prime Agricultural Land as:

- (1) All land that qualifies for rating as class I or class II in the Natural Resource Conservation Service land use capability classifications.
- (2) Land which qualifies for rating 80 through 100 in the Storie Index Rating.
- (3) Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture.
- (4) Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars (\$200) per acre.
- (5) Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than two hundred dollars (\$200) per acre for three of the previous five years.

The Coastal Act definition of Prime Agricultural Land incorporates by reference Williamson Act section 51201(c), paragraphs 1 through 4. The California Department of Conservation maintains data for Prime Agricultural Land enrolled in a Williamson Act contract. It does not, however, maintain a database of agricultural land that meets the definition of Prime Agricultural Land but is not enrolled in a Williamson Act contract.

### **California Farmland Mapping and Monitoring Program**

With the exception of District 1 (Humboldt and Mendocino counties), discussed below, the analysis of impacts to agricultural lands is based on publicly available FMMP Important Farmland data.<sup>5</sup> The FMMP's coverage is contiguous with modern soil surveys developed by the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS). The former utilizes a classification system that combines technical soil ratings and current land use for the Important Farmland Maps. The classification categories comprise the following and are defined below:

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<sup>5</sup> California Department of Conservation, 2020, Farmland Mapping & Monitoring Important Farmland. Available at: [https://gis.conservation.ca.gov/server/rest/services/DLRP/CaliforniaImportantFarmland\\_2020/MapServer](https://gis.conservation.ca.gov/server/rest/services/DLRP/CaliforniaImportantFarmland_2020/MapServer). Established in 1982, Government Code section 65570 mandates the Farmland Mapping & Monitoring Program (FMMP) to biennially report on the conversion of farmland and grazing land, and to provide maps and data to local government and the public.

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Farmland of Local Potential
- Grazing Land
- Other Land
- Urban and Built-Up Land
- Water

As noted above, no statewide data exist for Coastal Act Prime Agricultural Land. The Coastal Act does not define “other lands suitable for agricultural use.” For environmental review purposes under the California Environmental Quality Act (CEQA), the FMMP categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land constitute “agricultural land” (Public Resources Code section 21060.1). These categories are also considered agricultural lands for purposes of the Coastal Act analysis in this document. For purposes of this analysis, and where the information is available for a given county, Prime Farmland is used as a surrogate for Coastal Act Prime Agricultural Land.

#### Prime Farmland

The FMMP defines Prime Farmland as farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. In order to be shown on FMMP’s Important Farmland Maps as Prime Farmland, land must meet both of the following criteria:

1. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date, and
2. The soil must meet the physical and chemical criteria for Prime Farmland as determined by the USDA Natural Resources Conservation Service (NRCS). Components of prime soils include water moisture regimes, soil temperature range, acid-alkali balance, flooding, erodibility and permeability range.

As noted above, no statewide data exists for Prime Agricultural Land. Therefore, the FMMP’s Prime Farmland category, supplemented local data where necessary, is used as a surrogate for Prime Agricultural Land in this section.

#### FMMP Other Agricultural Categories

For purposes of this analysis, the following non-Prime Farmland categories are a surrogate for “other lands suitable for agriculture use” under the Coastal Act.

- Farmland of Statewide Importance: Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture.

- **Unique Farmland:** Farmland of lesser quality soils used for the production of the state's leading agricultural crops, usually irrigated but may include non-irrigated orchards or vineyards. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- **Farmland of Local Importance:** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Farmland of Local Potential:** Farmland designated by local county advisory committees, which contain soils that qualify for Prime Farmland or Farmland of Statewide Importance, but generally are not cultivated or irrigated.
- **Grazing Land:** Land on which the existing vegetation is suited to the grazing of livestock.

Irrigated land use is determined by FMMP staff by analyzing current aerial photos, local comment letters, and related GIS data, supplemented with field verification. Irrigated and Non-Irrigated Farmland are not assigned any specific significance under the FMMP program by themselves but may have protections under local zoning regulations or land use plans.

### Other Agricultural Lands Information Sources

FMMP data does not exist for Humboldt or Del Norte counties. As a result, two other data sources were considered for this analysis. For Humboldt County, the analysis evaluates parcels designated by the County as Prime Agriculture based on lands which qualify for a rating of 80 through 100 in the Storie Index, which is a method for rating soils for agricultural potential in California based on attributes such as drainage, erosion, and alkali content.<sup>6</sup> Ratings are scored as an index ranging from 0 to 100 from lowest to highest in potential for agricultural production. This data was compiled into a GIS layer and provided by county staff.<sup>7</sup> For Del Norte County the analysis evaluates parcels zoned for agricultural use.<sup>8</sup>

A desktop analysis of the information sources identified above was conducted to estimate the types and amounts of agricultural lands within the project area. For the purposes of analysis, the results were grouped into three categories: *Prime Farmland* consisting of FMMP Prime Farmlands, Del Norte County Agricultural Exclusive (AE) zoned parcels, and Humboldt County Prime Agriculture areas; *other agricultural land*; and *other/non-agricultural land*. **Table 4.6-1** summarizes the results of the desktop analysis.

<sup>6</sup> Storie, R. Earls, and Walter W. Weir, Manual for Identifying and Classifying California Soil Series, 1948, with Supplement, 1958. Published by Associated Students' Store, Univ. of Calif., Berkeley. Special Publication 3202. <https://anrcatalog.ucanr.edu/pdf/3203.pdf>

<sup>7</sup> County Humboldt, 2022, Assessor's Office Parcel Data. Provided to ESA in GIS format.

<sup>8</sup> County of Del Norte, Humboldt, 2022, Assessor's Office Parcel Data. Provided to ESA in GIS format. Parcel data with ownership for the following counties: Del Norte, Humboldt.

**TABLE 4.6-1  
 AGRICULTURAL RESOURCES WITHIN PROJECT AREA (TOTAL BY CALTRANS DISTRICT)**

Feature Type	Acres by Caltrans District						Total
	1	4	5	7	12	11	
Prime Farmland	295.00	13.72	81.82	28.95	-	1.48	420.97
Other Agricultural Land	727.82	443.85	797.32	216.16	-	5.18	2,190.33
Other/Non-agricultural Land	293.77	1,145.37	2,131.56	530.08	155.37	1,589.58	5,845.73
Total Land Area	1,316.04	1,602.94	3,010.7	775.19	155.37	1,596.24	8,457.04

SOURCE: Department of Conservation 2022. \*County of Del Norte 1983, 1995, 2022. \*\*County of Humboldt, 2022.

**Relevant Project Activities and Effects**

This section describes coastal MMBN project elements and construction activities that could impact the use or productivity of coastal agricultural lands. The project would be constructed within the State Highway System right-of-way. The coastal State Highway System right-of-way contains parcels of land within areas generally mapped as farmland and zoned for agricultural uses. (Highways are not typically called out with a separate zoning designation.) However, the lands potentially impacted by the project are generally considered unsuitable for agricultural uses, due to their proximity to the highway and location within the right-of-way. Lands within the right-of-way may already be paved, graded, or disturbed to accommodate the highway vehicular uses and, therefore, are not ideal for agricultural uses.

Nevertheless, due to the scale of analysis performed for this study, the possibility of the project area intersecting productive agricultural land cannot be entirely discounted. Potential impacts to agricultural lands from installation of underground and aboveground project elements are discussed further below, but impacts to productive agricultural lands, particularly productive Prime Farmland, is anticipated to be negligible..

As shown in Table 4.6-1, approximately 421 acres of Prime Farmland and 2,190 acres of other agricultural lands are mapped within the project area. However, given that the project area is limited to the State Highway System right-of-way – comprising lands approximately 100 feet on either side of the paved roadway centerline – a considerably smaller portion of these lands is expected to be in agricultural production or even feasible for such use. Moreover, the project’s anticipated construction footprint for conduit and vaults would be approximately 40 feet in width. Nevertheless, considering the amount of mapped agricultural land within the project area, and given the specific locations of project elements have not been finalized, this analysis conservatively assumes the coastal MMBN project could have permanent impacts on the use or productivity of prime or other agricultural lands.

Installation of conduit, markers, vaults, paved pullouts, and network hub shelters could result in direct impacts to agricultural lands, if sited within such areas. While conduit would be installed some 42 inches underground in unpaved areas, it would be sited within Caltrans’s right-of-way, which is generally unsuitable for agricultural activity. It is assumed that Caltrans would not allow future agricultural operations, including farming or grazing, on lands in which conduit has been

installed without an encroachment permit. Caltrans typically does not allow agricultural use in its highway right-of-way in any case. Markers, vaults, paved pullouts and network hub shelters would have permanent footprints that preclude continuation of the underlying pre-construction land use. While none of these facilities would be expected to conflict with the continuation of agricultural land uses on adjacent or nearby properties, they could theoretically result in the conversion of agricultural lands within the project footprint.

As discussed in Chapter 2, *Project Description*, the network hub stations would have a permanent footprint of up to 250 square foot per hub site, with additional area required for vehicle access. Hubs are also typically located farther back from the highway itself and thus have a greater potential for impact to agricultural lands. The splice vault covers would have a footprint of approximately 16 square feet each, and the pull vaults would have a footprint of approximately 10 square feet each. The footprints of paved pullouts would be roughly 780 square feet, and those of the markers would be negligible. The locations of the vaults, markers, and paved pullouts have yet to be finalized. If sited within areas of mapped agricultural lands that are in production or feasible for such use, these project elements would permanently convert agricultural lands to non-agricultural uses. As discussed below, both of the hub site #20 options and hub site #135 are located on land mapped as Grazing Land by the FMMP. Construction of the hubs at these locations would permanently convert mapped agricultural lands; however, as discussed below, hub site #135 would be located at an existing Caltrans maintenance yard and neither hub site #20 location appear to be actively grazed or suitable for future grazing or other agricultural uses. In addition, the locations of these hub sites are within the highway right-of-way.

## District Analysis

### *District 1*

As shown in Table 4.6-1, the project area within District 1 comprises approximately 295 acres of prime agricultural lands, 728 acres of other agricultural lands, and 2,394 acres of non-agricultural lands. In District 1, the majority of agricultural lands within the project area are mapped as Grazing Land (other agricultural lands). Most Prime Farmland within the project area is located in Humboldt County (approximately 238 acres), with approximately 49 acres of Prime Farmland located within the project area in Del Norte County, and approximately 7.6 acres of Prime Farmland located within the project area in Mendocino County.<sup>9</sup> In Del Norte County, the predominant agricultural land uses are for livestock grazing, dairy production and nursery crops.<sup>10</sup> In Humboldt County, the predominant agricultural land use is for livestock grazing.<sup>11</sup> No network hub shelters are proposed within the coastal MMBN project area in Del Norte or Humboldt counties.

<sup>9</sup> California Department of Transportation (Caltrans), 2022, Broadband Middle Mile Network, project road segments within the California Coastal Zone. Provided to ESA in GIS format.

This dataset shows the centerlines for state roads designated by Caltrans to be included in the Broadband Middle Mile Network project within the coastal zone.

<sup>10</sup> County of Del Norte, 1983, Del Norte County General Plan, Coastal Element, 1983 Local Coastal Program, October 1983. Available at: [https://drive.google.com/file/d/1RGKL1T1iCYnPaZJZJDDnHEunA7T\\_q2Zk/view?pli=1](https://drive.google.com/file/d/1RGKL1T1iCYnPaZJZJDDnHEunA7T_q2Zk/view?pli=1). Constitutes local coastal program land use plan for Del Norte County.

<sup>11</sup> Humboldt County Farm Bureau, 2023. Available at: <https://www.humboldtcountyfarmbureau.com/>.

In Mendocino County the predominant agricultural land uses are for timber, wine grapes, and tree crops.<sup>12</sup> Within the Mendocino County portion of the project area, the majority of agricultural lands are mapped as Grazing Land (other agricultural lands), with a small amount of Prime Farmland mapped near Point Arena. Two network hub shelters are proposed in Mendocino County. Hub site #107 is proposed on land mapped as Urban and Built-Up Land by the FMMP and is located within existing urban development adjacent to a traffic circle<sup>13</sup> (postmile MEN 59.237). The two potential locations for hub site #20 are both mapped in the FMMP as Grazing Land. However, based upon a review of aerial imagery and site photographs, neither site appears actively grazed or suitable for future grazing or other agricultural uses. Hub site #20 – option 1 is proposed for a denuded roadside turnout within a utility corridor adjacent to State Route 1, zoned Rangeland (postmile MEN 23.295). Hub site #20 – option 2 is proposed within a ruderal landscape zoned Agricultural Lands, within a utility corridor adjacent to State Route 1, and excluded (fenced) from adjacent grazing lands (postmile MEN 20.818).

As discussed above for the project overall in *Statewide Project Analysis*, aboveground project elements sited within agricultural lands (e.g., vaults, markers, and paved pullouts) could permanently convert small amounts of agricultural land to non-agricultural uses. Construction of hub site #20 at either location would result in permanent conversion of approximately 250 square feet of mapped grazing lands; however, neither appears to be actively grazed or suitable for future grazing or other agricultural uses. Moreover, the site remains in Caltrans right-of-way, which essentially precludes it from agricultural use at this time. Project activities would not be expected to preclude continued or future use of the adjacent properties for agricultural purposes, if feasible.

#### **District 4**

As shown in Table 4.6-1, the project area within District 4 comprises approximately 14 acres of Prime Farmland, 444 acres of other agricultural lands, and 1,145 acres of non-agricultural lands. In District 4, most agricultural lands within the project area are mapped as Grazing Land (other agricultural lands), and all mapped Prime Farmland (approximately 14 acres) is located in San Mateo County. In Sonoma County, the primary agricultural land uses are for wine grapes, dairy, and livestock grazing.<sup>14</sup> Within the Sonoma County portion of the project area, the majority of agricultural lands are mapped as Grazing Land. In Marin County, the primary agricultural land uses are for livestock grazing, dairy, and field crops.<sup>15</sup> Within the Marin County portion of the project area, the majority of agricultural lands are mapped as Grazing Land. In San Mateo County, the primary agricultural land uses are for floral and nursery crops, row crops, and

<sup>12</sup> County of Mendocino, 2021, Mendocino County 2021 Crop Report. Available at: <https://www.mendocinocounty.org/government/agriculture>.

<sup>13</sup> Caltrans 2022. Broadband Middle Mile Network, GSN hubs within the California Coastal Zone. Provided to ESA in GIS format.

Network Hub Shelters are highly specialized modular facilities for fiber optic cable signal regeneration and hosting electronic network equipment which would be located approximately every 50 miles along the fiber optic cable line.

<sup>14</sup> County of Sonoma, 2021. Sonoma County 2021 Crop Report. Available at: <https://sonomaedb.org/current-initiatives/agriculture>.

<sup>15</sup> County of Marin, 2021. Marin County Department of Agriculture/Weights and Measures. 2021 Crop Report. Available at: <https://www.marincounty.org/depts/ag/crop-reports>.

livestock grazing.<sup>16</sup> Within the San Mateo County portion of the project area, the majority of agricultural lands are mapped as Prime Farmland and Grazing Land.

Two network hub shelters are proposed in Sonoma County and one network hub shelter is proposed in Marin County.<sup>17</sup> Of the two network hub shelters in Sonoma County, Hub site #23 is located partially within an existing maintenance yard on land mapped as Urban Land in the FMMP (postmile SON 35.327). Hub site #135 is located on land mapped as Grazing Land in the FMMP, but would be located within an existing Caltrans maintenance yard on a site zoned “Public Facilities” (postmile SON 11.585). Hub site #136 in Marin County is located within an existing Caltrans maintenance yard between the communities of Point Reyes Station and Olema, on land mapped as Other Land in the FMMP (postmile MRN 28.039).

As discussed above for the project overall in *Statewide Project Analysis*, aboveground project elements (e.g., hub shelters, markers, and paved pullouts) sited within agricultural lands could permanently convert small amounts of agricultural land to non-agricultural uses. Construction of hub site #135 would result in permanent conversion of approximately 250 square feet of mapped grazing lands; however, the parcel on which the hub site is proposed is developed with a Caltrans maintenance yard and otherwise wooded. It is not currently and does not appear suitable for future grazing or other agricultural uses. Moreover, the site remains in Caltrans right-of-way, which essentially precludes it from agricultural use at this time. Project activities would not be expected to preclude continued use of adjacent properties for agricultural purposes, if feasible.

### **District 5**

As shown in Table 4.6-1, the project area within District 5 comprises approximately 82 acres of prime agricultural lands, 797 acres of other agricultural lands, and 2,131 acres of non-agricultural lands. In District 5, the main agricultural land uses within the project area are Farmland of Local Potential and Grazing Lands (other agricultural lands), with the majority of mapped Prime Farmland (approximately 64 acres) located in Monterey County.

The primary agricultural land uses in Santa Cruz County include berry and nursery crops.<sup>18</sup> Within the Santa Cruz County portion of the project area, the majority of agricultural lands are mapped as Grazing Land. The primary agricultural land uses in Monterey County include berry and row crops.<sup>19</sup> Within the Monterey County portion of the project area, the majority of agricultural lands are mapped as Grazing Land. The primary agricultural land uses in San Luis Obispo County include strawberries, fruit and nut crops, wine grapes, and livestock grazing.<sup>20</sup>

<sup>16</sup> County of San Mateo, 2021. San Mateo County Department of Agriculture/Weights and Measures. 2021 Crop Report. Available at: <https://www.smcgov.org/agwm>.

<sup>17</sup> Caltrans 2022. Broadband Middle Mile Network, GSN hubs within the California Coastal Zone. Provided to ESA in GIS format.

