



SAN FRANCISCO PLANNING DEPARTMENT

Preliminary Mitigated Negative Declaration

Date: January 9, 2019
Case No.: 2016-006868ENV
Project Title: **SFPUC Reliable Power Project**
Project Location: Portions of the San Francisco Public Utilities Commission Rights of Way in Stanislaus, Mariposa, and Tuolumne Counties
Zoning: Various
Project Sponsor: San Francisco Public Utilities Commission
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PROJECT DESCRIPTION:

The San Francisco Public Utilities Commission (SFPUC) proposes to implement the Reliable Power Project (proposed project) for maintaining the reliability of the SFPUC's electrical transmission system between the Holm and Kirkwood Powerhouses and the Warnerville Substation. The project includes implementation of a long-term vegetation management program that would address the North American Electric Reliability Corporation's reliability standard (FAC-003) and other regulatory requirements that seek to minimize the risk of power outages and fires from vegetation contact with transmission lines on or near the right of way for electrical transmission lines¹. In addition to implementation of the vegetation management program, the proposed project would include repairs and replacements for culverts associated with transmission line access roads and construction of a sand storage shed to stockpile sand for winter road treatments needed for access during winter months.

Construction activities associated with the proposed project would occur within existing SFPUC facility and right of way boundaries in Stanislaus County, Mariposa County, and Tuolumne County, and would not require the acquisition of new property. Project implementation involving vegetation management would be ongoing. Construction activities and duration for culvert repair and/or replacement would vary along the transmission corridor, but would be short-term in nature, generally requiring a few of days to a couple of weeks to complete. Construction of the sand storage shed would take approximately one month.

FINDING:

This project could not have a significant effect on the environment. This finding is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15064 (Determining Significant Effect), 15065 (Mandatory Findings of Significance), and 15070 (Decision to prepare a Negative Declaration), and the following reasons as documented in the Initial Evaluation (Initial Study) for the project, which is attached.

¹ More information available at:

<http://www.nerc.com/pa/Stand/Pages/Project-2010-07-1-Vegetation-Management.aspx>

Mitigation measures are included in this project to avoid potentially significant effects. See pages 204 - 223.

Initial Study
SFPUC Reliable Power Project
Planning Department Case No. 2016-006868ENV

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Appendix A: Hetch Hetchy Water and Power Transmission Vegetation Management Program (TVMP)
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List of Abbreviations

µg/m ³	micrograms per cubic meter
AB	Assembly Bill
CalEEMod	California Emission Estimator Model
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CO	carbon monoxide
CO _{2e}	carbon dioxide equivalent
ERO	Environmental Review Officer
GHG	greenhouse gas
kV	kilovolt
MT/yr	million tons per year
MTCO _{2e}	million gross metric tons of carbon dioxide equivalent
PM ₁₀	particles less than 10 microns in diameter
PM _{2.5}	particles less than 2.5 microns in diameter (“fine” particles)
SB	Senate Bill
SFPUC	San Francisco Public Utilities Commission
SR	State Route
tpy	tons per year

Initial Study

SFPUC Reliable Power Project

Planning Department Case No. 2016-006868ENV

A. PROJECT DESCRIPTION

A.1. PROJECT OVERVIEW

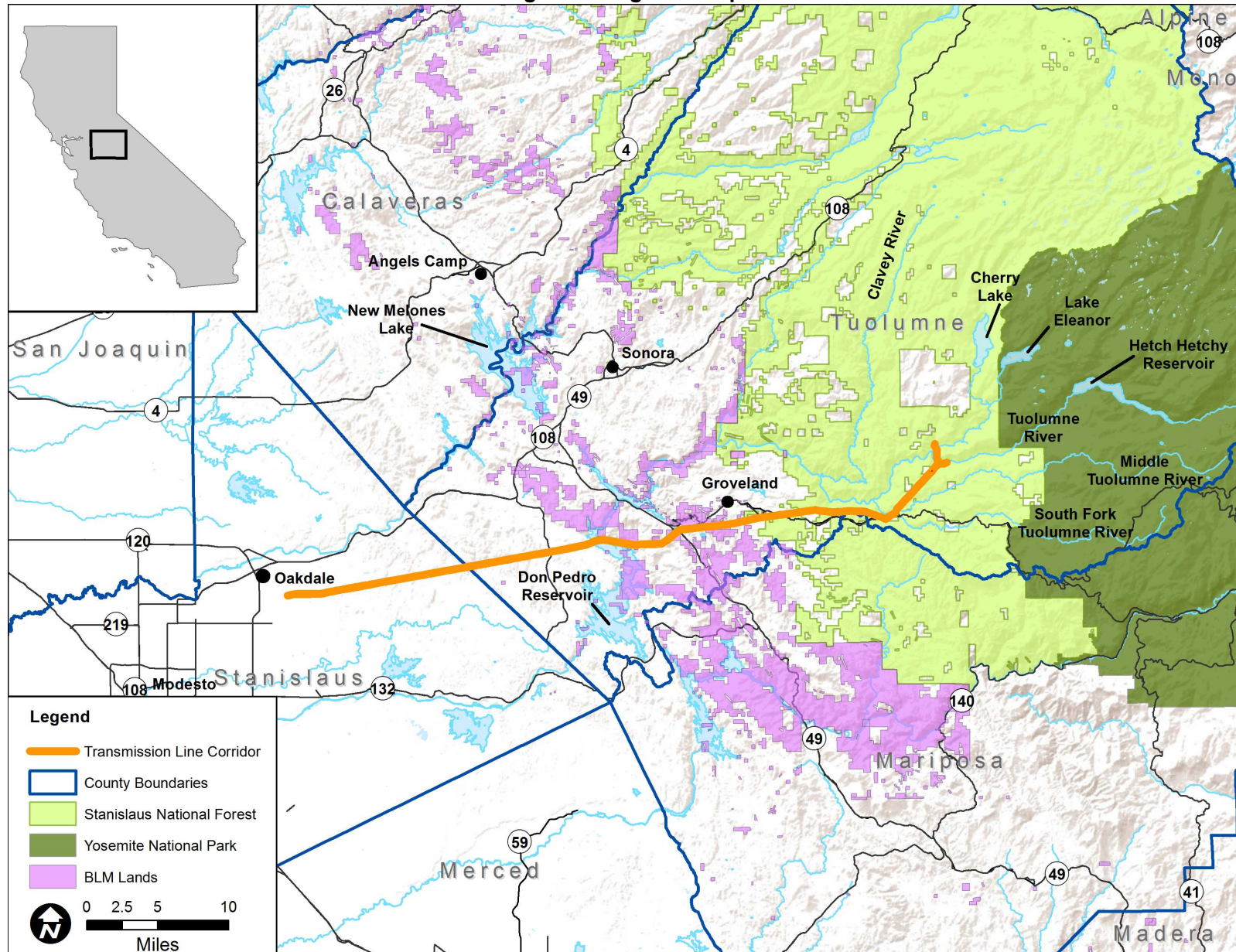
The San Francisco Public Utilities Commission (SFPUC) proposes to implement the Reliable Power Project (proposed project) for maintaining reliability of the SFPUC's electrical transmission system between the Holm and Kirkwood powerhouses and the Warnerville Substation. The project includes implementation of a long-term *transmission vegetation management program*¹ that would address the North American Electric Reliability Corporation's reliability standard (FAC-003) and other regulatory requirements that seek to minimize the risk of power outages and fires from vegetation contact with transmission lines on or near the right of way for electrical transmission lines (see Appendix A). In addition to implementation of the vegetation management program, the proposed project would include repairs and replacements for culverts associated with transmission line access roads and construction of a sand storage shed to stockpile sand for winter road treatments needed for access during winter months.