<sup>18</sup> Santa Cruz County Chamber of Commerce, 2023. Agriculture. Available at: <http://www.santacruzchamber.org/agriculture.html>.

<sup>19</sup> County of Monterey, 2021, Agricultural Commissioners, 2021 Monterey County Crop and Livestock Report. Available at: <https://www.co.monterey.ca.us/government/departments-a-h/agricultural-commissioner/forms-publications/crop-reports-economic-contributions>.

<sup>20</sup> County of San Luis Obispo, 2021. 2021 Annual Crop Statistics Released. Available at: <https://www.slocounty.ca.gov/Departments/Agriculture-Weights-and-Measures/Department-News/2021-Annual-Crop-Statistics-Released.aspx>



Within the San Luis Obispo County portion of the project area, the majority of agricultural lands are mapped as Grazing Land. The primary agricultural land uses in Santa Barbara County include berry and row crops, wine grapes, and nursery crops.<sup>21</sup> Within the Santa Barbara County portion of the project area, there are no mapped agricultural lands. No network hub shelters are proposed within the coastal MMBN project area in District 5.

As discussed above for the project overall in *Statewide Project Analysis*, aboveground project elements (e.g., hub shelters, markers, and paved pullouts) sited within agricultural lands could permanently convert small amounts of agricultural land to non-agricultural uses. As no network hub shelters are proposed for District 5, there would be no associated impacts to District 5 agricultural lands. Project activities would not be expected to preclude continued use of the unconverted portions of affected properties for agricultural purposes.

### **District 7**

As shown in Table 4.6-1, the project area within District 7 comprises approximately 29 acres of Prime Farmland, 216 acres of other agricultural lands, and 530 acres of non-agricultural lands. In District 7, most agricultural lands within the project area are mapped as Grazing Lands (other agricultural lands), with all mapped Prime Farmland located in Ventura County.

The primary agricultural land uses in Ventura County consist of fruit and nut crops, vegetable crops, and nursery crops.<sup>22</sup> Within the Ventura County portion of the project area, the majority of agricultural lands are mapped as Grazing Land. The primary agricultural land uses in Los Angeles County include nursery crops.<sup>23</sup> Within the Los Angeles County portion of the project area, the majority of agricultural lands (comprising only 0.02 acre) are mapped as Unique Farmland. No network hubs are proposed within the coastal MMBN project area in District 7.

As discussed above for the project overall in *Statewide Project Analysis*, aboveground project elements (e.g., hub shelters, markers, and paved pullouts) sited within agricultural lands could permanently convert small amounts of agricultural land to non-agricultural uses. As no network hub shelters are proposed for District 7, there would be no associated impacts to District 7 agricultural lands. Project activities would not be expected to preclude continued use of the unconverted portions of affected properties for agricultural purposes.

### **District 12**

As shown in Table 4.6-1, the project area within District 12 includes no agricultural land. Rather, all project elements proposed for District 12, which consists solely of Orange County, would be located on lands mapped by the FMMP as Urban and Built-up Land or Other Land. Therefore, the project would have no permanent impacts on District 12 agricultural lands.

<sup>21</sup> County of Santa Barbara, 2021. Department of Agriculture/Weights and Measures. 2021 Agricultural Production Report. Available at: <https://www.countyofsb.org/469/Crop-Reports>.

<sup>22</sup> County of Ventura, 2021. Ventura County Agricultural Commissioner, 2021 Crop Report. Available at: <https://www.ventura.org/agricultural-commissioner/crop-reports/>.

<sup>23</sup> County of Los Angeles, 2019. Los Angeles County Department of Agricultural Commissioner/Weights and Measures. Crop and Livestock Report. Available at: [https://file.lacounty.gov/SDSInter/acwm/1079785\\_2019CropReport-Web.pdf](https://file.lacounty.gov/SDSInter/acwm/1079785_2019CropReport-Web.pdf).

### **District 11**

As shown in Table 4.6-1, the project area within District 11 comprises approximately 1.5 acres of prime agricultural lands, 5 acres of other agricultural lands, and 1,590 acres of non-agricultural lands. All the project area within District 11 is located in San Diego County, where the primary agricultural land uses are for nursery and flower crops.<sup>24</sup> Within the San Diego County portion of the project area, the majority of agricultural lands are mapped as Unique Farmland (non-agricultural lands). No aboveground project elements are proposed within the coastal MMBN project area in District 11.

As discussed above for the project overall in *Statewide Project Analysis*, aboveground project elements (e.g., hub shelters, markers, and paved pullouts) sited within agricultural lands could permanently convert small amounts of agricultural land to non-agricultural uses. As no network hub shelters are proposed for District 11, there would be no associated impacts to District 11 agricultural lands. Project activities would not be expected to preclude continued use of the unconverted portions of affected properties for agricultural purposes.

### **4.6.3 Consistency Analysis**

This section provides an assessment of whether any project elements or activities could raise consistency issues with Coastal Act or LCP agriculture policies (Section 4.6.1). Where the analysis finds that project activities could raise such issues, avoidance and minimization measures are recommended to prevent or reduce impacts and address potential policy conflicts. The full text of the recommended measure is presented in Section 4.6.4.

Within District 1, construction of hub site #20 at either location would result in permanent conversion of approximately 250 square feet of mapped grazing lands. Within District 4, construction of hub site #135 would result in permanent conversion of approximately 250 square feet of mapped grazing lands. However, the proposed hub sites are not mapped as Prime Farmland, are within and adjacent to existing developed areas, do not appear to be used or suitable for grazing or other agricultural land uses (e.g., hub site #135 is zoned Public Facilities), and would not impair continued or future use of surrounding lands for agriculture. Moreover, the sites remain in Caltrans right-of-way, which essentially precludes it from agricultural use at this time. Therefore, as the hub sites do not appear to be in agricultural use or viable for future agricultural use, particularly productive Prime Farmland use, the conversion of portions of these sites for construction of the network hub shelters does not appear to raise consistency issues for relevant Coastal Act or LCP agricultural policies.

Installation of underground project elements (e.g., conduit, vaults) would be limited to the State Highway System right-of-way, thereby concentrating development within the coastal zone and avoiding undeveloped agricultural areas (particularly avoiding productive Prime Farmland), as required under Coastal Act section 30242. Nonetheless, if underground project elements were sited within agricultural lands in production or feasible for such use in the future, the placement could possibly be considered in some circumstances to result in permanent conversion of agricultural

<sup>24</sup> University of California Cooperative Extension, 2023. Introduction to Agriculture in San Diego. Available at: [https://ucanr.edu/sites/OAR/Agribusiness\\_Guide/](https://ucanr.edu/sites/OAR/Agribusiness_Guide/).

lands. In the unlikely event of project elements being sited in Prime Farmland in production, the project could raise consistency issues with Coastal Act section 30241. The following avoidance and minimization measure is recommended to further reduce the potential for project conversion of agricultural lands. **Avoidance and Minimization Measure AG-1**, Avoidance of Agricultural Lands, requires the Permittee to avoid development of prime agricultural lands in production.

## Conclusion

In conclusion, mapped or zoned agricultural lands within the State Highway System are generally unsuitable for agricultural use and siting project elements within such areas could be considered concentrating development within existing developed areas. However unlikely, the potential for project activities to disturb prime agricultural land in production cannot be entirely discounted. Thus, the project as proposed could raise Coastal Act or LCP policy consistency issues through conversion of prime agricultural land in production. With implementation of **Avoidance and Minimization Measure AG-1**, the project would avoid development within such lands. Therefore, with implementation of the recommended measure, the project would appear to be consistent with Coastal Act sections 30241, 30242, 30243, 30250, and relevant LCP policies.

### 4.6.4 Avoidance and Minimization Measure

#### **AG-1: Avoidance of Agricultural Land.**

The Permittee shall avoid development on prime agricultural lands in active agricultural production. This includes any lands in production designated as Prime Farmland by the Farmland Mapping and Monitoring Program, zoned by Del Norte County as Agricultural Exclusive (AE), and zoned by Humboldt County as Prime Agriculture areas.

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## 4.7 Environmental Justice

The Coastal Act calls for all people to have full and equal access to participate in development decisions of the Coastal Commission and coastal local governments, and to share in the environmental benefits afforded under the statute. This section summarizes applicable coastal policies relevant to environmental justice and considers the potential for project elements to promote environmental justice or have a disproportionate adverse environmental effect on historically disadvantaged communities and populations. The section then evaluates the project's consistency with the Coastal Act and identifies avoidance and minimization measures to address potential project impacts and related policy conflicts.

### 4.7.1 Policy Considerations

The Coastal Act was amended in 2016 to specifically incorporate concern for environmental justice. The amendment included a policy statement declaring that environmental justice is relevant to the Coastal Commission's work, added a definition of environmental justice, and provided that the Commission or local governments may consider environmental justice in their permit decisions. The Commission adopted an environmental justice policy in 2019 which provides further guidance on the application of the Coastal Act to address environmental justice issues in the coastal zone.

### Relevant Coastal Act Provisions

Both the Coastal Act and adopted Coastal Commission policy direct the Coastal Commission to work toward environmental justice in its decisions and actions. Coastal Act section 30013 seeks to ensure that all Californians have "full and equal access" to the benefits of Coastal Commission actions and prohibits discrimination in the decision-making process or application of those actions. Coastal Act section 30006 clarifies the public's right to have full access to the Coastal Commission's decision-making process through provision of robust and transparent public participation processes. Relevant policies are discussed below and the project's consistency with these policies is addressed in Section 4.7.3, *Consistency Analysis*.

Coastal Act section 30013 states, in full:

*The Legislature further finds and declares that in order to advance the principles of environmental justice and equality, subdivision (a) of Section 11135 of the Government Code and subdivision (e) of Section 65040.12 of the Government Code apply to the commission and all public agencies implementing the provisions of this division. As required by Section 11135 of the Government Code, no person in the State of California, on the basis of race, national origin, ethnic group identification, religion, age, sex, sexual orientation, color, genetic information, or disability, shall be unlawfully denied full and equal access to the benefits of, or be unlawfully subjected to discrimination, under any program or activity that is conducted, operated, or administered pursuant to this division, is funded directly by the state for purposes of this division, or receives any financial assistance from the state pursuant to this division.*

California Government Code section 65040.12(e) defines environmental justice as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption,

implementation, and enforcement of environmental laws, regulations, and policies.” As summarized by the California Office of Planning and Research, historically, land use actions and decisions placed undue environmental and health-related burdens on communities and populations that have the fewest resources and political capital to be involved in the decisions and to demand that the burdens be mitigated or avoided.<sup>1</sup> Environmental justice efforts and policies work to provide transparency to address past inequities and provide future land use decision-making processes that reduce and prevent inequitable burdens.

Coastal Act section 30604(h) provides for consideration of environmental justice in coastal development permit decisions by the Commission or local governments:

*When acting on a coastal development permit, the issuing agency, or the commission on appeal, may consider environmental justice, or the equitable distribution of environmental benefits throughout the state.*

Coastal Act section 30107.3 defines environmental justice as follows:

- (a) *“Environmental justice” means the fair treatment and meaningful involvement of people of all races, cultures, -incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.*
- (b) *“Environmental justice” includes, but is not limited to, all of the following:*
  - (1) *The availability of a healthy environment for all people.*
  - (2) *The deterrence, reduction, and elimination of pollution burdens for populations and communities experiencing the adverse effects of that pollution, so that the effects of the pollution are not disproportionately borne by those populations and communities.*
  - (3) *Governmental entities engaging and providing technical assistance to populations and communities most impacted by pollution to promote their meaningful participation in all phases of the environmental and land use decision making process.*
  - (4) *At a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions.*

Finally, Coastal Act section 30006 states:

*The Legislature further finds and declares that the public has a right to fully participate in decisions affecting coastal planning, conservation and development; that achievement of sound coastal conservation and development is dependent upon public understanding and support; and that the continuing planning and implementation of programs for coastal conservation and development should include the widest opportunity for public participation.*

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<sup>1</sup> California Office of Planning and Research. 2020. “General Plan Guidelines Chapter 4: Required Elements, section 4.8 – Environmental Justice Elements.” June. Available online at: [https://opr.ca.gov/docs/20200706-GPG\\_Chapter\\_4\\_EJ.pdf](https://opr.ca.gov/docs/20200706-GPG_Chapter_4_EJ.pdf).

The Coastal Commission adopted an Environmental Justice policy in 2019 that expands upon the Coastal Act policies and describes how the Coastal Commission will work to advance environmental justice in its actions. The Coastal Commission’s adopted Environmental Justice Policy<sup>2</sup> states:

*The California Coastal Commission’s commitment to diversity, equality and environmental justice recognizes that equity is at the heart of the Coastal Act, a law designed to empower the public’s full participation in the land-use decision-making process that protects California’s coast and ocean commons for the benefit of all the people. In keeping with that visionary mandate, but recognizing that the agency has not always achieved this mission with respect to many marginalized communities throughout California’s history, the Commission as an agency is committed to protecting coastal natural resources and providing public access and lower-cost recreation opportunities for everyone. The agency is committed to ensuring that those opportunities not be denied on the basis of background, culture, race, color, religion, national origin, income, ethnic group, age, disability status, sexual orientation, or gender identity.*

*The Commission will use its legal authority to ensure equitable access to clean, healthy, and accessible coastal environments for communities that have been disproportionately overburdened by pollution or with natural resources that have been subjected to permanent damage for the benefit of wealthier communities. Coastal development should be inclusive for all who work, live, and recreate on California’s coast and provide equitable benefits for communities that have historically been excluded, marginalized, or harmed by coastal development.*

*The Commission recognizes that all aspects of our mission are best advanced with the participation and leadership of people from diverse backgrounds, cultures, races, color, religions, national origin, ethnic groups, ages, income levels disability status, sexual orientation, and gender identity. The Commission is committed to compliance and enforcement of Government Code Section 11135, as well as consideration of environmental justice principles as defined in Government Code Section 65040.12, consistent with Coastal Act policies, during the planning, decision-making, and implementation of Commission actions, programs, policies, and activities. It is also the California Coastal Commission’s goal, consistent with Public Resources Code Section 300136 and Government Code Section 11135, to recruit, build, and maintain a highly qualified, professional staff that reflects our state’s diversity. Further, the Commission is committed to compliance with Title VI of the Civil Rights Act of 1964 and its regulations.*

The Coastal Commission’s Environmental Justice policy identifies nine principles in the following areas to implement the policy:

- Respecting Tribal Concerns
- Meaningful Engagement
- Coastal Access
- Housing
- Local Government
- Participation in the Process
- Accountability and Transparency
- Climate Change
- Habitat and Public Health

<sup>2</sup> California Coastal Commission Environmental Justice Policy. Adopted March 8, 2019. Available online at: [https://documents.coastal.ca.gov/assets/env-justice/CCC\\_EJ\\_Policy\\_FINAL.pdf](https://documents.coastal.ca.gov/assets/env-justice/CCC_EJ_Policy_FINAL.pdf)

As the Coastal Commission’s Environmental Justice policy document further elaborates, the policy “intends to encompass not only the definitions contemplated by S[enate] B[ill] 1000, but also to include other low-income communities and communities of color that are disproportionately burdened by or less able to prevent, respond, and recover from adverse environmental impacts.” Senate Bill (SB) 1000 added Government Code section 65302(h)(4)(A), expanding the definition of “disadvantaged communities” for local jurisdiction general plans to mean “an area identified by the California Environmental Protection Agency [CalEPA] pursuant to section 39711 of the Health and Safety Code or an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation.” The policy document states that tools such as State of California Office of Environmental Health Hazard Assessment’s CalEnviroScreen should be used to identify potential environmental justice impacts for further assessment. CalEnviroScreen provides identification of disadvantaged communities as directed by SB 535, which directed CalEPA to base its designations of disadvantaged communities on “geographic, socioeconomic, public health, and environmental hazard criteria.”<sup>3</sup>

## Relevant LCP Provisions

Given the recent incorporation of environmental justice into the Coastal Act, few LCPs specifically address this topic.<sup>4</sup> Some LCPs that have been updated recently do, such as the City of Morro Bay.<sup>5</sup> None of the three counties with known locations of aboveground structures (i.e., network hub shelters in Mendocino, Sonoma, and Marin) have environmental justice policies within their LCPs, or has otherwise adopted environmental justice elements of their general plans. The status of environmental justice policy adoption for each county is discussed below. Additional LCP policies relevant to the project are presented in **Appendix E**.

### *Mendocino County*

Mendocino County’s Department of Planning and Building Services reported in 2021 that, at that time, the State of California Office of Environmental Health Hazard Assessment (OEHHA) did not identify any disadvantaged communities within the county’s jurisdiction, and therefore, the County was not required to prepare an environmental justice element.<sup>6</sup> Currently, there are no adopted environmental justice policies within Mendocino County land use plans. OEHHA’s May 2022

<sup>3</sup> CalEPA. 2017. “Designation of Disadvantaged Communities Pursuant to Senate Bill 535 (De Leon).” April. Available online at: <https://calepa.ca.gov/wp-content/uploads/sites/6/2017/04/SB-535-Designation-Final.pdf?emrc=1b2bc7>.

<sup>4</sup> Senate Bill 1000 (Leyva, 2016) amended Government Code section 65302 to require that cities and counties that have disadvantaged communities incorporate environmental justice policies into their general plans. Coastal California jurisdictions are in various states of crafting, adopting, and implementing environmental justice policies unique to their local disadvantaged communities’ situations and needs.