A.2. PROJECT LOCATION AND SETTING

The proposed project area includes SFPUC's transmission right of way for the 230 kilovolt (kV) transmission system located in Stanislaus County, Mariposa County, and Tuolumne County; a portion of which is within the Groveland Ranger District of the Stanislaus National Forest, in southern Tuolumne County, and a portion which is within the Central California District of the Bureau of Land Management (see **Figure 1**). The project corridor is approximately 50 miles long, extending between the Warnerville Substation, near the City of Oakdale, and terminating at the Holm and Kirkwood powerhouses, located on the Tuolumne River and its tributary, Cherry Creek. The right of way is 250 feet wide on federal lands and approximately 120 feet (varies slightly) across privately held lands. The project corridor also includes a portion of the SFPUC's 115 kV transmission system where it shares the same right of way with the 230 kV transmission system between the communities of Moccasin and Warnerville (approximately 1.6 miles). The project area also includes access roads to and along the electrical transmission right of way, as well as their respective drainage facilities. The access roads are in Stanislaus National Forest and are owned by the U.S. Forest Service and maintained by the SFPUC.

¹ SFPUC. *Hetch Hetchy Water and Power Transmission Vegetation Management Program (TVMP)*, revision 5. 2017.

Figure 1: Regional Map



The project corridor begins in Tuolumne County with the transmission lines originating at the Holm Powerhouse on Cherry Creek and Kirkwood Powerhouse on the Tuolumne River. This area is mountainous and wholly bounded by Stanislaus National Forest and contains a river-rafting facility north of SR 120 and a lodge south of SR 120. The project corridor continues southwest and generally passes through public and agricultural lands. At Colfax Spring, the project corridor intersects SR 120 and turns west.

For approximately 1 mile on each side of the SR 120 crossing, residential areas occur north of the project area. The transmission corridor crosses SR 120 once more and then exits Stanislaus National Forest. The transmission corridor passes south of Groveland, where some residential uses extend south near the transmission lines along Merrell Road and Vernal Drive. Along SR 120, southwest of Groveland, is the community of Big Oak Flat. This community contains some higher density residential areas and is 0.5 miles north of the transmission lines. The project area here is still mountainous, and land use is a mix of public, agricultural, and residential.

The project corridor next reaches Moccasin, a small unincorporated community, owned by the City and County of San Francisco, which is populated by SFPUC employees (and their families) who operate the Hetchy Hetchy water and power system.² Additional residential areas exist approximately 0.5 miles north of the power transmission line corridor, just northwest of Moccasin. West of Moccasin, the transmission lines pass through approximately 4 miles of agricultural and Bureau of Land Management lands before reaching the Don Pedro Reservoir. The Don Pedro Reservoir is maintained by Turlock Irrigation District and covers approximately 13,000 acres. The project corridor crosses the northern end of Don Pedro Reservoir and continues through approximately 4.5 miles of agricultural lands before crossing into Stanislaus County.

The project area in Stanislaus County is located entirely on agricultural and ranching land, and no land uses besides agriculture and ranching occur within 1 mile of this portion of the project area. The project corridor extends roughly west-southwest through Stanislaus County, for approximately 11.5 miles, before reaching its western terminus at the Warnerville Substation, as shown on **Figure 2A**. The project corridor passes through privately-owned agricultural lands as well as publicly-owned lands. Land uses in the Stanislaus County portion of the project area consist of dairy farm operations, ranchland, orchards, and undeveloped land. The Warnerville Substation is located approximately 1.5 miles southeast of the City of Oakdale, in Stanislaus County. The Oakdale Airport is approximately 0.5 miles north of the Warnerville Substation.

A.3. BACKGROUND

A.3.1. SFPUC Electrical Transmission

The 1913 Raker Act³ authorized the Secretary of the Interior to issue rights of way (easements) over National Park, National Forest, and unclassified public lands to the City and County of San Francisco for purposes of constructing, operating and maintaining the Hetch Hetchy Water and

² SFPUC, Currents, (Sep/Oct 2012), Available at <http://www.sfwater.org/Modules/ShowDocument.aspx?documentID=2579>, accessed February 11, 2017.

³ 38 Statutes at Large 242 (<http://legisworks.org/sal/38/stats/STATUTE-38-Pg242.pdf>)

Power Project. The Hetch Hetchy Project today supplies water to the City of San Francisco and surrounding Bay Area communities, as well as power for municipal purposes in San Francisco. Hetch Hetchy power facilities include three hydroelectric generation facilities and associated electrical transmission lines. Hydroelectric power generation is driven by gravity flow from two primary reservoirs: Hetch Hetchy in Yosemite National Park and Cherry Lake in Stanislaus National Forest, which feed into the Kirkwood and Holm powerhouses, respectively. The power is then delivered using City-owned transmission lines within its 168-mile right of way to the city of Newark in the Bay Area, following which the power is passed through to San Francisco using power transmission lines owned and operated by Pacific Gas and Electric Company (PG&E).

The SFPUC owns and operates two independently operated high voltage systems: the 115 kV transmission system and the 230 kV transmission system. The 115 kV transmission system (lines 3 and 4) extends 98.5 miles from Moccasin to the PG&E Newark Substation, and was constructed from 1923-1924. The 230 kV transmission system extends 168 miles from Early Intake Switchyard via Moccasin to Warnerville Substation near Oakdale.⁴ The 230 kV transmission system consists of lines 5 and 6 (constructed by 1960), lines 1 and 2 from Holm Powerhouse to Intake Switchyard (constructed by 1959), and lines 9, 10, and 11 from Kirkwood Powerhouse to Intake Switchyard (constructed by 1965).

The SFPUC transmission line rights of way were initially cleared of vegetation prior to construction of the transmission lines. This was done for construction purposes, for fire prevention, and to meet the terms of the Raker Act (section 4 states that the, "Grantee shall clear its rights of way of debris and inflammable material"). For the 230 kV transmission system, the right of way was cleared in the late 1950s and early 1960s. For the portion of the 115 kV transmission system included in the project, vegetation clearing occurred by 1925. Previous vegetation management in the rights of way occurred on a relatively unsystematic, as-needed basis, without formalized programmatic inspection and treatment planning. Since the initial clearing of the transmission line corridors, the SFPUC has undertaken intermittent vegetation management activities like those proposed as a part of this project, including tree removals, shredding, trimming and pruning vegetation, and removal of dead trees. Vegetation management and maintenance of the transmission lines also requires vehicle and equipment travel along access roads within and outside of rights of way over public and private lands. The Raker Act authorizes the SFPUC to construct and maintain necessary access roads and trails through public lands for the operation and maintenance of its water and power facilities.

A.3.2. Reliability Requirements

Requirements for electrical power transmission system reliability were developed after the Northeast Blackout of August 14, 2003, a massive power outage triggered when energized transmission lines came into contact with vegetation. The outage affected 55 million people in the United States and Canada and prompted a federal investigation. As part of the investigation, the

⁴ SFPUC. 2005. *A History of the Municipal Water Department & Hetch Hetchy System*.

Federal Energy Regulatory Commission prepared the *Utility Vegetation Management Final Report*,⁵ which concluded that the blackout could have been prevented by appropriate pruning or removal of trees that conflicted with the affected power lines. The report advised substantial improvements to vegetation management policies and recommended oversight and enforcement of vegetation management, which prompted the Federal Energy Regulatory Commission to amend the Federal Power Act to include reliability standards (United States Code §§ 792 et seq., amended 2005). The North American Electric Reliability Corporation is the electric reliability organization certified by the Federal Energy Regulatory Commission to establish and enforce reliability standards for the Bulk Power System.⁶

The North American Electric Reliability Corporation provides the oversight for many reliability standards including the FAC-003 *transmission vegetation management program*. This reliability standard (FAC-003) is the primary driver for the project. FAC-003 applies to all transmission lines operated at 200 kV and above and requires transmission owners and/or operators to have a vegetation management program for these transmission lines. Therefore, the vegetation management program primarily pertains to the 230 kV transmission system. However, the vegetation management program will also be applied to a portion of the 115 kV system where it shares the same right of way with the 230 kV system between Moccasin and Warnerville.