<sup>5</sup> City of Morro Bay. May 2021. “Plan Morro Bay.” Available online at: <https://www.morrobayca.gov/DocumentCenter/View/15424/Plan-Morro-Bay-GP-LCP-Final>

<sup>6</sup> County of Mendocino. 2021. Department of Planning and Building Services Memorandum to the Honorable Board of Supervisors. June 22. Available online at: <https://www.mendocinocounty.org/home/showpublisheddocument/43472>



disadvantaged communities data does not identify disadvantaged communities with Mendocino County.<sup>7</sup>

### **Sonoma County**

The County of Sonoma is updating its General Plan to incorporate an environmental justice element, and is proposing environmental justice policies in its LCP update. The County states that in the unincorporated area of Sonoma County, three areas are State-designated disadvantaged communities, all of which are outside of the coastal zone:

- The Stewarts Point Rancheria
- The Dry Creek Rancheria
- Census Tract 6097153200 (unincorporated southwest Santa Rosa)<sup>8</sup>

Currently, there are no adopted environmental justice policies within Sonoma County land use plans. OEHHA's May 2022 data identifies two disadvantaged communities, both of which are outside of the coastal zone (Census Tract 6097153104 in Santa Rosa and Census Tract 6097153200 in unincorporated Sonoma County).

### **Marin County**

Marin County's adopted 2023-2031 Housing Element found no disadvantaged communities within the unincorporated county areas as identified through CalEnviroScreen.<sup>9</sup> Currently, there are no adopted environmental justice policies within Marin County land use plans. OEHHA's May 2022 disadvantaged communities data does not identify disadvantaged communities within Marin County.

## **4.7.2 Coastal Resources and Impacts**

### **Statewide Project Analysis**

#### **Environmental Justice Summary**

The setting for the coastal MMBN project comprises those State Highway System rights-of-way and adjacent communities within the coastal zone where project elements are proposed. The analysis of potential environmental justice impacts within the project setting assesses:

- Potential impacts to identified disadvantaged communities that would exacerbate existing burdens or inequities, including from a lack of robust public outreach to and involvement of non-English speakers and historically under-represented and marginalized communities,

<sup>7</sup> California Office of Environmental Health Hazard Assessment. 2022. "SB 535 Excel Spreadsheet and data dictionary." May. Available online at: <https://oehha.ca.gov/calenviroscreen/sb535>

<sup>8</sup> County of Sonoma Planning Division. 2023. "Environmental Justice and Safety Element Updates to the General Plan." Available online at: <https://permitsonoma.org/longrangeplans/proposedlong-rangeplans/environmentaljusticeandsafetyelementupdate>

<sup>9</sup> County of Marin. Housing Element Update, 6<sup>th</sup> cycle, 2023-2031. Marin Countywide Plan. Adopted January 24, 2023. Available online at: <https://www.marincounty.org/-/media/files/departments/cd/housing/housing-element/2024-2032-he-docs/draft-he/adopted-version/marin-county-he-adopted-01242023.pdf?la=en>

- Potential new environmental burdens placed upon identified disadvantaged communities that would create an inequity or unfair imbalance with respect to communities within the same jurisdiction that are not identified as disadvantaged, and
- Potential benefits, if any, to disadvantaged communities from the proposed project.

The CalEnviroScreen 2021 update provides statewide information on pollution exposure, environmental effects, socioeconomic and demographic factors, and maps of populations especially sensitive to pollution exposure and environmental effects.<sup>10</sup> CalEnviroScreen also identifies SB 535 “Disadvantaged Communities” designations. Pertinent information from CalEnviroScreen is provided in **Tables 4.7-1 and 4.7-2** and within this section, to provide context for potential impacts on identified disadvantaged communities.

CalEnviroScreen data is reported on census tract geographies. Table 4.7-1 displays the total number of census tracts identified as disadvantaged under SB 535 and the total number of SB 535 Tribal Areas that intersect the project area, by Caltrans district and county. On the whole, the coastal MMBN project intersects 222 census tracts, of which 20 census tracts (9 percent) are identified as disadvantaged under SB 535. The project also intersects six Tribal Areas as identified under SB 535.

Each census tract has an overall “cumulative impact” (CI) score in CalEnviroScreen which represents the potential level of existing environmental justice impacts or inequities for that tract (the higher the score, the higher the pollution burden and the more severe the impacts). The highest possible CI score for a census tract is 100. Additionally, CalEnviroScreen compares individual census tracts against other similar geographies, to represent the severity of environmental justice indicators as compared to other communities. The indicator comparisons are shown as percentiles, ranging from 0 to 100. A higher percentile for an indicator means that the census tract experiences a higher level of impacts and more significant burden as compared to census tracts with lower percentile values. The impact analysis in this section relies upon these indicators to assess whether the project could disproportionately affect a disadvantaged community.

Table 4.7-2 provides an overview of environmental justice indicators for the census tracts surrounding each network hub shelter site. Information on nearest tribal lands is also provided to supplement CalEnviroScreen data. Additional detail is provided by district within Section 4.7.2, *District Analysis*, below.

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<sup>10</sup> Office of Environmental Health Hazard Assessment. 2022. CalEnviroScreen 4.0 Data Dashboard and User Guide. December, 2022. Available online at: <https://storymaps.arcgis.com/stories/92100e3cfd4a4b0697db157ed507ab68>

**TABLE 4.7-1  
 SB 535 DISADVANTAGED CENSUS TRACTS AND TRIBAL AREAS THAT INTERSECT THE PROJECT AREA**

Caltrans District	County	Number of Census Tracts and Tribal Areas		
		Total Number of Census Tracts	SB 535 Disadvantaged Census Tracts	SB 535 Tribal Areas
1	Del Norte	7	-	4
	Humboldt	21	-	2
	Mendocino	7	-	-
	<b>District 1 total</b>	<b>35</b>	<b>0</b>	<b>6</b>
4	Marin	4	-	-
	San Francisco	1	-	-
	San Mateo	15	-	-
	Sonoma	5	-	-
	<b>District 4 total</b>	<b>25</b>	<b>0</b>	<b>0</b>
5	Monterey	20	2	-
	San Luis Obispo	17	-	-
	Santa Barbara	14	1	-
	Santa Cruz	17	1	-
	<b>District 5 total</b>	<b>68</b>	<b>4</b>	<b>0</b>
7	Los Angeles	17	1	-
	Ventura	6	2	-
	<b>District 7 total</b>	<b>23</b>	<b>3</b>	<b>0</b>
12	Orange	18	-	-
	<b>District 12 total</b>	<b>18</b>	<b>0</b>	<b>0</b>
11	San Diego	53	13	-
	<b>District 11 total</b>	<b>53</b>	<b>13</b>	<b>0</b>
<b>TOTAL</b>		<b>222</b>	<b>20</b>	<b>6</b>

**TABLE 4.7-2  
ENVIRONMENTAL JUSTICE INDICATORS FOR ABOVEGROUND NETWORK HUB SHELTER SITES**

District and County	Hub Site	Census Tract	Demographics <sup>1</sup>	Nearest Tribal Lands	SB 535 Disadvantaged Community?	CalEnviroScreen			
						Cumulative Impacts (CI) Score	Selected Indicators		
							Pollution Burden Percentile	Unemployment Percentile	Poverty Percentile
<b>Caltrans District 1</b>									
<b>Mendocino County</b>									
#20 – Option 1 Postmile MEN 23.295	6045011102	72 % white, 20% Hispanic, 5.7% Native American, 1.3% “other”	Manchester-Point Arena (3.8 miles)	no	12	15.8	58.4	52.5	
#20 – Option 2 Postmile MEN 20.818			Manchester-Point Arena (1.6 miles)	no	12	15.8	58.4	52.5	
#107 Postmile MEN 49.237	6045011002	70% white, 3.6% Hispanic, 3.6% Asian American, 3% “other”	Sherwood Valley (19 miles)	no	15	9.9	2.3	53.3	
<b>Caltrans District 4</b>									
<b>Sonoma County</b>									
#23 Postmile SON 35.327	6097154303	82% white, 14% Hispanic, 3% Asian American, 0.6% “other”	Stewarts Point Rancheria (8 miles)	no	5.5	5.5	n/a	35.4	
#135 Postmile SON 11.585	6097154302	82.5% white, 4% Hispanic, 1.3% Native American, 1.6% African American, 1.3% Asian American, 9.2% “other”	Graton Rancheria (17 miles)	no	10	16	62.4	33.8	
<b>Marin County</b>									
#136 Postmile MRN 28.039	6041132200	80% white, 8% Hispanic, 1% African American, 0.7% “other”	Graton Rancheria (20.5 miles)	No	5	7.8	n/a	25.7	

NOTE:

<sup>1</sup> Self-identified racial/ethnic categories of census tract residents

SOURCES: NAHC 2015; Office of Environmental Health Hazard Assessment 2021.

### **Relevant Project Activities and Effects**

Most public outreach for the coastal MMBN project will be led by the California Department of Technology (CDT), as the CDP permit applicant. The CDT hosts the California ALL website with information on the middle-mile broadband initiative, including maps, recorded webinars, Middle Mile Advisory Committee meetings, and supporting documents. The Middle Mile Advisory Committee meets quarterly and reports on stakeholder engagement activities. The CDT, CPUC, Caltrans, and other state agencies engaged with thousands of California partners and stakeholders in 2022 and the first half of 2023. Efforts included large-scale virtual meetings, in-person regional planning workshops, individual meetings and consultations, monthly email updates, and the “Broadband for All” portal. Large convenings in 2023 included 12 Digital Equity Working Group sessions and numerous Broadband for All, Digital Equity, and Broadband Equity, Access, and Deployment (BEAD) workshops across the state. Engagement with tribal nations in 2023 include presentations at the California Tribal Nations Summit and targeted meetings with tribes in each Caltrans district. In addition, the California ALL website allows members of the public to submit comments and questions. Public noticing would also occur when CDT applies for CDPs for individual project segments.

All construction activity for the coastal MMBN elements would occur within the State Highway System right-of-way. The State Highway System extends along the entire California coast, intersects many types of coastal communities, and is used by Californians of all demographic segments for economic and recreation activities. This section evaluates whether coastal MMBN elements and construction activities could impact identified disadvantaged communities, representatives of low-income communities, and communities that already experience disproportionate environmental burdens (referred to collectively as “environmental justice impacts”) within the coastal zone.

### **Construction & Operation of Underground Facilities**

Underground installation of fiber-optic conduit and vaults requires removal of existing surfaces (paved or unpaved), earthwork, and restoring the surface, as needed. Methods for installing underground conduit are described in Section 2.6.1, *Conduit Installation*. Vault installation techniques are described in Section 2.5.2, *Vaults*. In general, construction of underground facilities would be contained within a linear route or zone that moves along the State Highway System road corridor daily (“active work zone”).

### **Construction & Operation of Aboveground Facilities**

Aboveground coastal MMBN elements are generally limited to (1) construction staging areas and (2) installation of the network hub shelters, conduit installation on bridges or other aboveground structures, marker posts, and paved maintenance vehicle pullouts. In rare circumstances, where no other installation method is feasible, the project may require installation of fiber optic cable on existing or new utility poles. Refer to Chapter 2, Project Description, for detailed descriptions of construction activities necessary to install aboveground coastal MMBN project elements.

Construction activities required to install the network hub shelters would be the same for all proposed hub locations, as described in Section 2.6.3, *Network Hub Shelter Installation*. Construction activities required to install the network hub shelters and associated elements as

described in Section 2.5.3, *Staging Areas* (e.g., perimeter fencing, fuel tanks) would require State Highway System road lane closures during construction, to provide a buffer around construction activities for safety and for equipment staging, ingress, and egress.

Regarding conduit installation on bridges, pit excavation on either end of a bridge for pull vault installation could require temporary road lane closures. Temporary road lane closures could be required to install conduit on highway bridges and to stage the necessary construction equipment.

Fiber optic cable marker posts and vault locational markers would be installed along the length of the project area. Fiber optic cable may be attached to aboveground existing utility poles where underground installation is infeasible. Utility poles for aerial fiber optic cable installation could also be installed within the right-of-way and may require temporary land closures for auguring, pole installation, and line connection.

Staging areas would be located in previously disturbed, graded, or paved areas. Paved maintenance vehicle pullouts of varying dimensions would be constructed within coastal MMBN project segments, as needed, to provide parking for maintenance activities. In addition, temporary or permanent access roads may be needed for construction and installation of network hubs and vaults. Temporary road lane closures could be required to prepare the construction staging and parking areas, and during equipment ingress and egress.

### **Potential Environmental Justice Impacts**

Section 709 of the California Public Utilities Code establishes that it is the State's policy to encourage expanded access to state-of-the-art technologies for rural, inner-city, low-income, and disabled Californians. Additionally, SB 156 directs the California Public Utilities Commission to "encourage deployment of high-quality advanced communications services to all Californians that will promote economic growth, job creation, and the substantial social benefits of advanced information and communications technologies." SB 156 also states that preference shall be given to "programs in communities with demonstrated low broadband access, including low-income communities, senior communities, and communities facing socioeconomic barriers to broadband adoption." The increased availability and use of broadband networks and advanced communication services that would result from the coastal MMBN project could enhance government operations within the coastal zone through telemedicine for healthcare, distance learning for education, and better coordination in the areas of public safety, particularly for rural and lower-income communities. On the whole, the coastal MMBN project could benefit disadvantaged and under-resourced communities and reduce inequities through access to more reliable, faster, and affordable high-speed internet.

Potential coastal resource impacts that could result from the project are discussed in Sections 4.1 through 4.7 of this document, and include temporary disruptions to public access and recreational opportunities (Section 4.1), inadvertent removal or degradation of environmentally sensitive habitat areas, or accidental fill of wetlands or releases of water quality pollutants (Section 4.2), changes to the scenic and visual qualities of the project area (Section 4.3), inadvertent disruption of archaeological resources or historic architectural resources (Section 4.4), increased risk to property due to development in hazard areas (Section 4.5), and conversion of agricultural lands (Section 4.6).

The *District Analysis*, below, considers whether such coastal resource impacts could disproportionately affect identified environmental justice communities. Due to the length of construction in each hub installation area, installation of network hub shelters could temporarily impact the surrounding communities for longer periods than other project elements. The project is not expected to exacerbate any existing socioeconomic inequalities such as poverty, unemployment, or housing burden, as it would not increase the number of residents in or near the project area nor place additional demands on available local employment or services.

## District Analysis

Project implementation could result in coastal resources impacts within each Caltrans district, as described above for all project components. For the purposes of the district analysis, a summary of environmental justice indicators within the project area is provided below. The analysis first considers whether an environmental justice community occurs in proximity to the project area and then whether the project could have disproportionate adverse effects on such communities. Since construction of project elements would occur along the length of the project alignment, impacting all State Highway Segments and nearby coastal communities equally, the project would not result in disproportionate impacts to any specific disadvantaged communities. However, as installation of above network hub shelters could temporarily impact the surrounding communities for longer periods than other project elements due to construction timeframes, the district impact analysis focuses on the specific communities within which the network hub shelters are proposed.

### District 1

In total, coastal MMBN elements are proposed along roughly half of the length of the coastal zone in District 1. Of the 35 census tracts in District 1 that intersect the project area, none are identified as disadvantaged under SB 535. There are six SB 535 Tribal Areas that intersect the project area (four in Del Norte County and two in Humboldt County). On the whole, the project area within District 1 has comparatively low pollution burdens and socioeconomic inequities as evidenced by the CI scores being well below the maximum CI score of 100. Within Del Norte County, the CalEnviroScreen CI score within the project area ranges from 15 in the southern portion of the county (south of Crescent City) to 29 in the Elk Valley area adjacent to Crescent City. In Humboldt County, the northern project area extent has a CI score of 11. However, the portion of the project area between Arcata and Eureka is within an area of CI score 31, with neighborhoods along Halvorsen Park and West Waterfront Drive to Palco Marsh having a CI score of 39. The project area within Mendocino County runs through areas with a CI score of 9 to 17, except for the Fort Bragg area which has a CI score of 25.

With respect to the network hub shelter sites, none of the sites in District 1 are located within identified disadvantaged communities (SB 535 disadvantaged census tracts or Tribal Areas). As summarized in Table 4.7-2, in general, residents within the hub site census tracts experience some existing pollution burden, but do not experience significant poverty or unemployment relative to all California counties. None of the hub site census tract locations have CI scores above 15 (well below the maximum score of 100) and all have low overall pollution burden percentiles (all are in the lowest 20<sup>th</sup> percentiles as compared to all California counties).

Residents in each census tract are majority white, but there are also residents identifying as Hispanic, Native American, African American, Asian American, and as “other” racial/ethnicity profiles. Both options for hub site #20 are close to Tribal lands, particularly option 2 (approximately 1.6 miles away from Manchester-Point Arena lands). Relative to other census tracts, the census tract encompassing hub site #107 ranks in the 53rd percentile for poverty but only the 2nd percentile for unemployment, with an overall pollution burden percentile ranking of 9.9. The census tract containing both proposed hub site #20 locations ranks in the 53rd percentile for poverty and 58th percentile for unemployment, with an overall pollution burden percentile ranking of 15.8.

As noted above for *Statewide Project Analysis*, implementation of the coastal MMBN project could result in the coastal resource impacts described in Sections 4.1 through 4.7 of this document. However, as also discussed above, none of the proposed network hub shelter sites within District 1 occurs within or could impact an environmental justice community. Moreover, CDT and Caltrans has and continues to engage the potentially affected local communities and consider their feedback in project planning and design decisions. Therefore, the project elements proposed for District 1 would not be expected to disproportionately impact disadvantaged communities.

#### ***District 4***

In total, coastal MMBN project elements are proposed along roughly half of the length of the coastal zone in District 4. Of the 25 census tracts in District 4 that intersect the project area, none are identified as disadvantaged under SB 535, and there are no SB 535 Tribal Areas that intersect the project area. On the whole, the project area within District 4 has comparatively low pollution burdens and socioeconomic inequities as evidenced by the CI scores being well below the maximum CI score of 100. Within Sonoma County, the CalEnviroScreen CI score within the project area ranges from 5 north of Fort Ross to 13 in the Bridgehaven area. In Marin County, the northern project area is within a region of CI 10, but the southern section has a CI score of 5. The very small segment of project area within San Francisco County has a CI score of 22. The project area within San Mateo County runs through areas with a CI score of 24 (Daly City) to 8 in the Pedro Valley area.

There are no identified disadvantaged communities at the proposed aboveground network hub shelter locations. As summarized in Table 4.7-2, in general, residents within the hub site census tracts experience some existing pollution burden, but do not experience significant poverty or unemployment relative to all California counties. Residents in each census tract are majority white but there are also residents identifying as Hispanic, Native American, African American, Asian American, and as “other” racial/ethnicity profiles. Each hub site is within 8-20 miles of tribal lands.

Relative to other census tracts, the census tract for hub site #23 ranks in the 35th percentile for poverty, with an overall pollution burden percentile ranking of 5.5. The census tract encompassing hub site #135 ranks in the 34th percentile for poverty and 62nd percentile for unemployment, with an overall pollution burden percentile ranking of 16. The census tract



encompassing hub site #136 ranks in the 26th percentile for poverty and the 67th percentile for housing burden, with an overall pollution burden percentile ranking of 7.8.

As noted above for *Statewide Project Analysis*, implementation of the coastal MMBN project could result in the coastal resource impacts described in Sections 4.1 through 4.7 of this document. However, as also discussed above, none of the proposed network hub shelter sites within District 4 occurs within or would impact an environmental justice community. Moreover, Caltrans has and continues to engage the potentially affected local communities and consider their feedback in project planning and design decisions. Therefore, the project elements proposed for District 4 would not be expected to disproportionately impact disadvantaged communities.

### **District 5**

In total, coastal MMBN project elements are proposed along less than half of the length of the coastal zone in District 5. Of the 68 census tracts in District 5 that intersect the project area, four are identified as disadvantaged under SB 535 (two in Monterey County and one each in Santa Cruz and Santa Barbara counties). There are no SB 535 Tribal Areas that intersect the project area. Within Santa Cruz County, the CalEnviroScreen CI score within the project area ranges from 9 north of the City of Santa Cruz, to 44 in the City of Watsonville. In Monterey County, the northern project area is within a region of CI 44 in Watsonville, but the southernmost section has a CI score of 7 in the City of Monterey area. The project area within San Luis Obispo County runs through areas with a CI score of 5 in the San Simeon State Park area to 24 in the Grover Beach area. Within Santa Barbara County, the project area runs through areas with CI scores ranging from 41 in the Goleta area to 5 in the Toro Canyon area. On the whole, the project area within District 5 has comparatively low pollution burdens and socioeconomic inequities, as evidenced by the CI scores being well below the maximum CI score of 100. Installation of coastal MMBN project elements throughout District 5 would not be expected to disproportionately impact disadvantaged communities.

### **District 7**

In total, coastal MMBN project elements are proposed along less than one quarter of the length of the coastal zone in District 7. There is incomplete CalEnviroScreen information in the coastal MMBN project area within Caltrans District 7, north of the City of Ventura. Of the 23 census tracts in District 7 that intersect the project area, three are identified as disadvantaged communities under SB 535 (two within Los Angeles County and one within Ventura County), and there are no SB 535 Tribal Areas that intersect the project area. Within the City of Ventura, the project area has a CI score ranging from 16 to 45. The project segment within the Topanga Canyon area in Los Angeles County has a CI score of 5-9. In Redondo Beach, CI scores along the project area range from 8 to 19, and the Belmont Shore project area ranges from 6 to 25.

On the whole, the project area within District 7 has comparatively low pollution burdens and socioeconomic inequities, as evidenced by the CI scores being well below the maximum CI score of 100. Installation of coastal MMBN project elements throughout District 7 would not be expected to disproportionately impact disadvantaged communities.

### **District 12**

In total, coastal MMBN project elements are proposed along a relatively small portion of the coastal zone in District 12. Of the 18 census tracts in District 12 that intersect the project area, none are identified as disadvantaged under SB 535, and there are no SB 535 Tribal Areas that intersect the project area. The segments of project area within Orange County all have low CI scores. Huntington Beach has a score of 14, Newport Beach has a score of 17, Laguna Beach has a score ranging from 8-12, and San Clemente has a score of 12.

On the whole, the project area within District 12 has comparatively low pollution burdens and socioeconomic inequities as evidenced by the CI scores being well below the maximum CI score of 100. Installation of coastal MMBN project elements throughout District 12 would not be expected to disproportionately impact disadvantaged communities.

### **District 11**

In total, coastal MMBN project elements are proposed along roughly half of the length of the coastal zone in District 11. Of the 53 census tracts in District 11 that intersect the project area, 13 are identified as disadvantaged under SB 535 (all within San Diego County, along the eastern side of San Diego Bay), but there are no SB 535 Tribal Areas that intersect the project area. Within the City of Oceanside, the CI scores within the project area range from 25 to 38. From the City of Carlsbad south through Encinitas, the project area CI scores range from 4 to 18. At the southernmost extent of the project area, the CI scores in the Silver Strand State Beach / Peninsula area range from 7 to 15. The CI scores along the project route within National City and Chula Vista are in the 40-50 range. The highest CI score in District 11 is in the area where Interstates 5 and 15 intersect, within the Barrio Logan community in the City of San Diego, with a CI score of 65. This project segment within the Barrio Logan community has the highest CI score along the entire project route, state-wide.

On the whole, the project area within District 11 has comparatively low pollution burdens and socioeconomic inequities as evidenced by the CI scores being well below the maximum CI score of 100. Installation of coastal broadband project elements throughout District 11 would not be expected to disproportionately impact an environmental justice community.

## **4.7.3 Consistency Analysis**

This section provides an assessment of the project's consistency with environmental justice-focused policies. As discussed in Section 4.7.1, *Policy Considerations*, none of the local jurisdictions within which aboveground structures are proposed have adopted LCP or other land use planning environmental justice policies. Therefore, at this time relevant policies are those within the Coastal Act and those adopted by the Coastal Commission. On the whole, the coastal MMBN project would benefit disadvantaged and under-resource communities and reduce inequities through access to more reliable, faster, and affordable high-speed internet.

Potential coastal resource impacts that could result from the project are discussed in Sections 4.1 through 4.7 of this document. Since construction of project elements would occur along the length of the project alignment, impacting all State Highway Segments in the coastal zone

equally, the project would not result in disproportionate impacts to any specific disadvantaged communities. Due to the length of construction in each hub installation area, installation of network hub shelters could impact the surrounding communities for longer periods than other project elements, but none of the hub shelter sites would be located within identified disadvantaged communities. Therefore, the potential coastal resources impacts of the project would not disproportionately affect an environmental justice community, consistent with Coastal Act section 30604(h).

The Coastal Act and Coastal Commission environmental justice policies seek to ensure that all California communities and populations have equitable and fair access to participate in the decision-making process, and that Commission actions consider and avoid or mitigate impacts that could fall disproportionately on under-resourced or historically marginalized communities. First and foremost, the project is designed to provide universal broadband access to Californians. By providing universal broadband access, the project is promoting and expanding environmental justice in the state, consistent with the Coastal Act and Coastal Commission policy.

For each coastal development permit, CDT/Caltrans would have its own public notice and permit hearing. Regarding “equitable and fair access” to the decision-making process, absent a robust public engagement effort, the project could raise consistency issues with Coastal Act section 30013, related definitions under sections 65040.12(e) and 30107.3, and the Coastal Commission’s adopted Environmental Justice policy. However, as discussed in Section 4.7.2, *Relevant Project Activities and Effects*, the CDT, CPUC, Caltrans, and other state agencies have engaged with thousands of stakeholders thus far, including targeted engagement with tribal nations. As also described in Section 4.4.1, Caltrans is expected to undertake a robust tribal consultation process. Implementation of **Avoidance and Minimization Measure CUL-1, Protection of Cultural Resources**, would require Caltrans to complete tribal consultations in a timely manner, in coordination with Coastal Commission staff, and that results of those consultations inform appropriate BMPs for constructing in or near areas of known or potential cultural resources (see Section 4.7.4).

## Conclusion

In conclusion, the project as proposed would not exacerbate any existing environmental inequities nor introduce new environmental inequities within disadvantaged communities. Avoidance and Minimization Measure CUL-1 would ensure that stakeholder engagement would be timely and thorough. Therefore, with implementation of the recommended measure, the project would appear to be consistent with the environmental justice Coastal Act and Coastal Commission policies described in Section 4.7.1.

### 4.7.4 Avoidance and Minimization Measure

#### **CUL-1: Protection of Cultural Resources.**

Please refer to Section 4.4, Cultural and Paleontological Resources, for the text of this measure.

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# CHAPTER 5

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## Report Preparers

This chapter provides a list of individuals who contributed to the preparation of the Coastal Middle-Mile Broadband Network Coastal Resources Assessment.

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INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2-9	TYPICAL CROSS SECTIONS
10	LEGEND AND ABBREVIATION
11-84	ELECTRICAL PLANS, DETAILS AND QUANTITIES
85-155	UTILITY PLANS
156-171	MMBN STANDARD DETAILS
172-175	STRUCTURAL PLANS

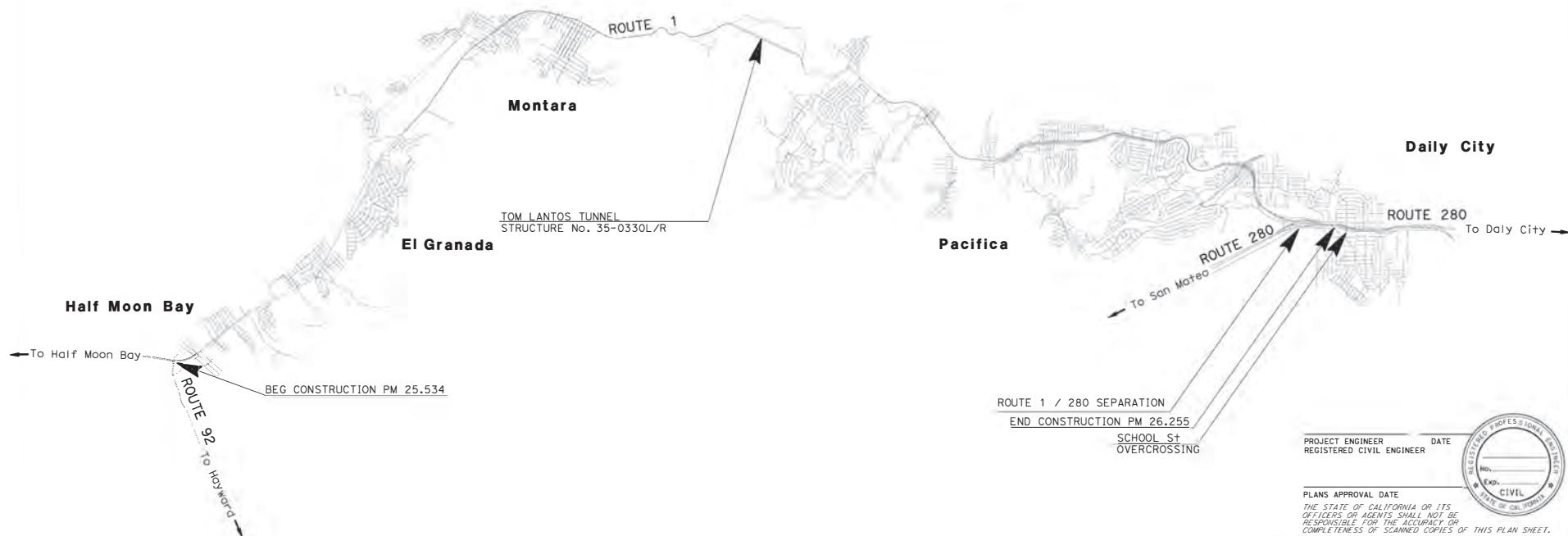
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON  
STATE HIGHWAY  
IN SAN MATEO COUNTY

ON ROUTE 1 FROM ROUTE 92 TO ROUTE 1/280 SEPARATION AND  
ON ROUTE 280 FROM ROUTE 1/280 SEPARATION  
TO 0.1 MILES SOUTH OF SCHOOL STREET OVERCROSSING

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2023

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	1 280	29.034/48.05 25.534/26.255	A	A



NO SCALE

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

PROJECT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_  
REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE \_\_\_\_\_  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

CONTRACT No.	<b>04-1Y9604</b>
PROJECT ID	<b>0000000000</b>

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 Functional Supervisor  
 Calculated by  
 Checked by  
 Revised by  
 Date Revised

**NOTES:**

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. EXISTING UTILITIES HAVE NOT BEEN PLOTTED ON THESE PLANS.
3. IF ENVIRONMENTALLY SENSITIVE AREAS ARE UNAVOIDABLE INSTALL CONDUIT IN THE SHOULDER 2' UNDER THE PAVEMENT

**LEGEND:**

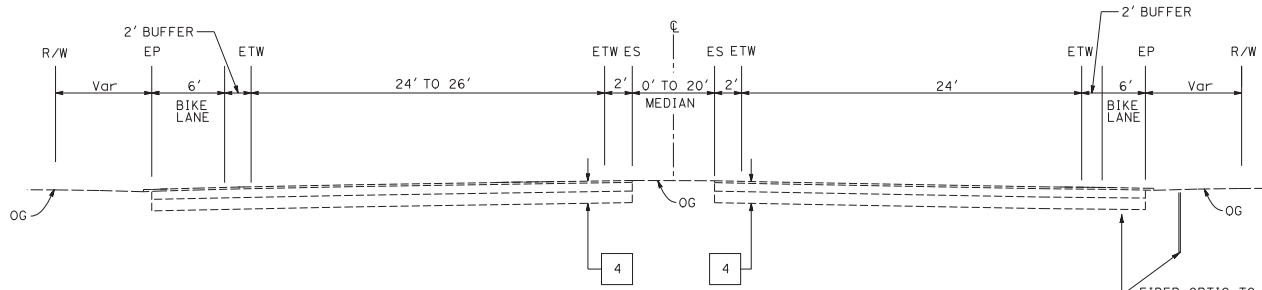
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

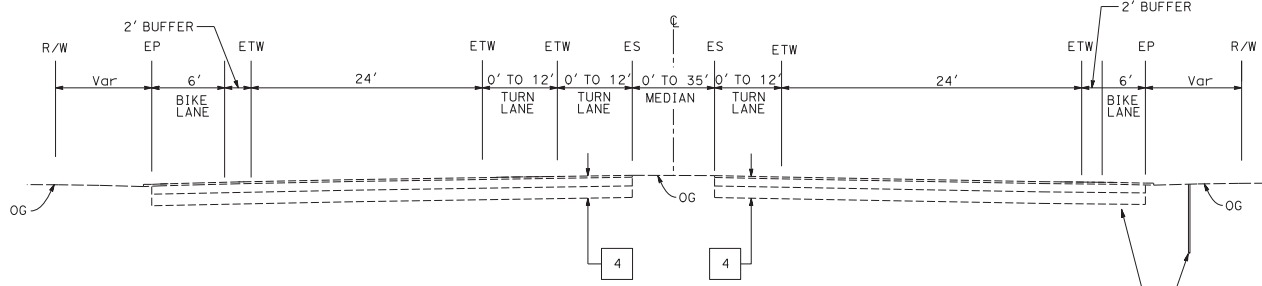
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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PM 29.2 TO 29.4



PM 29.0 TO 29.2

**ROUTE 1**

**TYPICAL PAVEMENT STRUCTURAL SECTION**

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0.67' AB  
0.25' ATPB  
0.83' AS
- 2 [Exist  
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0.67' AB  
0.25' ATPB  
0.83' AS
- 3 [Exist  
0.67'-0.70' PCC  
0.35' CTB  
0.50' AS
- 4 [EXIST  
0.20' RHMA-G  
0.5' TO 0.77' HMA (TYPE A)  
1.0' TO 1.25' IMPORTED BASE
- 5 [EXIST  
0.66 PCC  
0.33' CTB (TYPE B)  
0.50' AS CL 1

FIBER OPTIC TO BE INSTALLED IN THE SHOULDER AREA USING HORIZONTAL DIRECTIONAL DRILLING 2' MIN. BELOW THE EXIST SURFACE OR TO THE RIGHT OF THE EDGE OF PAVEMENT 42" BELOW THE EXIST SURFACE

FIBER OPTIC TO BE INSTALLED IN THE SHOULDER AREA USING HORIZONTAL DIRECTIONAL DRILLING 2' MIN. BELOW THE EXIST SURFACE OR TO THE RIGHT OF THE EDGE OF PAVEMENT 42" BELOW THE EXIST SURFACE

**TYPICAL CROSS SECTIONS**  
NO SCALE

**X-1**

BORDER LAST REVISED 7/2/2010

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DGN FILE => X-1 Typical Section.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**