The purpose of FAC-003 is to improve the reliability of electric transmission systems through the management of vegetation along rights of way. More specifically, FAC-003 addresses the primary cause of vegetation-caused outages: vegetation to conductor (i.e., transmission line) contacts. The standard includes requirements regarding organizational goals and objectives, planning and implementation, work specifications, practices and procedures, inspection types and frequency, clearance distances, timing of maintenance activities, personnel and training, and ongoing data collection, analysis, tracking, and documentation. In addition, utilities can incur penalties and fines for deficiencies in meeting the requirements of the standard and outages that are determined to be vegetation related. FAC-003 is a self-reporting standard and is subject to revisions. The standard continues to undergo evaluation and modifications by the North American Electric Reliability Corporation and the utility industry to ensure maximum reliability of the *bulk electric system*.⁷ It is anticipated that some revisions to FAC-003 would occur during the life of the proposed project. Future revisions are not expected to substantially alter the intent of the standard nor significantly alter the proposed project. If future revisions do differ substantially, they would be further evaluated at that time.

⁵ FERC, *Utility Vegetation Management Final Report*, March 2004. This document (and all other documents cited in this report, unless otherwise noted) is available for review at 1650 Mission Street, Suite 400, San Francisco, CA, as part of Case No. 2016-006868ENV.

⁶ NERC, *Glossary of Terms Used in NERC Reliability Standards*, Updated February 7, 2017. Available at: http://www.nerc.com/files/glossary_of_terms.pdf, accessed February 22, 2017. The bulk power system refers to facilities and control systems necessary for operating an interconnected electric energy supply and transmission network (or any portion thereof), and electric energy from generating facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy. Note that the terms “bulk-power system” or “bulk electric system” shall have the same meaning.

⁷ Ibid.

In February 2011, SFPUC published the Hetch Hetchy Regional Water System North American Electric Reliability Corporation Reliability Standard FAC-003 *transmission vegetation management program*. In July 2011, SFPUC officially registered with the North American Electric Reliability Corporation as a transmission owner.

A.3.3. Recent Fires

The project area traverses the remnants of several significant forest fires in the last two decades, including the Early Fire, the Pilot Fire, and the Rim Fire. These fires are responsible for the greatest changes to vegetation in the recent past.

The Early Fire started in August of 2004. The origin of the fire was located near SFPUC facilities in the Early Intake area. The fire covered 1,700 acres and burned through portions of the Kirkwood, Holm and Intake/Cherry right of way management units.

The Pilot Fire burned 4,000 acres near the community of Buck Meadows in 1999. The fire spread along the Middle Fork of the Tuolumne River to the Northeast and was contained near the rim of the Tuolumne River canyon. The fire burned stands of mixed conifer forest, oak, and large areas of chaparral and manzanita. In addition, the fire burned older plantations of ponderosa pine. The Pilot Fire burned through portions of the Mather/South Fork, Rim of the World, and South Fork Ferretti right of way management units.

The Rim Fire is the most recent of the fires and started on August 17, 2013, in a remote area of the Stanislaus National Forest near the confluence of the Clavey and Tuolumne Rivers about 20 miles east of Sonora, California. Over several weeks, it burned 257,314 acres, including 154,430 acres of National Forest System lands. The fire substantially altered the landscape of the burned area, including killing or severely damaging trees within the SFPUC transmission right of way and drainages. As part of the immediate recovery efforts, the Burned Area Emergency Response was implemented, which included, but was not limited to, restoring drainages, removing hazard trees (trees that have the potential to cause death, injury, or property damage if they fail⁸) to reduce the risk to public safety, and repairing roads and trails. Following the Burned Area Emergency Response actions, multiple Rim Fire recovery and restoration projects have been implemented, including the removal of hazard trees and salvage of dead trees. As required by Raker Act right of way stipulations, the SFPUC also took emergency actions following the Rim Fire including removing hazard trees within and adjacent to the transmission right of way.⁹ The intensity of the

⁸ Peter A. Angwin, Daniel R. Cluck, Paul J. Zambino, Brent W. Oblinger and William C. Woodruff. April 2012. Forest Health Protection, Pacific Southwest Region, Report # RO-12-01. Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region.

⁹ The approved Raker Act right of way for the transmission lines across Stanislaus National Forest lands include the following stipulation: "The Grantee shall clear designated portions of the power line right of way and keep them clear as required by the Forest Supervisor or his delegatee; shall trim all branches of trees in contact or near contact with the line; and on or adjacent to the right of way shall remove all dead snags and all trees leaning toward the line, which are deemed hazardous or might fall in contact with the line, and shall observe such other precautions against fire as may be required by the Forest Supervisor or his delegatee." (Right of way agreement between U.S. Department of the Interior and City and County of San Francisco, U.S. Forest Service Stipulations, Sacramento Serial Nos. 010130 and 010131, dated November 29, 1957)

Rim Fire devastated the previously existing vegetation, destroying nearly all the trees, shrubs, and other vegetation within the burn area. A more detailed description of the current vegetation and biological conditions can be found in the Section E.13 – Biological Resources.

B. PROJECT SETTING

B.1. PROJECT OBJECTIVES

The proposed project would include long-term vegetation management activities of the SFPUC transmission right of way between Warnerville Substation to the Holm and Kirkwood powerhouses to address the North American Electric Reliability Corporation's reliability standards and other regulatory requirements. The SFPUC developed the vegetation management program to comply with the North American Electric Reliability Corporation's transmission vegetation management standard (FAC-003) to minimize the risk of power outages from vegetation contact with transmission lines on or near the right of way by requiring minimum clearances between transmission lines and vegetation. The standard generally applies to all transmission lines operated at 200 kV and above. Therefore, the vegetation management program primarily pertains to the 230 kV transmission system. However, management of the entire right of way between Early Intake and Warnerville will also be based on the vegetation management program, including any shared right of way. In addition to implementation of the vegetation management program, the proposed project would include maintenance and replacements of drainage facilities (primarily culverts) associated with transmission line access roads, and construction of a sand storage shed to store sand for placement on transmission line access roads during winter months.

The primary objective of the proposed project is to ensure reliable electrical transmission service to customers. Specific project objectives include:

- Improve the reliability of the electrical service to customers by reducing the risk of vegetation-related outages
- Comply with the North American Electric Reliability Corporation's Reliability Standard FAC-003
- Ensure vehicle access to the transmission line right of way for vegetation management, repairs and maintenance through the following activities:
 - Maintenance and replacements of road drainage facilities (primarily culverts); and
 - Construction of a sand storage shed to facilitate application of sand on access roads thereby maintaining safe vehicle access to the transmission line right of way for repairs and maintenance during winter months

B.2. PROJECT COMPONENTS

The project components include the following:

- Long-term vegetation management activities, as outlined in the *transmission vegetation management program*;
- Maintenance, repair, and/or replacement of drainage facilities and culverts on access roads to the transmission right of way, as needed; and
- Construction of a sand storage shed on Intake Hill.

These components are shown in **Figures 2A through 2D** and discussed below.

B.2.1. Transmission Vegetation Management Program

The *transmission vegetation management program* establishes the strategies, procedures, processes and specifications for vegetation management within the SFPUC transmission right of way subject to the reliability standards FAC-003. Vegetation contact with power lines is one of the most common causes of electrical outages on distribution systems and can initiate transmission grid failures that result in blackouts.¹⁰ Vegetation can cause electric service interruptions when it contacts or comes sufficiently close to overhead high-voltage conductors to create an arc. High winds or high temperatures and heavy snow or ice buildup that causes the conductors to sag could contribute to conflicts between vegetation and conductors. During dry conditions, vegetation contact with electric conductors can cause wildfires. The goal of the vegetation management program is to improve the reliability of the electrical service to customers by preventing the risk of vegetation-related outages. The vegetation management program also provides additional benefits, including reducing the risk of wildfire. The right of way would be managed using the *wire zone-border zone* approach, which is based on the research of Dr. William Bramble and Dr. William Byrnes.¹¹ Throughout the right of way the focus of vegetation management is to promote and move toward more sustainable vegetation types. In the wire zone, the specific goal is low-growing plants, such as shrubs, forbs, and grasses. In the border zone, the goal is forbs, grasses, shrubs, and small trees less than 25 feet tall. The combination of the two zones will approximate an oak woodland vegetation type (see **Figure 3**).

¹⁰ International Society of Arboriculture (ISA), Best Management Practices: Integrated Vegetation Management on Electric Utility Rights-of-way. Companion publication to ANSI A300 Part 7 - Tree, Shrub, and Other Woody Plant Maintenance - an Integrated Vegetation Management. Electric Utility Rights-of-way, 2007.

¹¹ The wire zone-border zone approach calls for management of vegetation to be divided into zones based on proximity to transmission lines and managed to optimize the safe reliable transmission of electricity while also promoting habitat, biodiversity, and other benefits. Additional information can be found in the study listed below, as well as other similar sources.
Ballard, B.D, K.T. McLoughlin, and C.A. Nowak. 2007. *New Diagrams and Applications for the Wire Zone-Border Zone Approach to Vegetation Management on Electric Transmission Line Rights-of-Way*. Arboriculture & Urban Forestry 33(6): 435-439.

Figure 2A: Reliable Power Project Alignment

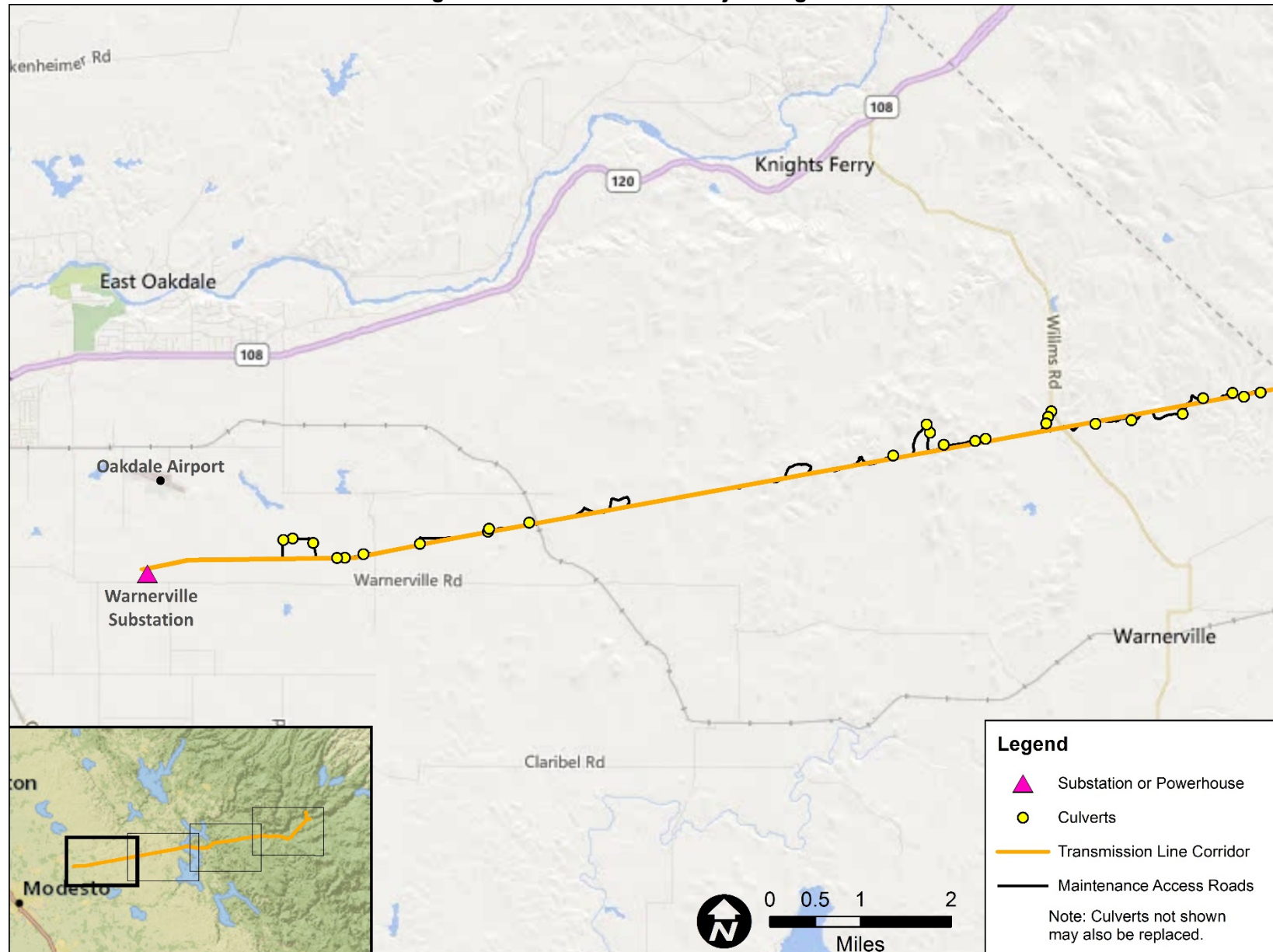


Figure 2B: Reliable Power Project Alignment

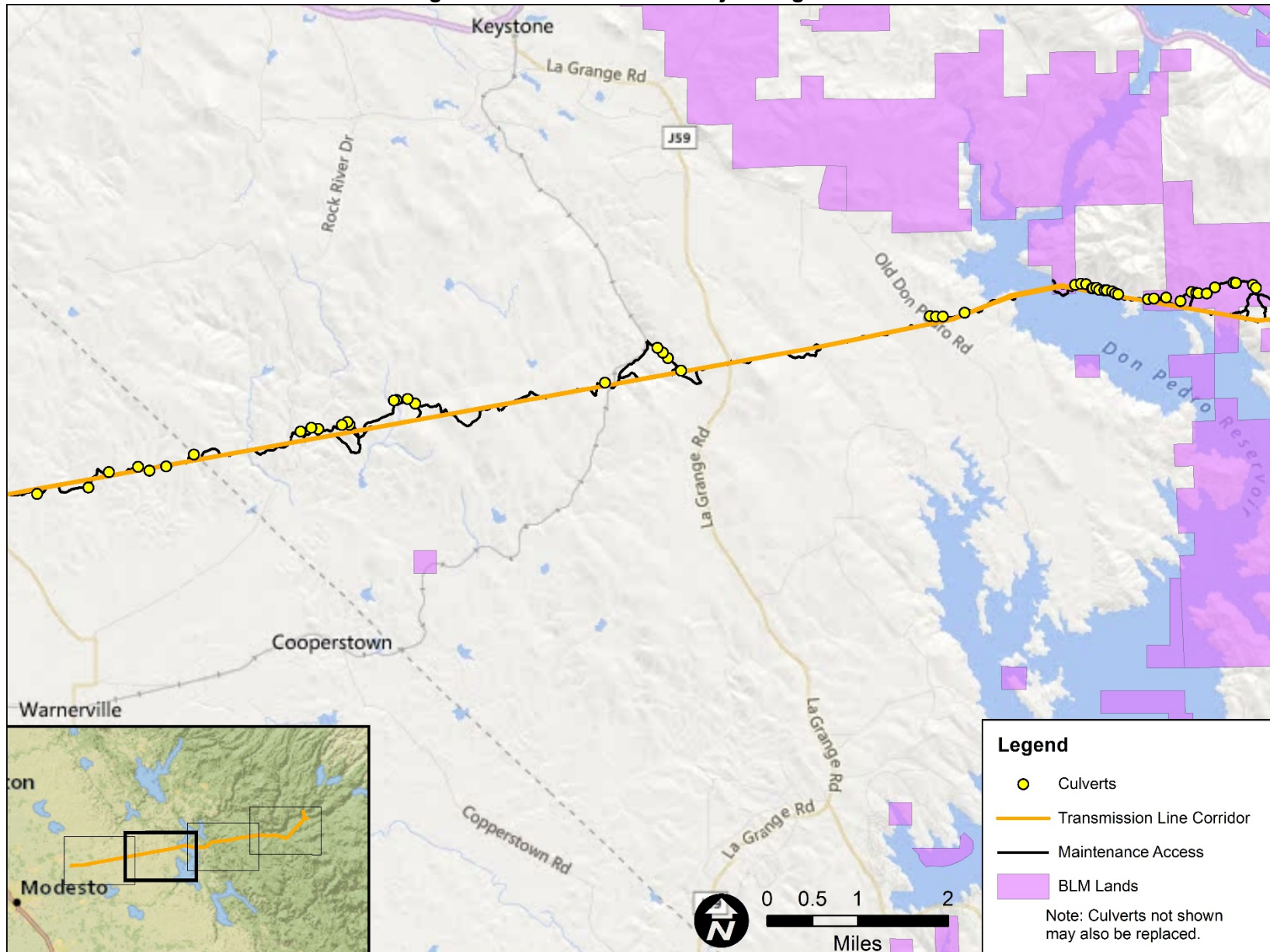


Figure 2C: Reliable Power Project Alignment

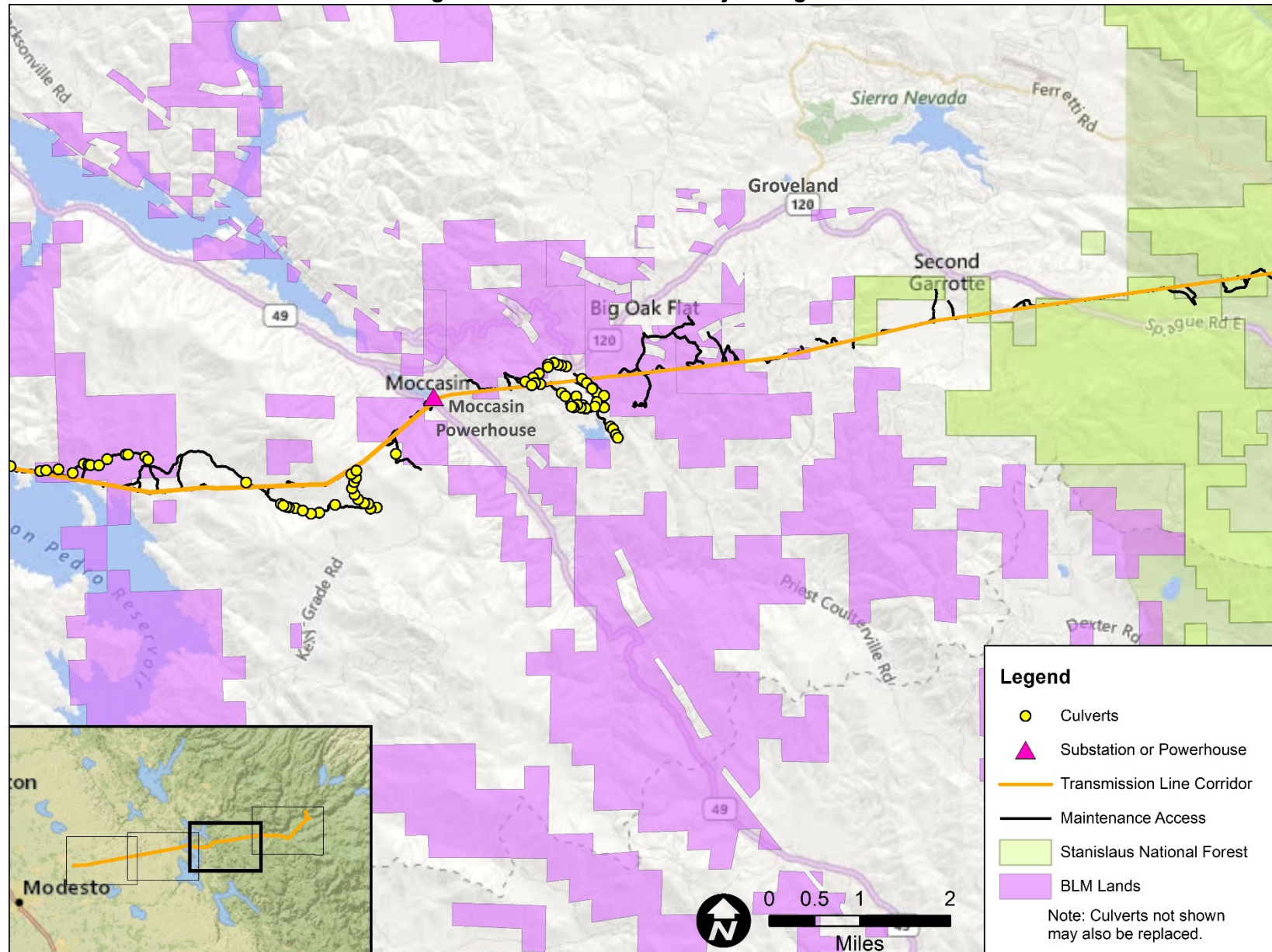


Figure 2D: Reliable Power Project Alignment

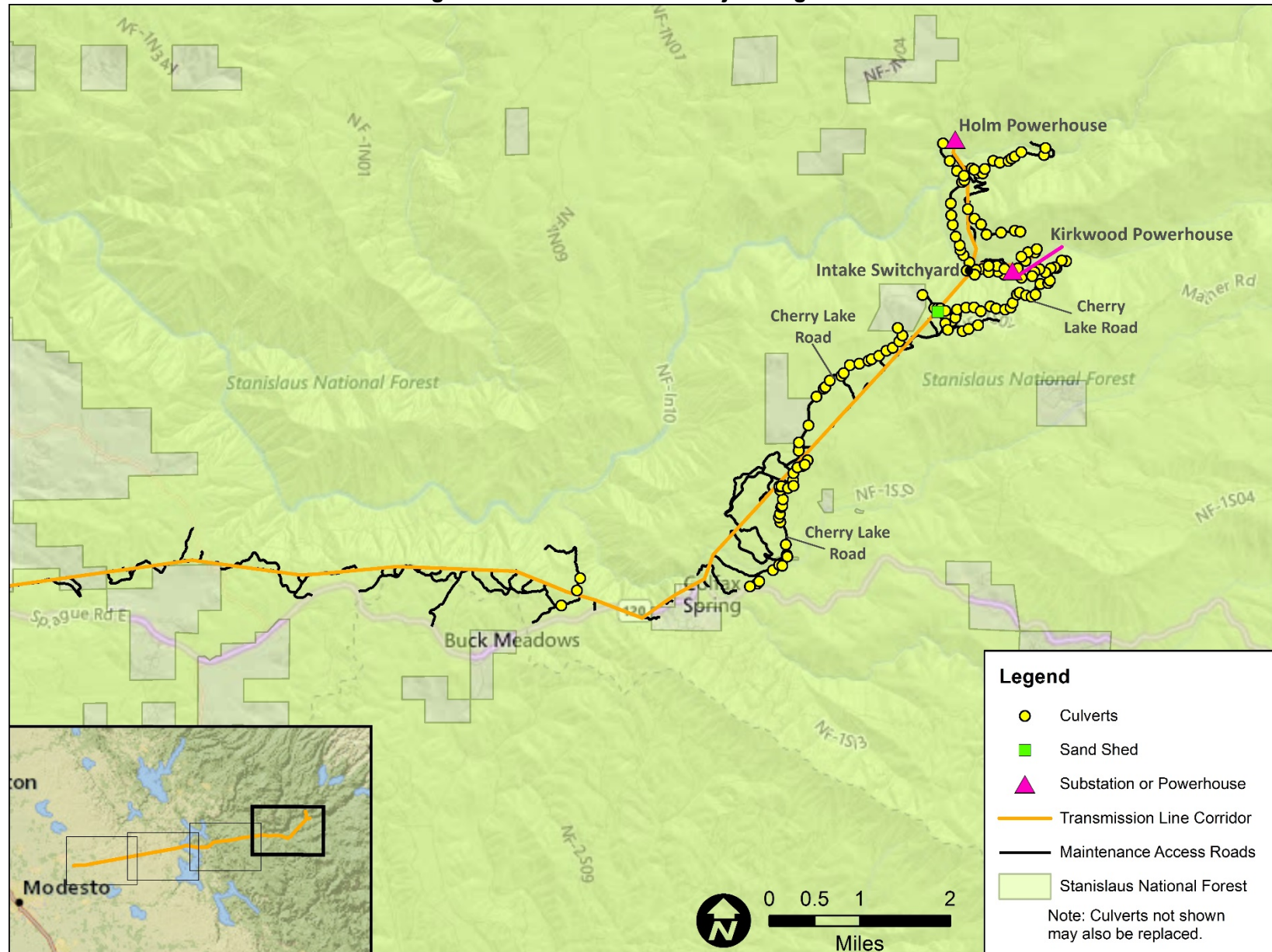
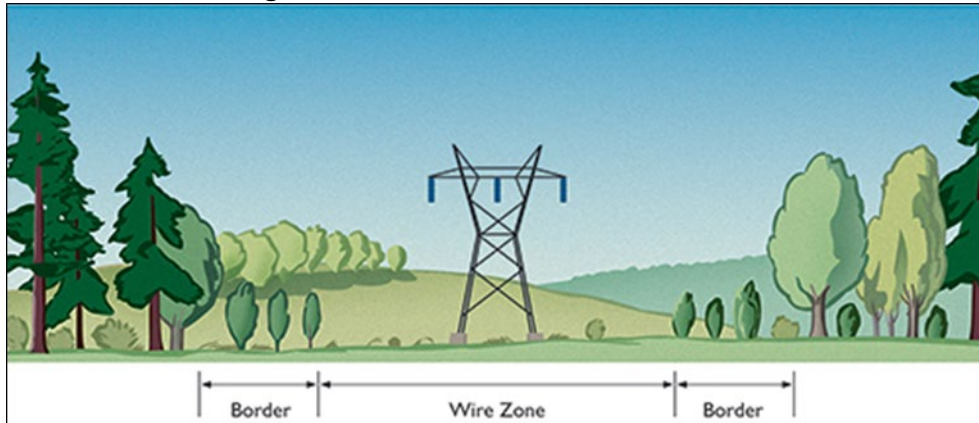