REVISOR BY  
DATE REVISOR

CALCULATED BY  
DESIGNED BY  
CHECKED BY

FUNCTIONAL SUPERVISOR

DATE PLOTTED => 8-JAN-2024  
 TIME PLOTTED => 12:41

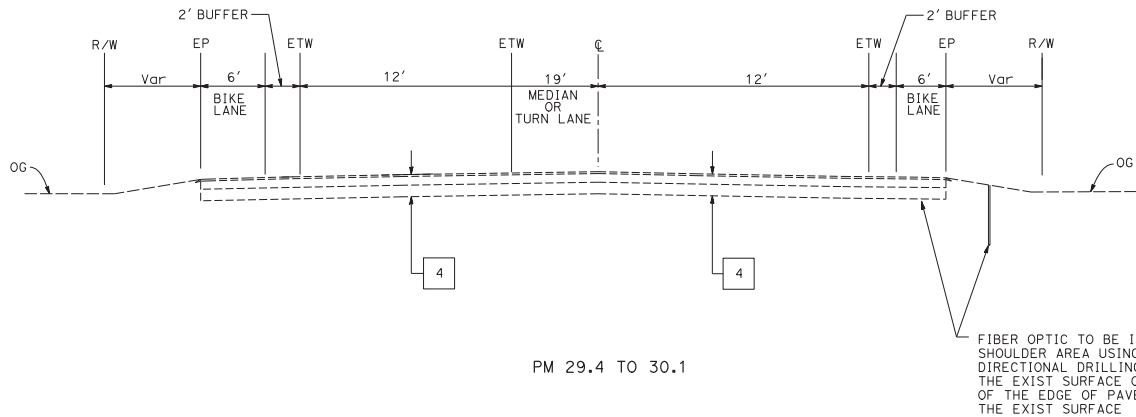
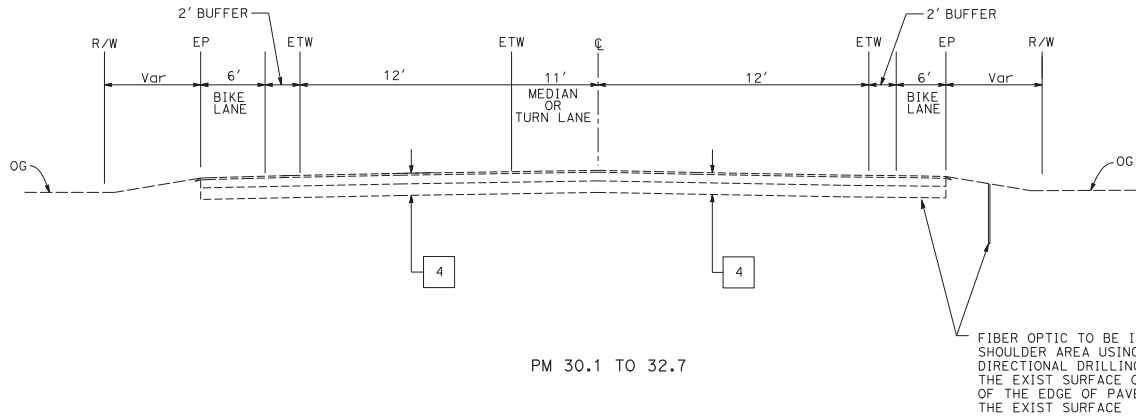
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_

PLANS APPROVAL DATE \_\_\_\_\_

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REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**ROUTE 1**

**TYPICAL CROSS SECTIONS**  
NO SCALE

FOR NOTES, ABBREVIATION AND LEGEND, SEE SHEET X-1

**X-2**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => X-2 Typical Section.dgn

RELATIVE BORDER SCALE IS IN INCHES

UNIT 0000

PROJECT NUMBER & PHASE

0000000001

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**

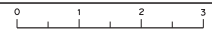
FUNCTIONAL SUPERVISOR  
 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY

REVISOR  
 DATE REVISOR

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => X-3 Typical Section.dgn

RELATIVE BORDER SCALE  
 IS IN INCHES



FOR NOTES, ABBREVIATION  
 AND LEGEND, SEE SHEET X-1

UNIT 0000

PROJECT NUMBER & PHASE

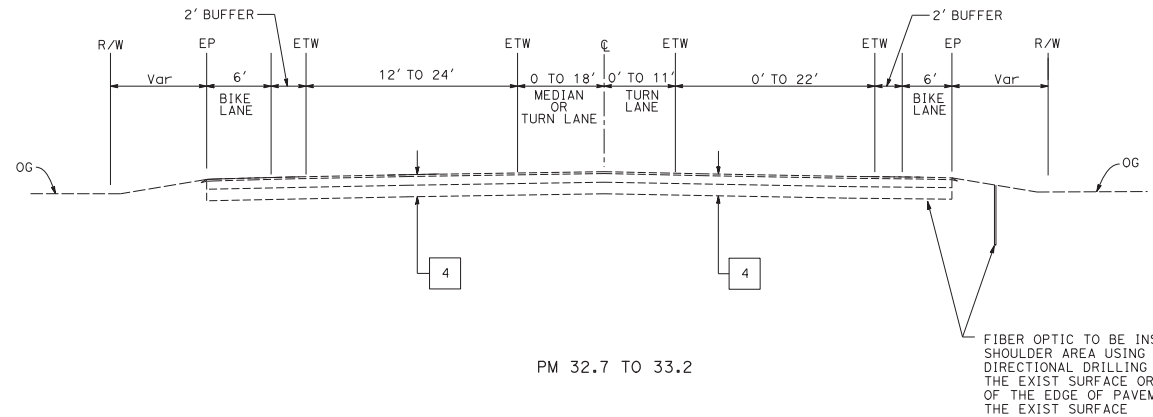
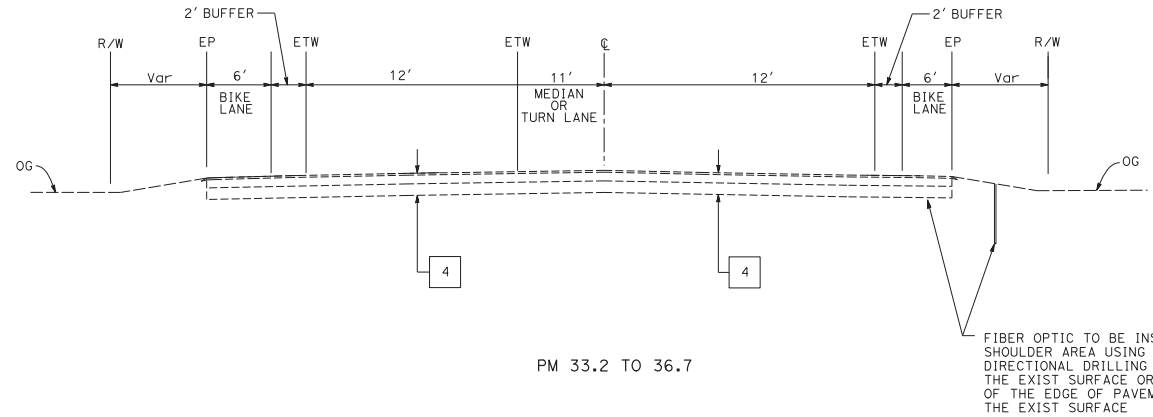
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**ROUTE 1**

**TYPICAL CROSS SECTIONS**  
 NO SCALE

**X-3**

LAST REVISION DATE PLOTTED => 8-JAN-2024  
 00-00-00 TIME PLOTTED => 12:41

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

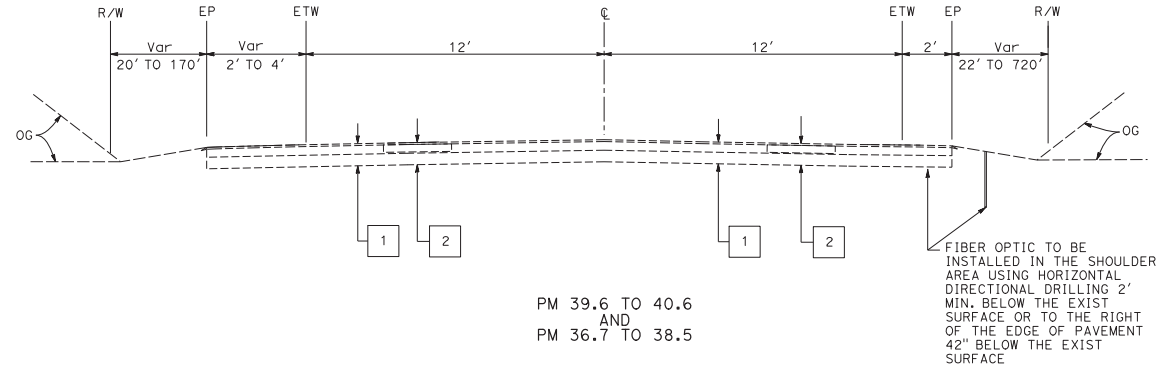
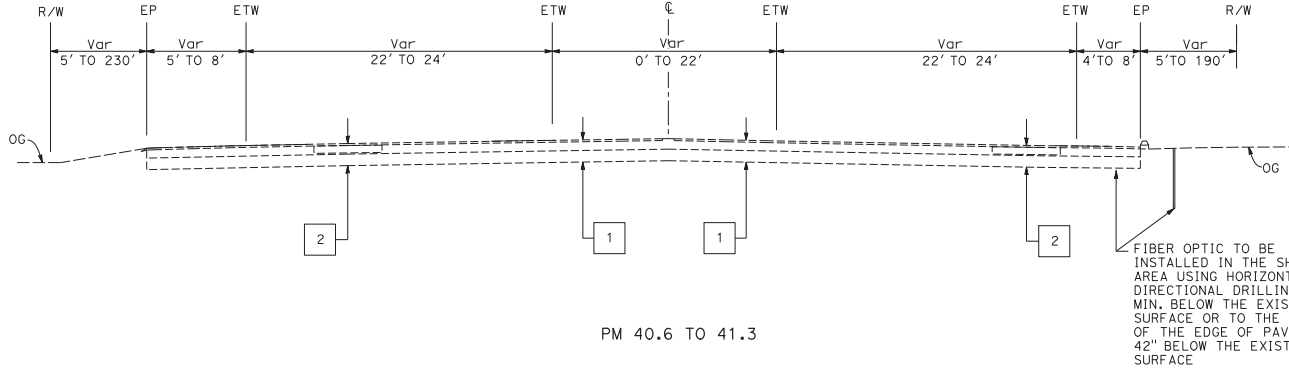
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_

PLANS APPROVAL DATE \_\_\_\_\_

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 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**ROUTE 1**

**TYPICAL CROSS SECTIONS**  
 NO SCALE

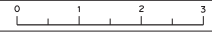
FOR NOTES, ABBREVIATION AND LEGEND, SEE SHEET X-1

**X-4**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => X-4 Typical Section.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

LAST REVISION DATE PLOTTED => 8-JAN-2024  
 00-00-00 TIME PLOTTED => 12:41

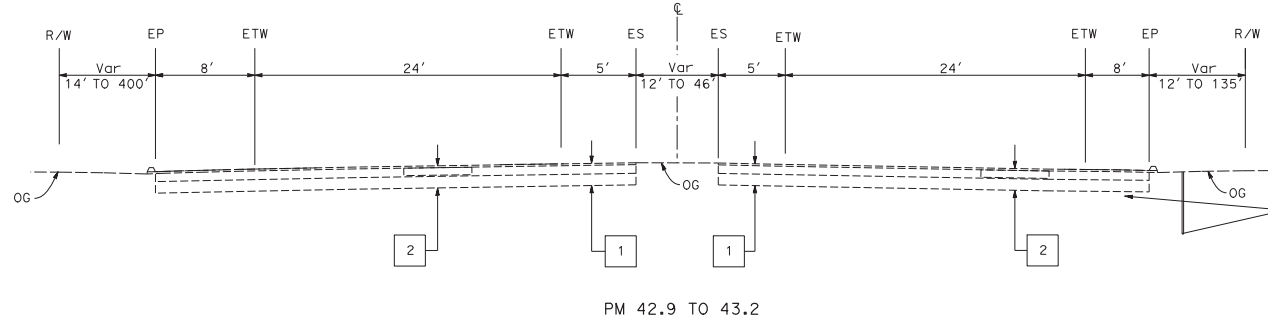
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

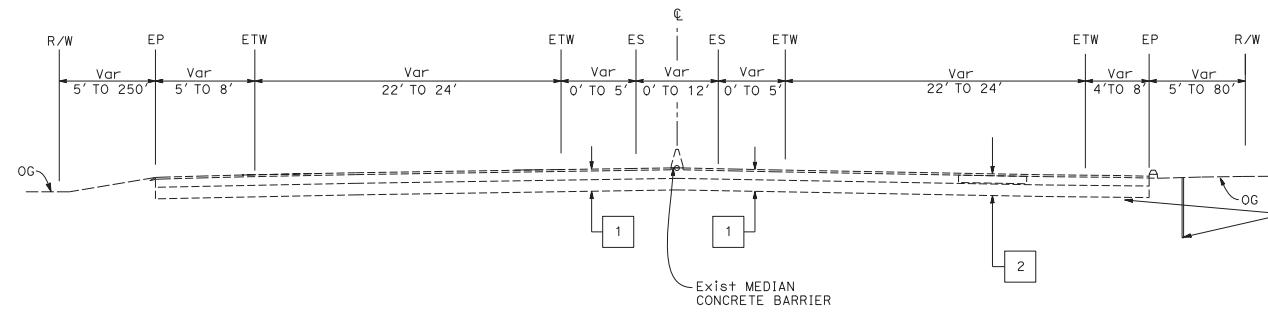
REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



FIBER OPTIC TO BE INSTALLED IN THE SHOULDER AREA USING HORIZONTAL DIRECTIONAL DRILLING 2' MIN. BELOW THE EXIST SURFACE OR TO THE RIGHT OF THE EDGE OF PAVEMENT 42" BELOW THE EXIST SURFACE



FIBER OPTIC TO BE INSTALLED IN THE SHOULDER AREA USING HORIZONTAL DIRECTIONAL DRILLING 2' MIN. BELOW THE EXIST SURFACE OR TO THE RIGHT OF THE EDGE OF PAVEMENT 42" BELOW THE EXIST SURFACE

PM 41.3 TO 42.9  
**ROUTE 1**

**TYPICAL CROSS SECTIONS**  
 NO SCALE

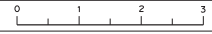
FOR NOTES, ABBREVIATION AND LEGEND, SEE SHEET X-1

**X-5**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => X-5 Typical Section.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

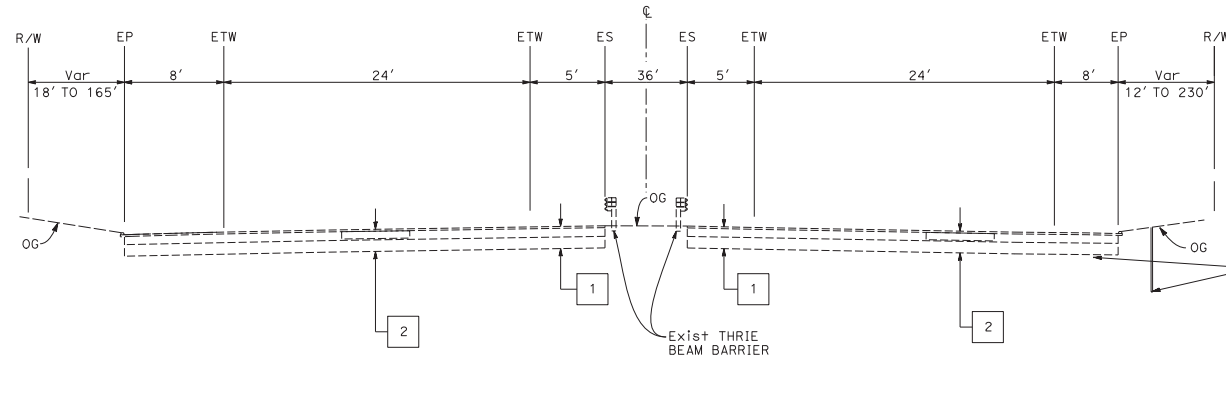
LAST REVISION DATE PLOTTED => 8-JAN-2024  
 00-00-00 TIME PLOTTED => 12:41

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

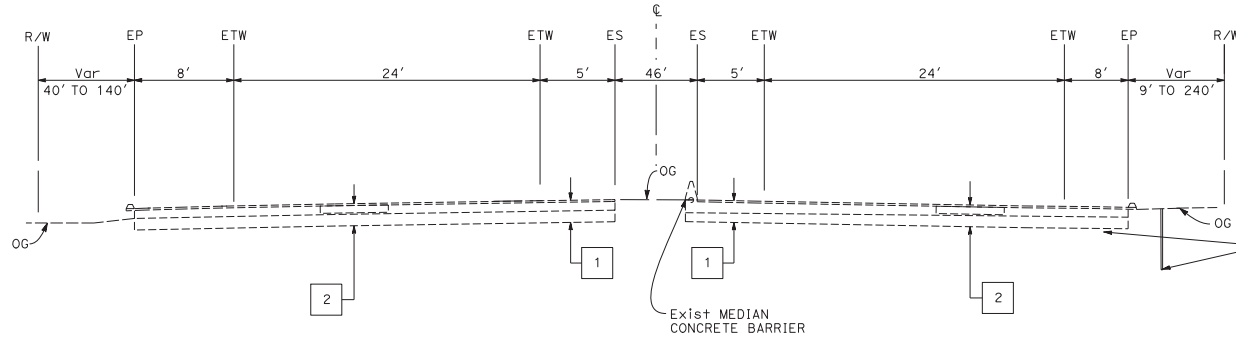
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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PM 43.8 TO 45.4



PM 43.2 TO 43.8

**TYPICAL CROSS SECTIONS**  
 NO SCALE

**ROUTE 1**

FOR NOTES, ABBREVIATION AND LEGEND, SEE SHEET X-1

**X-6**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => X-6 Typical Section.dgn

RELATIVE BORDER SCALE IS IN INCHES

UNIT 0000

PROJECT NUMBER & PHASE

0000000001

LAST REVISION DATE PLOTTED => 8-JAN-2024  
 00-00-00 TIME PLOTTED => 12:41

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => X-7 Typical Section.dgn

RELATIVE BORDER SCALE IS IN INCHES



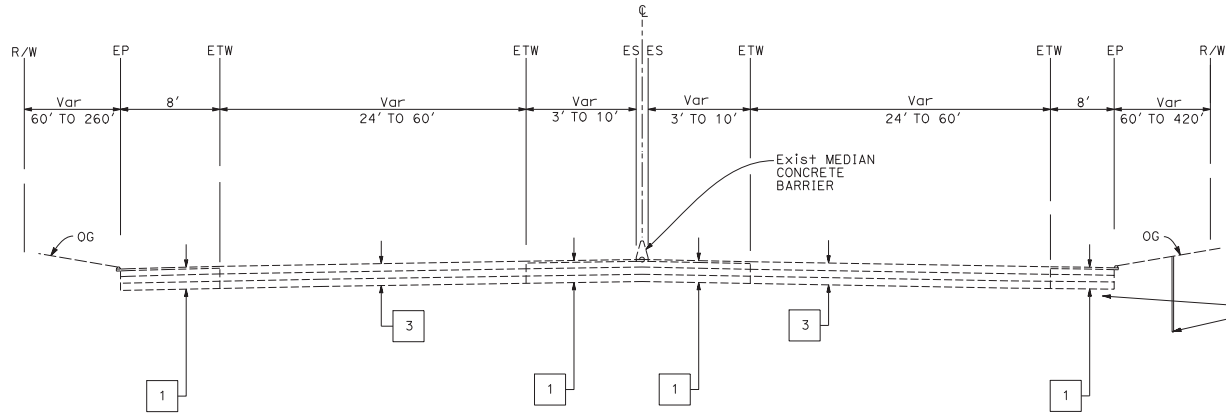
FOR NOTES, ABBREVIATION AND LEGEND, SEE SHEET X-1

UNIT 0000

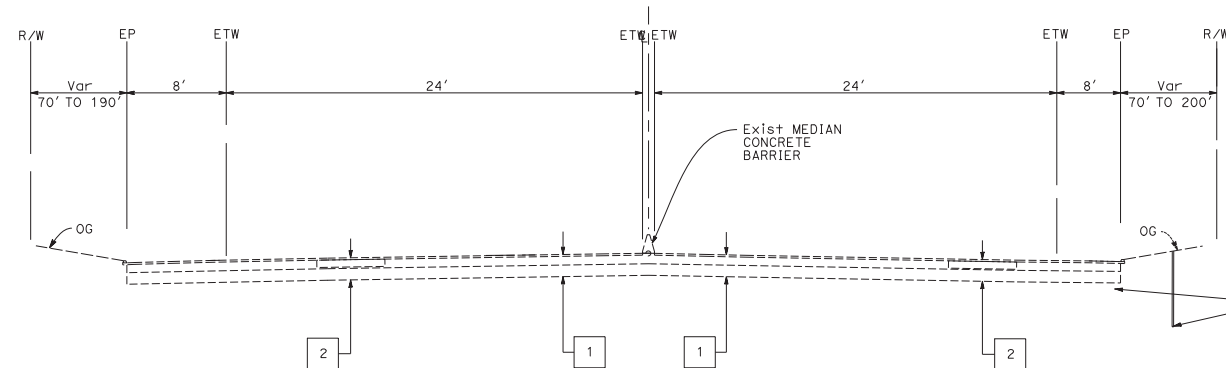
PROJECT NUMBER & PHASE

0000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



PM 46.3 TO 48.1



PM 45.4 TO 46.3

**TYPICAL CROSS SECTIONS**  
 NO SCALE

**ROUTE 1**

**X-7**

LAST REVISION DATE PLOTTED => 8-JAN-2024  
 00-00-00 TIME PLOTTED => 12:41

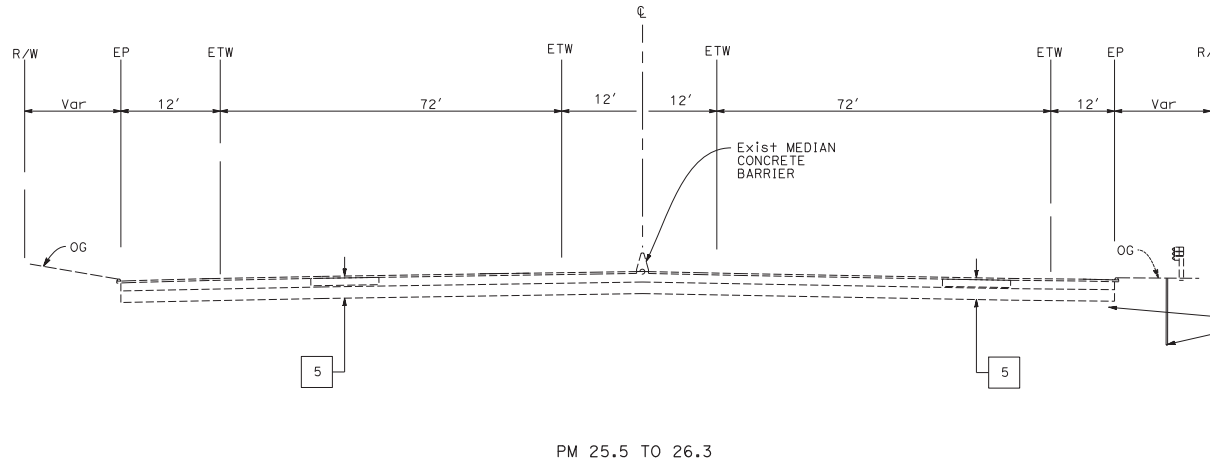


STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
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 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



FIBER OPTIC TO BE INSTALLED IN THE SHOULDER AREA USING HORIZONTAL DIRECTIONAL DRILLING 2' MIN. BELOW THE EXIST SURFACE OR TO THE RIGHT OF THE EDGE OF PAVEMENT 42" BELOW THE EXIST SURFACE

PM 25.5 TO 26.3

**TYPICAL CROSS SECTIONS**  
 NO SCALE

**ROUTE 280**

FOR NOTES, ABBREVIATION AND LEGEND, SEE SHEET X-1

**X-8**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => X-8 Typical Section.dgn

RELATIVE BORDER SCALE IS IN INCHES

UNIT 0000

PROJECT NUMBER & PHASE

00000000001

LAST REVISION DATE PLOTTED => 8-JAN-2024  
 00-00-00 TIME PLOTTED => 12:43

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN

FUNCTIONAL SUPERVISOR  
 PARVIZ BOOZARPOUR

CALCULATED, DESIGNED BY  
 CHECKED BY

NITAN BALLI  
 GURSHARUJEET CHEEMA

REVISED BY  
 DATE REVISED

NB  
 2-16-23

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	1	R29.0/R48.0		

REGISTERED ELECTRICAL ENGINEER DATE \_\_\_\_\_

PLANS APPROVAL DATE \_\_\_\_\_

REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 ELECTRICAL  
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**LEGEND:**

- 1 INSTALL 1-2" HDPE CONDUITS BY TRENCH METHOD, SEE SHEET MMBND-1C .  
INSTALL 12 STRANDS FIBER OPTIC CABLE.
- 2 INSTALL 1-2" HDPE CONDUITS BY CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD. INSTALL 1-FIBER OPTIC CABLE (TYPE 1) IN THE CONDUIT.  
REFER TO SHEET MMBND-2 FOR ROUTING CONDUIT UNDER OBSTRUCTIONS.
- 3 INSTALL 1-2" HDPE CONDUITS ON STRUCTURE AS PER STRUCTURAL DETAIL PLANS. INSTALL 1-FIBER OPTIC CABLE (TYPE 1) IN 1-2" CONDUITS.  
REFER TO STRUCTURAL DETAIL PLANS FOR MORE INFORMATION.
- 4 INSTALL 1-2" HDPE CONDUITS BY TRENCH METHOD, SEE VAULT DETAILS  
CONNECTING ACCESS POINT TO MMBN.
- 5 INSTALL 1-2" HDPE CONDUITS BY CONDUIT HORIZONTAL DIRECTIONAL DRILLING METHOD  
CONNECTING ACCESS POINT TO MMBN.
- 6 INSTALL NEMA PULL BOX ATTACHED TO STRUCTURE, 48"X48"X10"

 ENVIRONMENTALLY SENSITIVE AREA

**MMBN EQUIPMENT:**

- FIBER OPTIC VAULT (TYPE 1 IN UNPAVED AREAS)
- FIBER OPTIC SPLICE VAULT (TYPE 2 SPLICE ENCLOSURE INSIDE SPLICE VAULT)
- MIDDLE MILE BROADBAND NETWORK FIBER OPTIC TRUCK LINE

**NOTES:**

1. FOR MIDDLE MILE BROADBAND NETWORK QUANTITIES, SEE EQ SHEETS.
2. EXISTING IRRIGATION FACILITIES TO BE LOCATED PRIOR TO CONSTRUCTION ACTIVITIES.
3. FIBER OPTIC OBJECT MARKER TYPE K-2 (CA) ARE REQUIRED AT ALL SPLICE VAULTS AND PULL VAULTS, FLEXIBLE POST DELINEATORS ARE REQUIRED EVERY 500 FEET ALONG THE FOC PATH. SEE SHEET MMBND-5 FOR FIBER OPTIC MARKER DETAILS.
4. PROVIDE CABLE SLACK IN EACH VAULT AND SPLICE VAULT. SEE SHEET MMBND-9 AND PROJECT SPECIAL PROVISIONS FOR MINIMUM CABLE LENGTH REQUIREMENTS.
5. INSTALL 2 VAULTS AT EACH SIDES OF THE CULVERTS FOR PULLING PURPOSE. SEE THE LIST OF THE CULVERTS AND THEIR LCOATIONS ON DETAIL ED-1
6. CONTRACTOR TO LOCATE EXISTING DRAINAGE PRIOR TO CONSTRUCTION ACTIVITIES. FOR TYPICAL CLEARANCE REQUIREMENTS FOR MMBN CROSSINGS AT EXISTING DRAINAGE FACILITIES SEE SHEET MMBND-2

**ABBREVIATION:**

MMBN MIDDLE MILE BROADBAND NETWORK

**MIDDLE MILE BROADBAND NETWORK  
 (LEGEND AND ABBREVIATION)**

**ME-1**

BORDER LAST REVISED 8/5/2020

USERNAME => s147794  
 DGN FILE => E-001 Legend and Abbreviations.dgn

RELATIVE BORDER SCALE  
 IS IN INCHES



UNIT 0720

PROJECT NUMBER & PHASE

04230000491

LAST REVISION: DATE PLOTTED => 8-JAN-2024  
 TIME PLOTTED => 12:47

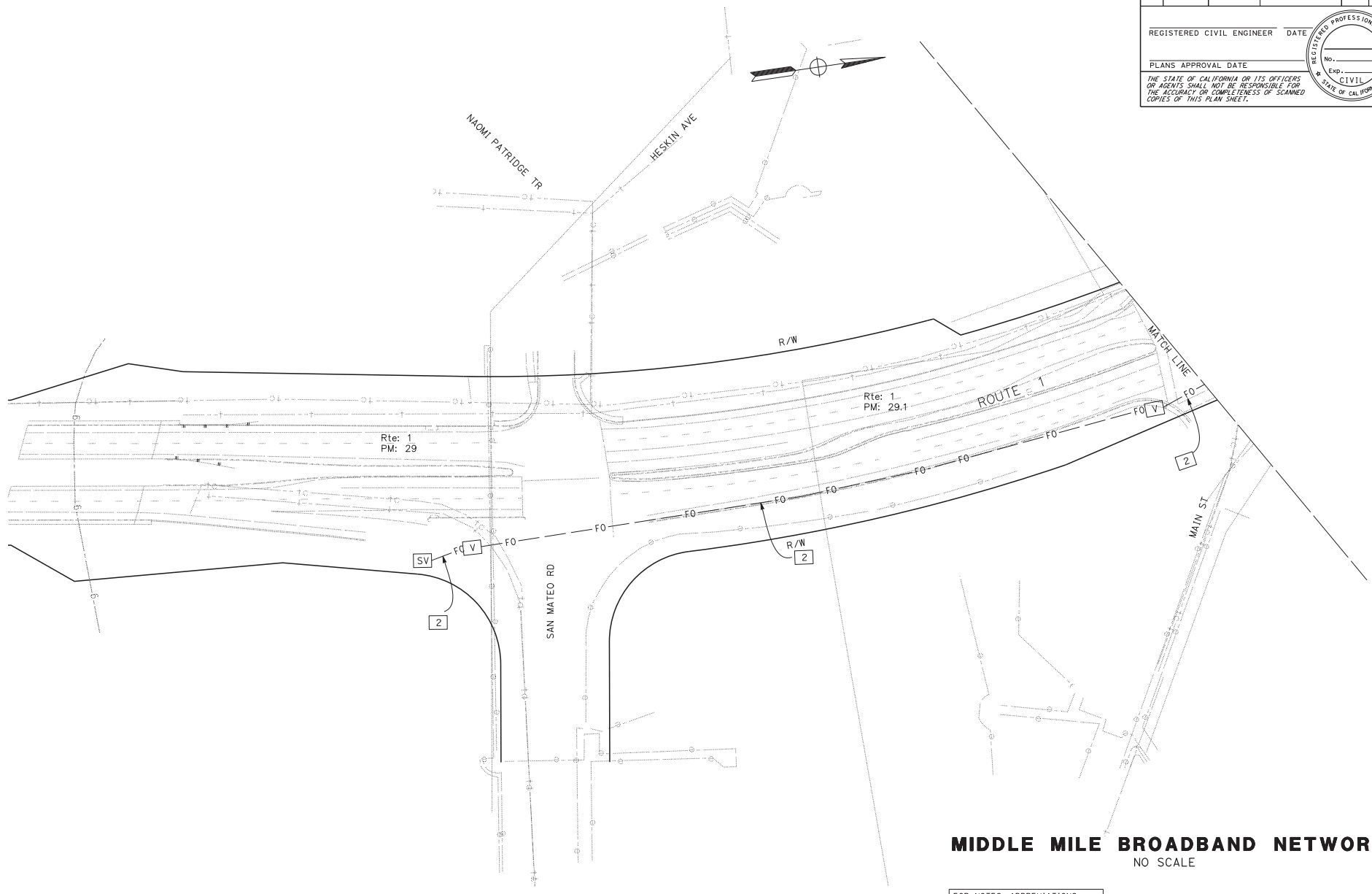
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**MIDDLE MILE BROADBAND NETWORK**  
 NO SCALE

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

**E-2**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => E-002.PM 29.0 TO 29.1.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

LAST REVISION DATE PLOTTED => 5-JAN-2024  
 00-00-00 TIME PLOTTED => 17:32

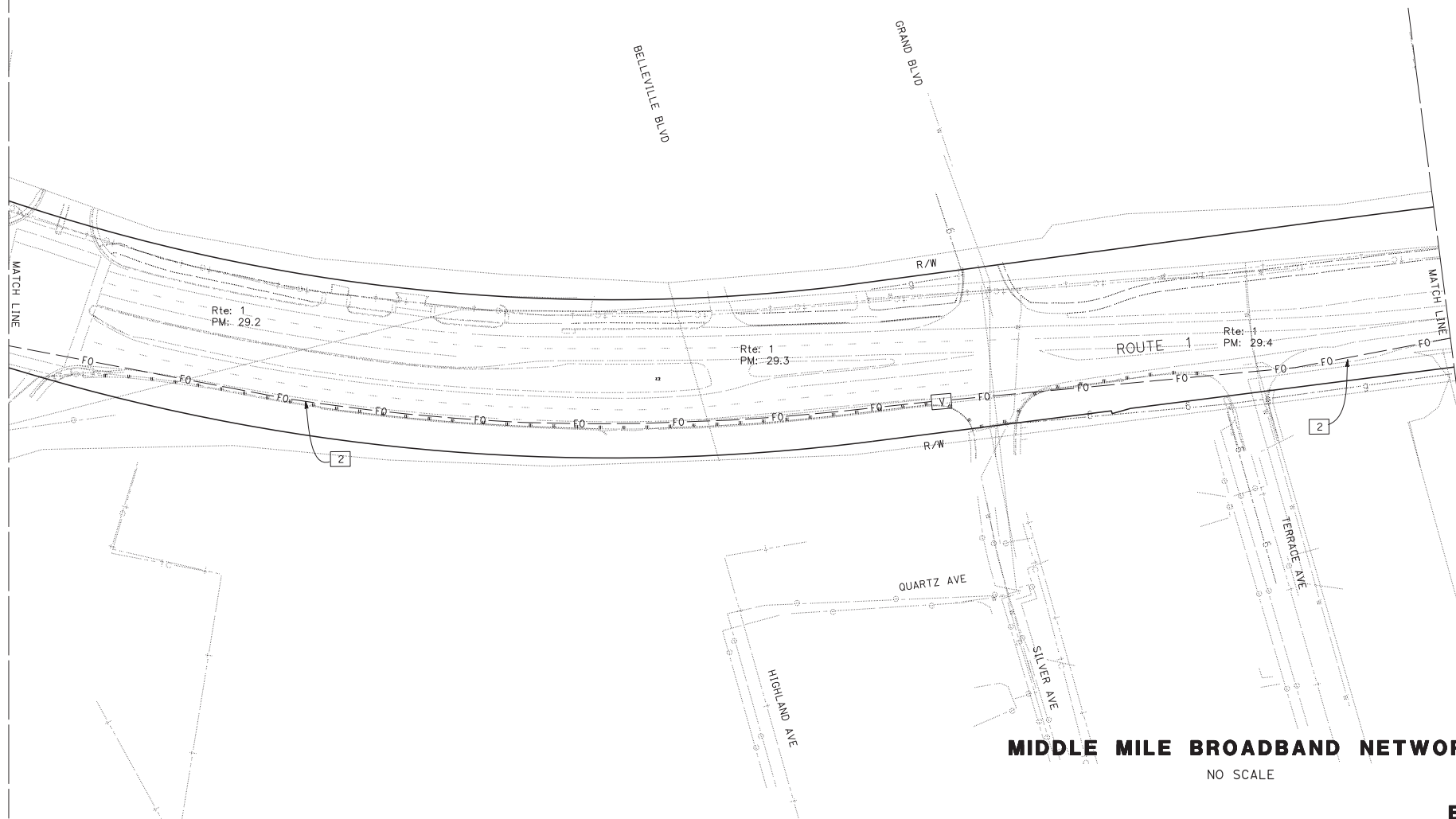
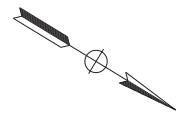
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**MIDDLE MILE BROADBAND NETWORK**  
 NO SCALE