Figure 3: Transmission Corridor Zones



The wire zone consists of the area directly beneath the electrical conductors and 10 feet to either side of the conductors and makes up approximately 66 feet of the SFPUC transmission system right of way width. The border zone extends approximately 92 feet on both sides of the wire zone along the Raker Act right of way (through federal lands) and 27 feet on both sides of the wire zone along rights of way acquired as easements from private landowners.

In the wire zone, the goal is to manage vegetation to create an area filled with shrubs, grasses, other low-growing vegetation. The border zone is where taller vegetation including some shrubs and small trees would be allowed to grow. Finally, forest areas with tall trees would be allowed to grow surrounding the border zones. This combination of low plant cover in the wire zone with shrubby border zones transitioning to forest areas promotes habitat for diverse species of wildlife while optimizing the safe and reliable transmission of electricity.¹²

Under current vegetation management practices, vegetation control treatments to maintain these vegetation types in the wire zone and border zones are identified, evaluated, and prescribed through the SFPUC's existing integrated vegetation management^{13,14} process approximately every five years. Prescribed treatments are then available for implementation through the planning cycle. Timing of implementation is at the discretion of the right of way manager and may or may not occur before the end of the Integrated Vegetation Management planning five-year cycle. Upon completion, the vegetation management process is repeated to identify and evaluate effective treatments based on outcomes of prior cycles and new treatments with the overriding objective of promoting compatible vegetation structure that does not interfere with providing reliable power transmission.

Vegetation management activities associated with the proposed project would be similar to current and historic vegetation management activities; however, the overall approach would differ in that activities would be proactively planned and undertaken in a systematic manner. The vegetation management program would proactively maintain low plant cover within the

¹² Ibid.

¹³ Hetch Hetchy Water and Power. Transmission Vegetation Management Program, Revision 5. 2017.

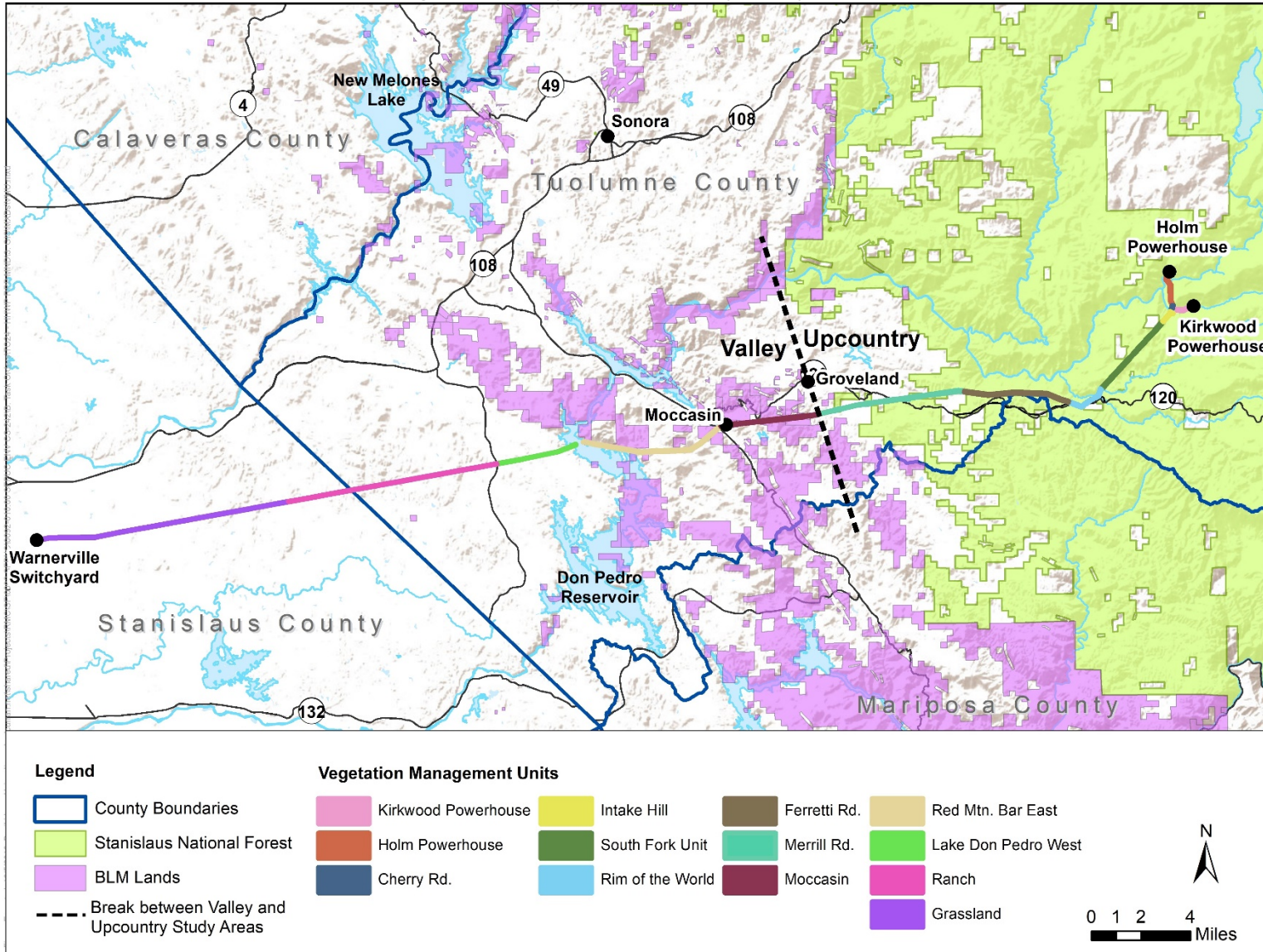
¹⁴ SFPUC. Integrated Vegetation Management Policy, Amended January 2015.

transmission right of way wire zone, with taller vegetation in the border zone, transitioning to the forest area. The goal of the program is that with each successive cycle, vegetation structure on the right of way would move closer toward increasing compatibility with the electrical transmission system. Therefore, treatment would be expected to diminish in magnitude and extent for each successive cycle in many areas. Eventually, the frequency of treatments would be expected to occur on a longer treatment cycle (it is anticipated that after approximately four cycles, the treatment cycles could extend to every 10 years).

The *transmission vegetation management program* consists of 13 distinct vegetation management units, which have different vegetation types and management goals. The vegetation management units are shown in **Figure 4**. Generally speaking, the regional vegetation goals for the proposed project are as follows:

- In the Upcountry area (**Figure 4**), which extends from the higher elevation eastern end of the project corridor to Merrell Road, the habitat is largely coniferous woodland. In this area, the objective is to promote compatible vegetation structure (such as shrubs and grasses) in the right of way. These community phases would be comprised of grasses, forbs, low-growing, prostrate shrubs, and low-growing trees, typically broadleaved species such as oaks, maples, and dogwoods. In early cycles, tree removals would be required upcountry, but eventually only weed-eating, chemical treatment, or lopping would be the likely treatments.
- In the Valley area (**Figure 4**), which extends from Merrell Road to the western end of the project corridor, the objective is to maintain agricultural grasslands through cultural treatment (allowing grazing or row crops to occur under the lines if permitted under the terms of the underlying easements). Conformity has already largely been achieved in this area, and treatments are expected to be limited.
- In the transmission areas where vegetation zones transition between upcountry and the valley (Moccasin and Red Mountain Bar East vegetation management units), the objective is to promote oak savannah communities within the right of way, comprised of open grass-dominated understories with scattered, low-growing oaks. Conformity has largely already been achieved in this area. Treatments will largely include hand-lopping volunteer hardwoods, pruning adjacent to line, and applying herbicides to cut stumps.

Figure 4: Valley and Upcountry Study Areas



A brief description of the key steps in the transmission vegetation management process is provided below:

1. **Define Objectives.** Objectives are clearly defined and documented. Objectives are based on various site factors, including site-specific conditions (e.g., geography, transmission system) as well as utility resources (e.g., equipment and financial). Where appropriate, the overriding focus should be on environmentally sound, cost-effective control of plant species that potentially conflict with the electric facility, while promoting compatible, early successional, sustainable, vegetation types.
2. **Evaluate Sites.** Site evaluations are used to assess field conditions for planning purposes. During site evaluations, operations crews assess vegetation conditions and site attributes to determine the best vegetation treatment for each span. Site evaluations are conducted every five years and are different from vegetation management program inspections in that they identify factors beyond just vegetation conditions relative to the conductors. Site evaluations identify safety concerns, voltage and criticality, height of the wire from the ground, fire risk, and environmentally sensitive areas.
3. **Define Action Thresholds.** Action thresholds are vegetation height and density targets that trigger specific control methods. Minimum clearances are established; they must be sufficient to prevent flashover or electric short circuit between trees and conductors, considering the combined movement of vegetation and conductors in high wind and sagging of conductors due to elevated temperatures or icing.
4. **Evaluate and Select Control Methods.** Control methods are the tools through which managers achieve objectives. Control methods include the following and are discussed in detail below:
 - Manual Control: Control of vegetation using hand tools and hand-operated power tools.
 - Mechanical Control: Control of vegetation using equipment-mounted saws, mowers, or other devices.
 - Cultural control: Control of vegetation through the establishment of compatible stable vegetation or the use of mulching or other managed landscapes.
 - Biological control: Control of vegetation using plants, animals, insects, or pathogens.
 - Chemical Control: Control of vegetation using herbicides.
 - Tree Removals: Removal of hazard trees (trees capable of falling and contacting electric conductors) by directional felling and skidding with tractors.

Control methods are selected based on site-specific conditions and to promote management objectives and are further described below.

5. **Implement Control Methods.** Control methods are implemented on a regular basis based on established objectives and completed assessments. Control treatments are prioritized, scheduled, and implemented by the right of way manager according to site conditions, staffing levels, and budgeting.
6. **Monitor Treatment and Quality Assurance.** Monitoring is implemented to determine if the work has been completed to specifications and the objectives of the vegetation management program have been achieved. Records are maintained to document the outcome of the control methods.

Control Methods

Control methods that would be employed for vegetation management along the existing transmission line are further described below. These methods have been utilized in an ad-hoc, as-needed basis since the transmission system was first constructed. Implementation of the vegetation management program would formalize the process for determining treatment types, locations, and timing to address the North American Electric Reliability Corporation's reliability standard (FAC-003) and other regulatory requirements that seek to minimize the risk of power outages and fires from vegetation contact with transmission lines.

Manual Control

Manual control includes treatments such as grubbing, lopping, and pruning with hand-held equipment (e.g., hoe, loppers, pruning shears, hand saws, chain saws, and weed eaters). All pruning would be consistent with ANSI A300 (Part 1) - Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning).¹⁵

In general, manual treatment is used in areas where topography (i.e., steep slopes) restricts use of mechanical equipment or where there are nearby sensitive natural or cultural resources. Manual control would involve a crew of approximately two people conducting treatment at any one location; multiple crews may be used depending on staff availability. Staff would access project sites by vehicles via existing roads or along the right of way, and on foot.

Clearing vegetation from around tower footings can best be achieved by using weed eaters. A crew of two can treat up to six towers a day depending on the amount of vegetation present.

Pile burning, which would occur a minimum of 50 feet away from the centerline of the wire zone, would be performed in accordance with Title 17 of the California Code of Regulations, Smoke Management Guidelines for Agricultural and Prescribed Burning (Subchapter 2)¹⁶ as required by the California Air Resources Board. These regulations limit prescribed burning only during no-

¹⁵ ANSI A300 (Part 1)-2017 Pruning, Revision of ANSI A300 (Part 1)-2008 (R2014). Tree, Shrub, and Other Woody Plan Management – Standard Practices (Pruning).

¹⁶ California Code of Regulations, Title 17, Subchapter 2, Smoke Management Guidelines for Agricultural and Prescribed Burning. Available at <https://www.arb.ca.gov/smp/regs/RevFinRegwTOC.pdf>, Accessed June 7, 2017.

burn days, specify the need for a permit to conduct burning activities, and require submittal of a burning report.

Mechanical Control

Mechanical controls include treatments that employ the use of mechanized equipment. Mowing, shredding, pruning, and shearing can all be completed with specialized equipment. Shredding, also known as mastication, is the most effective and efficient treatment in open areas dominated by shrubs.

Shredding would be conducted in the wire zone and other locations within the right of way where brush is the dominant ground cover. Shredding is performed by travelling across the ground with equipment mounted on tracks usually equipped with a drum-mounted rotary head. The mulch generated from the shredding would be left on site and would provide additional benefits, including erosion control and slowing re-vegetation. Leaving the mulch on site would stabilize the soil and prevent loose soil from being transported off site during rain events. The composition of the mulch tends to provide enough variation in piece size to keep the material in place and prevent off-site movement. In addition, the mulch composition includes finely ground woody debris that mixes with freshly disturbed soil and acts as a sponge to soak up rain and prevent concentrated runoff.

The promotion of grasses and forbs would be achieved by removing shade and exposing buried seed to conditions necessary for germination such as scarification and freeze-thaw action. Shallow-rooted brush species are often dislodged or uprooted by the shredding process, leaving room for low-growing grasses and forbs to invade and reoccupy the site. Shredding would also be used in the border zone to remove thickets of conifer saplings and release black oak and other hardwood species from competition by conifers.

Mechanical pruners provide an efficient low-impact method of pruning overhanging limbs. Mechanical pruners are self-propelled and either mounted on rubber tires or low-ground pressure tracks. Pruning would also be achieved using more conventional mechanical equipment such as the bucket truck. Use of a bucket truck is more practical in locations where overhead obstacles and other factors require greater control of site conditions. While these treatments are focused on standing trees adjacent to power lines, mowing is useful to mechanically control vegetation underneath the power lines.

Mowing is a widely accepted practice in the utility industry. In future integrated vegetation management cycles, mowing would be used in the wire zone to maintain existing sustainable vegetation types. In addition, mowing would be used to treat areas being re-invaded by conifer saplings.

Mechanical control techniques require one or two laborers to support a single piece of equipment, allowing several crews to work simultaneously in different locations. Due to limited equipment availability, only approximately two crews are expected to be working at any one time.