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

**E-3**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => E-003.PM 29.2 TO 29.4.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

LAST REVISION DATE PLOTTED => 5-JAN-2024  
 00-00-00 TIME PLOTTED => 17:32

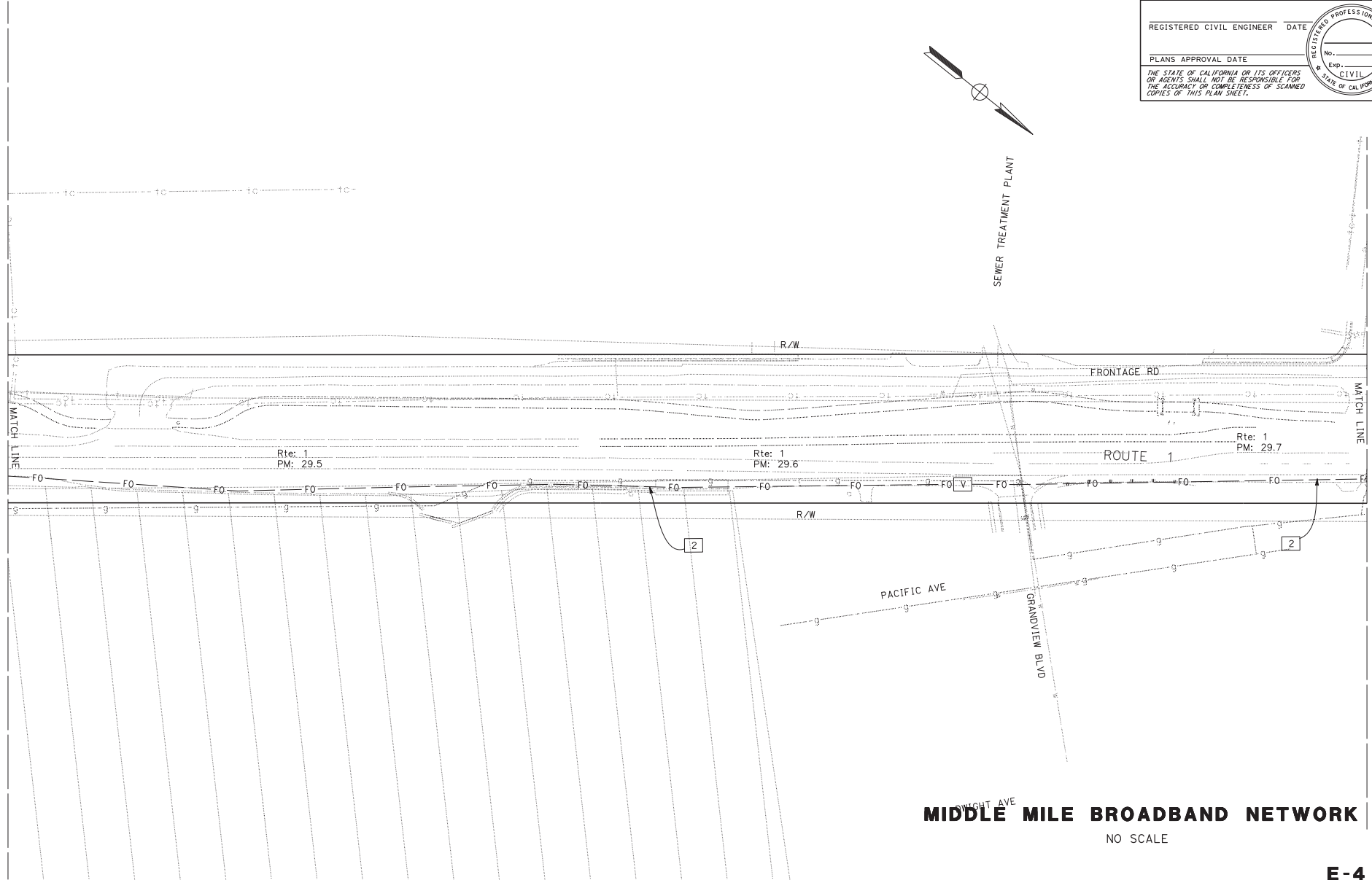
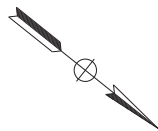
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**MIDDLE MILE BROADBAND NETWORK**  
 NO SCALE

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

BORDER LAST REVISED 7/2/2010

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RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

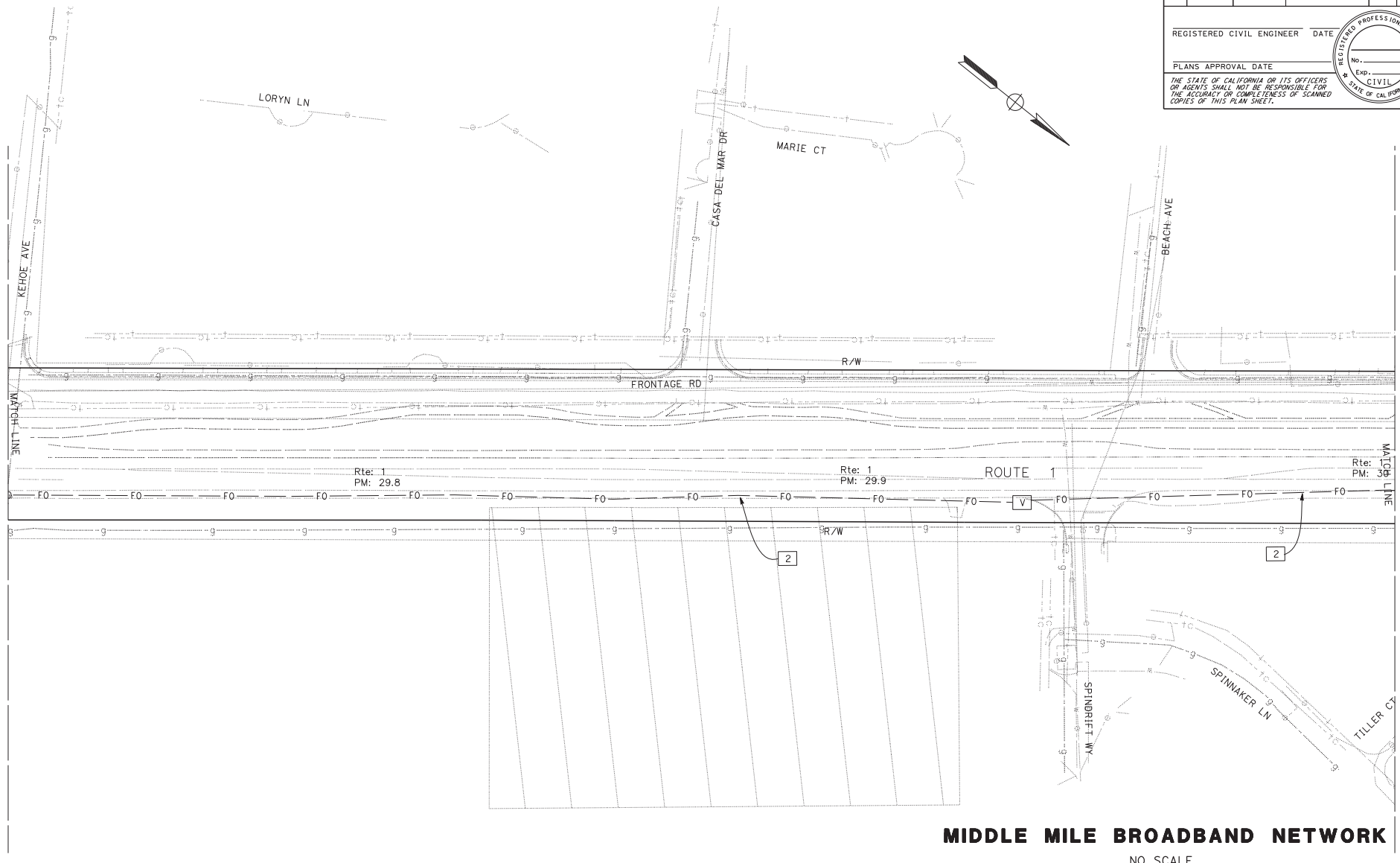
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 00-00-00 TIME PLOTTED => 17:32

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 CALCULATED BY  
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 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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**MIDDLE MILE BROADBAND NETWORK**  
 NO SCALE

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => E-005.PM 29.8 TO 30.0.dgn

RELATIVE BORDER SCALE IS IN INCHES

UNIT 0000

PROJECT NUMBER & PHASE

0000000001

LAST REVISION DATE PLOTTED => 5-JAN-2024  
 00-00-00 TIME PLOTTED => 17:32

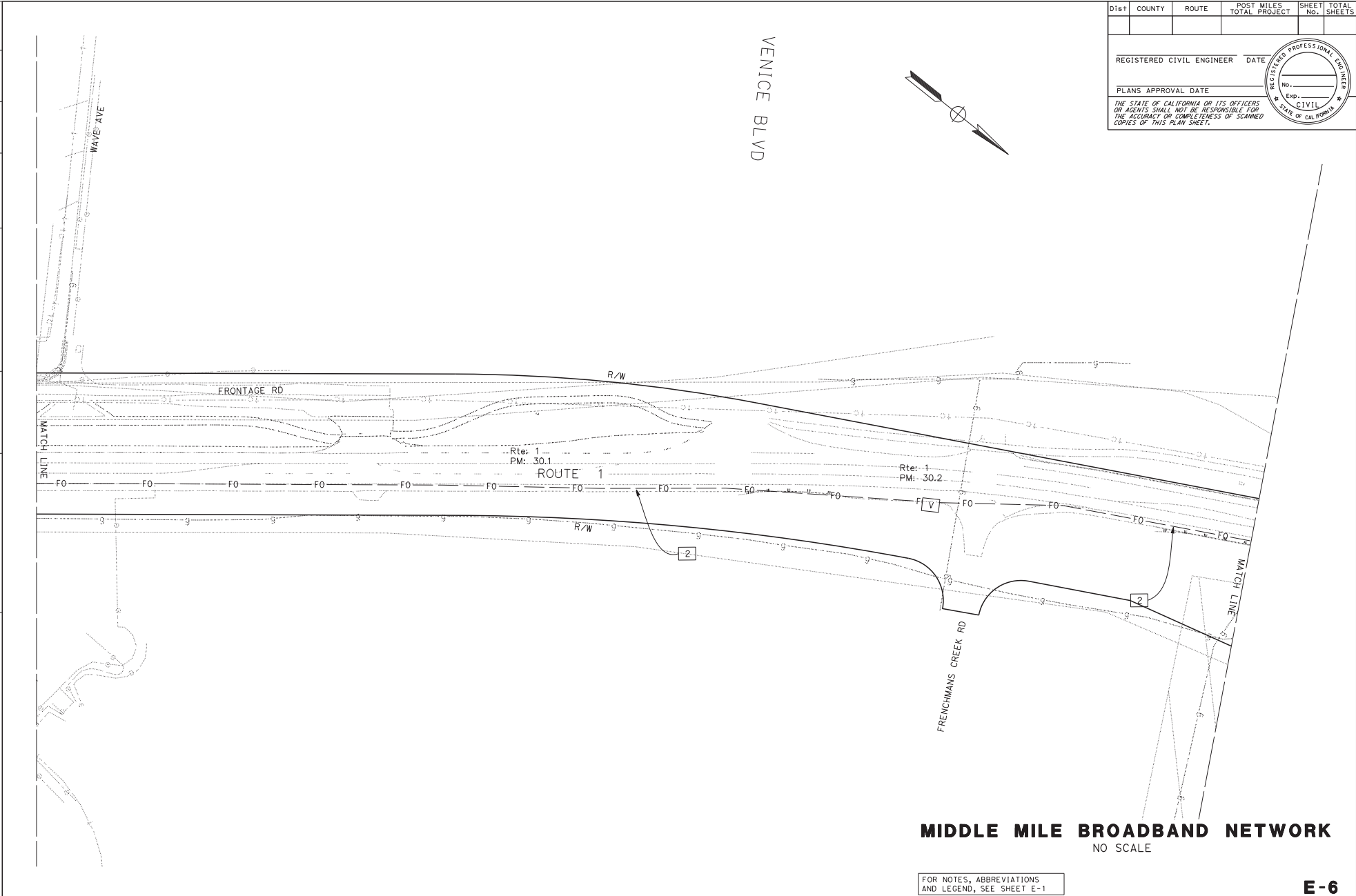
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**MIDDLE MILE BROADBAND NETWORK**  
 NO SCALE

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

**E-6**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => E-006.PM 30.1 TO 30.2.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001


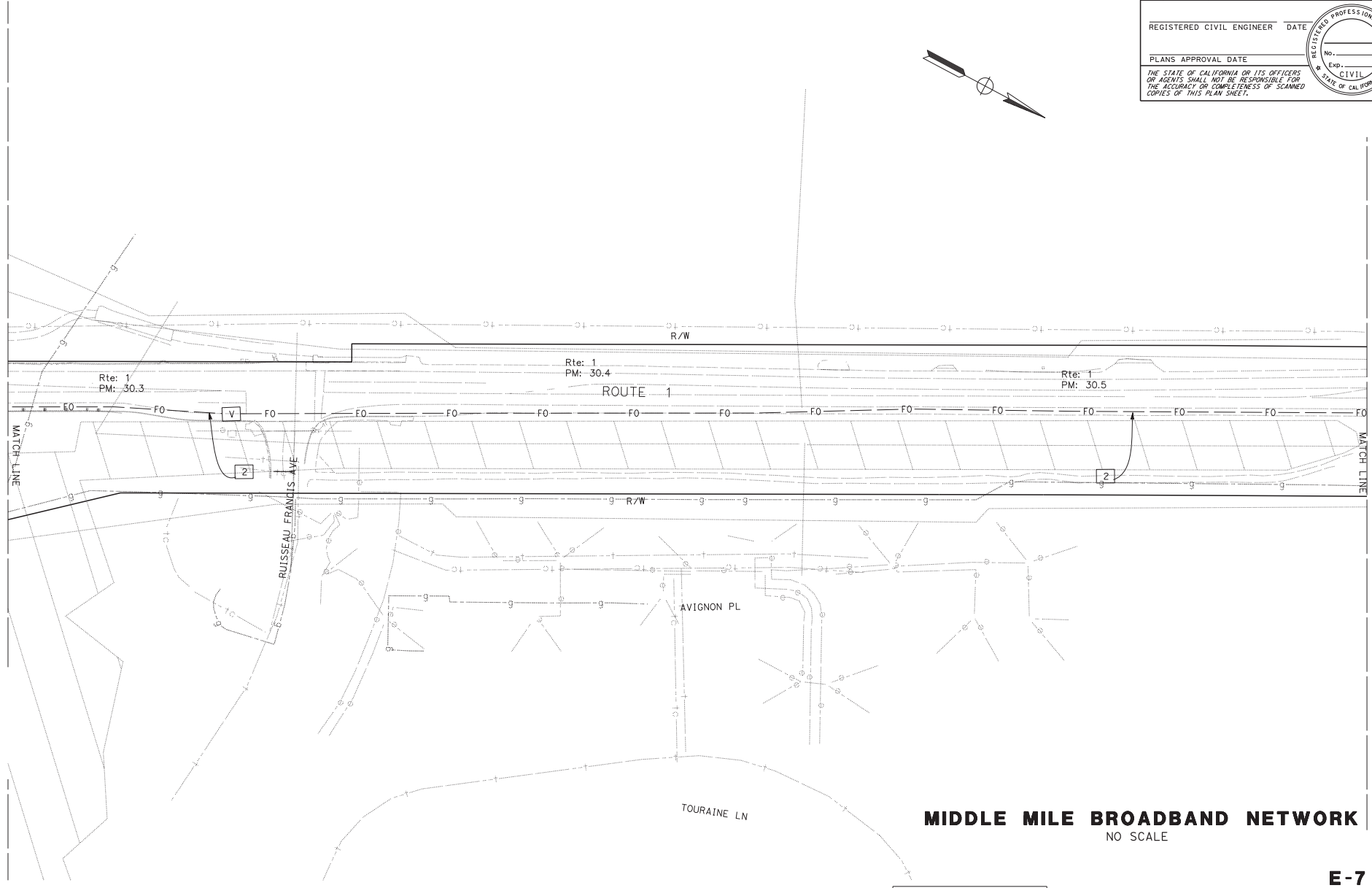
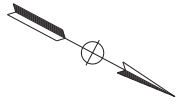
LAST REVISION DATE PLOTTED => 5-JAN-2024  
 00-00-00 TIME PLOTTED => 17:32

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
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 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

**MIDDLE MILE BROADBAND NETWORK**  
 NO SCALE

**E-7**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => E-007\_PM 30.3 TO 30.5.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

LAST REVISION DATE PLOTTED => 5-JAN-2024  
 00-00-00 TIME PLOTTED => 17:32

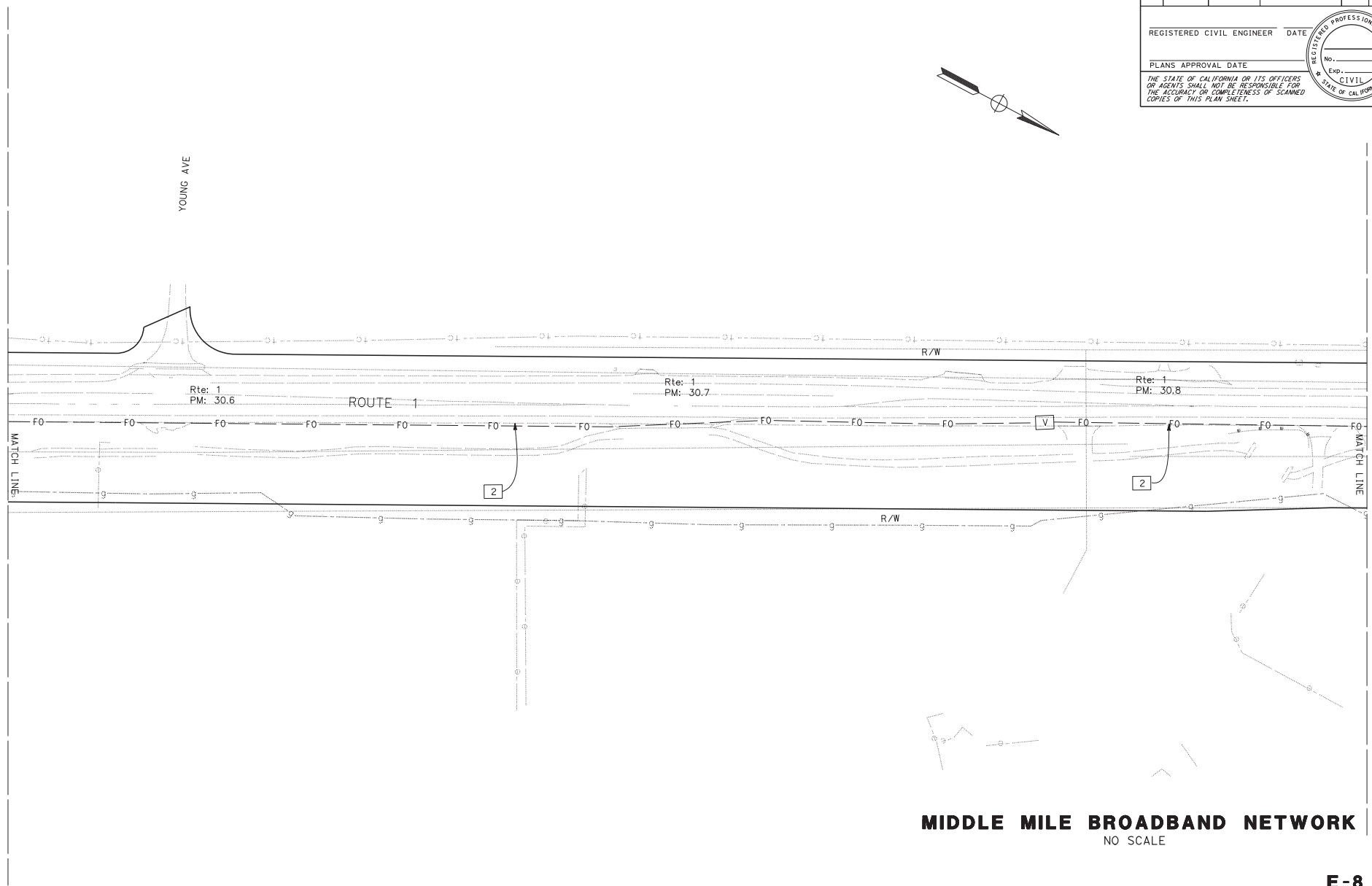


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 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

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 PLANS APPROVAL DATE \_\_\_\_\_

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**MIDDLE MILE BROADBAND NETWORK**  
 NO SCALE

**E-8**

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => E-008.PM 30.6 TO 30.8.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

LAST REVISION: DATE PLOTTED => 5-JAN-2024  
 00-00-00 TIME PLOTTED => 17:32

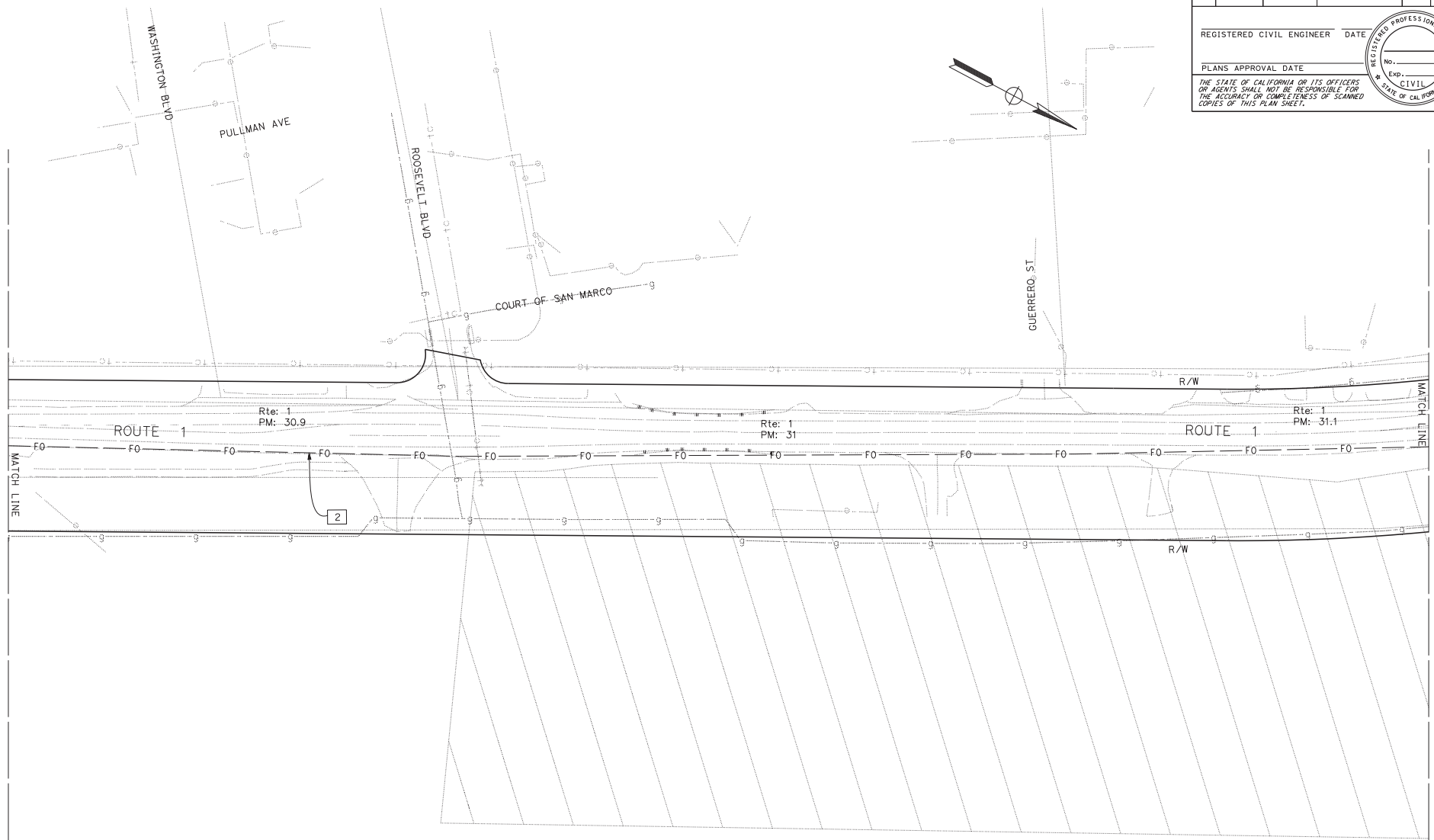
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED BY  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**MIDDLE MILE BROADBAND NETWORK**  
 NO SCALE

**E-9**

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => E-009.PM 30.9 TO 31.1.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

LAST REVISION DATE PLOTTED => 5-JAN-2024  
 00-00-00 TIME PLOTTED => 17:33

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**

FUNCTIONAL SUPERVISOR

DESIGNED BY

CHECKED BY

REVISOR

DATE

REVISION

NO.

DATE

BY

DATE

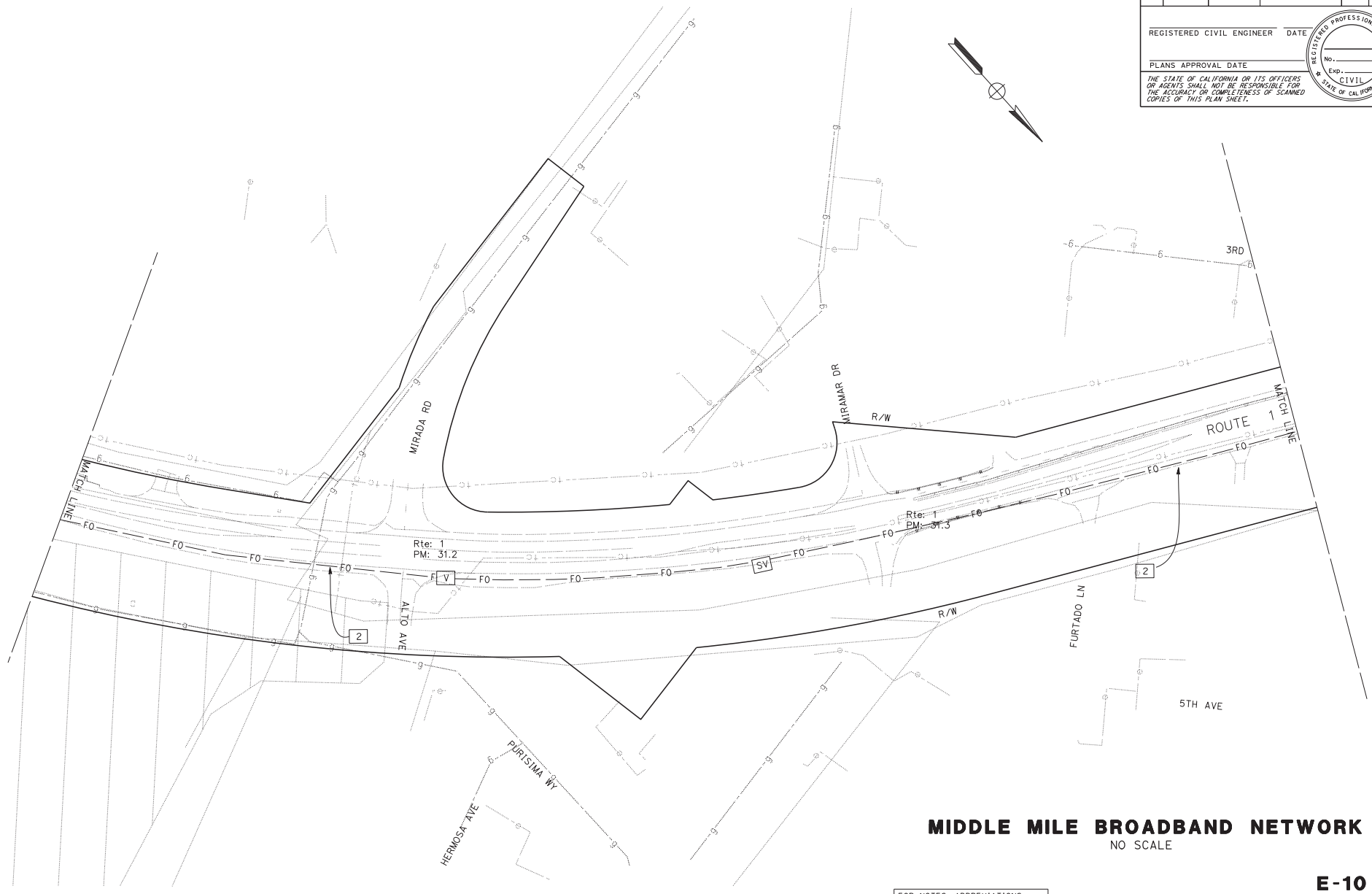
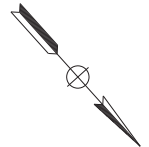
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_

PLANS APPROVAL DATE \_\_\_\_\_

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**MIDDLE MILE BROADBAND NETWORK**  
 NO SCALE

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

**E-10**

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => E-010\_PM 31.2 TO 31.3.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

LAST REVISION DATE PLOTTED => 5-JAN-2024  
 00-00-00 TIME PLOTTED => 17:33

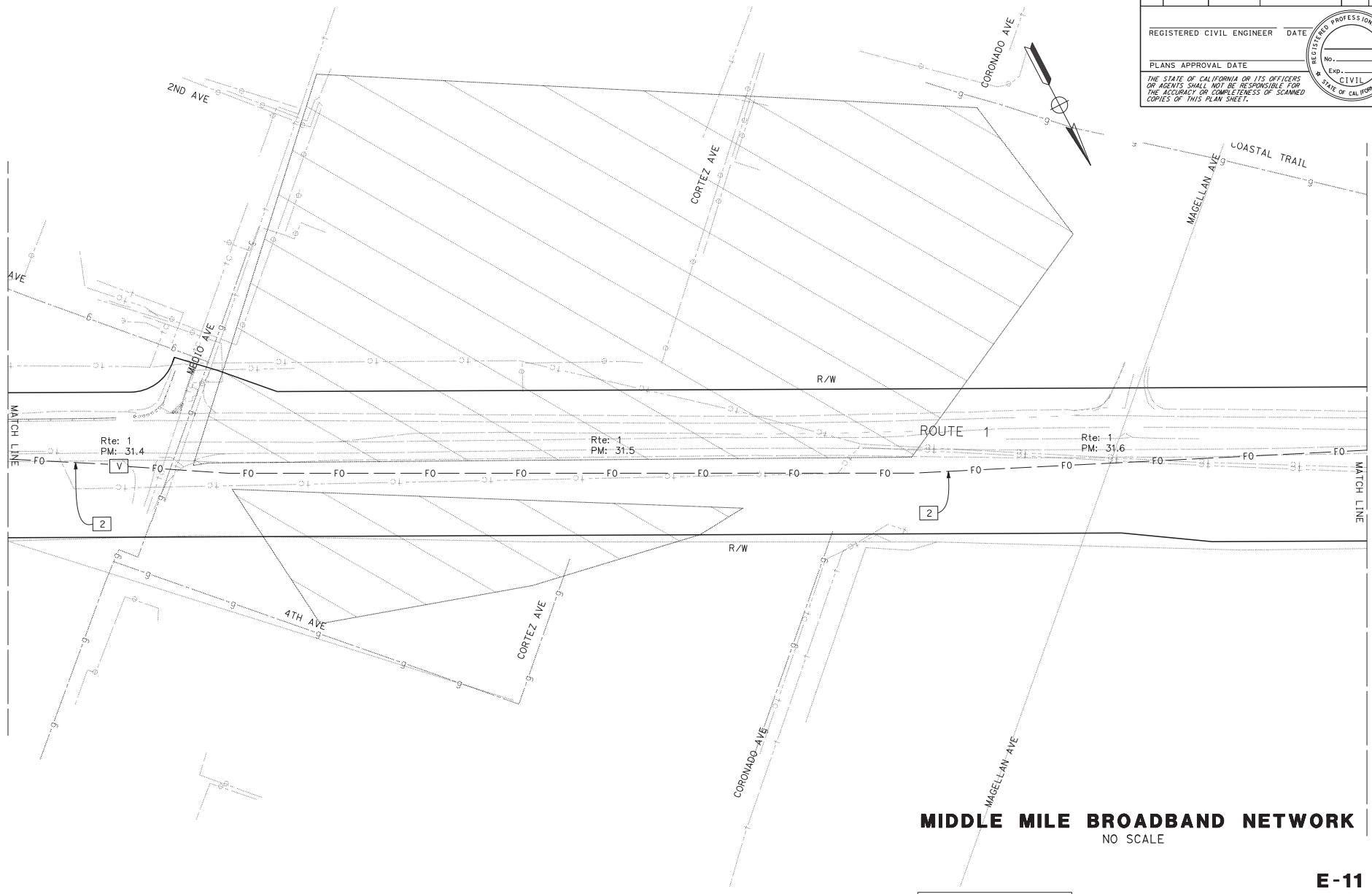
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

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 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**MIDDLE MILE BROADBAND NETWORK**  
 NO SCALE

**E-11**

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

BORDER LAST REVISED 7/2/2010

USERNAME => s147794  
 DGN FILE => E-011\_PM 31.4 TO 31.6.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

LAST REVISION DATE PLOTTED => 5-JAN-2024  
 00-00-00 TIME PLOTTED => 17:33