Chemical Control

Limited use of herbicides would be used to manage noxious weeds, invasive plants, and/or incompatible species prone to re-sprout and with life history known to result in conductor contacts. Chemical control involves application of specific herbicide products to control noxious weeds, non-native invasive plants, and incompatible vegetation under transmission lines. Application of chemicals would occur by hand only, with backpack sprayers. The application of herbicides is integral to the proposed integrated vegetation management program and is considered a best management practice under the ANSI A300 standard.¹⁷

The use of herbicides on SFPUC property and/or the rights of way is strictly controlled by the City and County of San Francisco. Implementation of the vegetation management program would be subject to San Francisco's Integrated Pest Management Ordinance (Chapter 3 of the San Francisco Environment Code), which applies to City-owned property including transmission line rights of way. The City's pest management ordinance restricts the use of pesticide to products included on a reduced risk pesticide list; and establishes requirements for allowing exemptions to the reduced risk pesticide list, posting and notification for pesticide treatments, recordkeeping (including necessary data), and accountability.¹⁸ Under this ordinance, pesticides are to be used only as a last resort as part of an integrated program such as the proposed vegetation management program and must be used in a manner consistent with the limitations described on the reduced risk pesticide list and U.S. EPA label. In accordance with the City's pest management ordinance, all products must first be approved and authorized by the City for their specific application. All state and federal pesticide regulations shall be followed during herbicide application. In addition to use of herbicides to control noxious weeds, non-native invasive plants and incompatible vegetation under transmission lines, targeted application of herbicides on trees within the wire zone (e.g., oak saplings and hardwood regeneration) would be conducted on individual trees along the right of way. The ordinance requires a written recommendation from a licensed pest control advisor for any use of herbicides.

Individual plant treatments would be employed in the wire zone to treat incompatible plants such as problem stumps, hardwood volunteers along with non-native invasive and noxious weeds. Individual plant treatments include two cut-surface treatments and a low-volume basal treatment. Cut surface treatments include cut-stump application and hack-and-squirt¹⁹ application. All herbicide applications would be conducted as per recommendations from the pest control advisor in a manner that avoids drift and splatter and ensures any nearby sensitive species would not be damaged. Broadcast applications would not be used. In windy conditions non-target plants would be protected by a barrier such as a piece of plywood or plastic bucket placed over the desirable plant.

¹⁷ ANSI A300 (Part VII)-2012 Integrated Vegetation Management (IVM).

¹⁸ City and County of San Francisco, San Francisco Environment Code Chapter 3: Integrated Pest Management Program, enacted in October 1996, revised in 2011.

¹⁹ Hack-and-squirt method, also known as frill application, is a manual chemical application method where a cut is made into the living tissue or sapwood of a tree and herbicide is injected or sprayed into the cut.

Cultural Control

Cultural control methods modify habitat to discourage incompatible vegetation and establish and manage desirable vegetation types. The promotion of specific vegetation types within the wire and border zones is a form of cultural control. Cultivated landscapes of compatible plants and certain agricultural crops are cultural controls.

Biological Control

Biological control would involve the use of grazing or browsing animals, including goats, to control vegetation – primarily shrubs and small trees. The use of goats is particularly effective on steeper slopes where equipment use may be difficult or pose a safety risk to staff.

Tree Removals

Typically, within the right of way, conifers that have grown tall enough to fall in to the conductors (strike zone) are considered hazards and would be removed. Outside the right of way, conifers within the strike zone of the conductors would be documented and monitored. Upon discovery of hazard tree conditions (such as bark beetle attack, lightning strike, or disease), the tree would be removed. Mature hardwoods would be retained (unless determined to be hazardous) and pruned to grow away from the conductors.

Conventional ground-based tree removal methods would be used to remove hazard trees. Using hand tools or mechanical tools, trees would be felled at an angle or parallel with the right of way. Skidding (the process of pulling cut trees to the loading area) and loading of trees onto trucks would occur within the right of way. Once felled, the trees would be bucked (cut into specific commercial lengths) and limbed (i.e., branches would be removed). Limbs would be piled and burned or scattered on the forest floor. In rare instances, if there is a significant amount of bare soil remaining, soil stabilization (mulching) may be performed. Stumps and root wads would be left in situ.

For hardwood trees (not conifers) within the wire zone, stumps of previously removed trees and new volunteers would be treated by chemical control as described above to prohibit regrowth. In other locations, felled trees would be either removed from the forest wherever possible or left in place without further treatment if removal is not possible (e.g., in remote areas). These trees may be removed by landowners for collection or firewood sales.

Helicopter use is expected to be limited but may be required in certain instances, such as where trees cannot be accessed by wheeled and/or tracked equipment or where there are sensitive natural or cultural resources that restrict access (e.g., removing trees that would require driving across a wetland). The tree fellers would hike in to these locations, manually cut the trees, attach chains to the trees, and mark them. The helicopter would then be able to identify the flagged trees from the air, pick them up, and fly them to an existing nearby landing (typically within a quarter of a mile) for staging and eventual transport to a lumber and/or chipping facility. Helicopter use would generally be limited to weekdays between 7 a.m. and 6 p.m.

B.2.2. Culvert Maintenance, Repair, and Replacements

There are over 1,000 culvert crossings associated with transmission line access roads. Inspections would occur on an approximately three- to five-year cycle, or as needed, to determine what maintenance, repair, or replacement is required for these culverts.

Maintenance of the culverts would include manually clearing the culvert and the water course above and below the pipe inlet and outlet (of debris, vegetation, sediment), cleaning out catch basins (of sediment) with a backhoe, repairing or improving energy dissipaters (e.g., installation of riprap), erosion controls (i.e., installation of jute, rock, hydromulch), and weed removal in front of culverts to prevent sediment accumulation. Maintenance activities would be confined to areas of previous disturbance, including both vertical and horizontal extent.

A preliminary inspection of all the culverts conducted in 2011 identified approximately 275 throughout the project area that require repair or replacement based on their condition at that time. Additional culverts may also be identified that require repair. Some of the existing culverts may be undersized and would not maintain the integrity of the roads during 100-year or greater storm events. In large storms, water would be expected to flow over the road and could cause erosion where culverts are currently undersized, which could compromise the culvert and associated access road. During large storm events, some of these roads may become unusable or may be unsafe for passage. In addition, underperforming drainage facilities that are connected to creek systems could cause aggradation of sediment upstream of the drainage facility, and degradation of areas downstream of the drainage facility, resulting in potential sediment movement toward higher order watercourses or downstream rivers. The goals of replacement would be to upgrade the culverts to be sized for a 100-year flood event, to ensure that they are bedded on appropriate grade with the channel, and to ensure that all channels with a gradient greater than 5 percent have energy dissipaters at the outlet of the culvert.

SFPUC anticipates performing approximately 12 replacements per year on average. Culvert replacements are expected to involve ground disturbance, typically in areas that were previously disturbed, except in areas where headwall or wingwall structures²⁰ are needed or where culverts would need to be upsized (see **Figure 5** for example of headwall/wingwall structure), where the construction area may be larger than the previously disturbed area.

Figure 5: Example of a Headwall Structure



Where replacement is needed, construction at each culvert generally would require a 400- to 800-square-foot area. This would include approximately 100 to 200 square feet for the work area on the inlet side of the culvert, 100 to 200 square feet for the work area on the outlet side of the

²⁰ A headwall and wingwall are concrete structures installed at the inlet and outlet of a culvert to serve as a retaining wall protecting against erosion and to divert flow.

culvert, up to 200 square feet of pipe and fill through the road prism, and up to 200 square feet of temporary vegetation removal. Construction may involve excavation around the culvert, removal and installation of new corrugated metal pipe, installation of headwall and wing wall structures, backfilling, compaction, installation of an energy dissipater, and erosion control. Culvert replacement work would be conducted by a crew of approximately four to six people. Equipment typically utilized includes backhoes or excavators, depending on site conditions. Culvert replacements would generally take approximately one to three days to complete. If work would take more than one day, a steel plate would be placed over any open excavation in the road (applicable to public roads only) to provide access during non-work hours.

At dry crossings (where stream is not actively running), work would involve mobilizing equipment, excavating the pipe and road base, removing the old pipe, and seating a new pipe on appropriate gradient with the drainage. Once set in the drainage, the excavated area would be backfilled and compacted, and headwall and wingwall structures would be installed where needed to direct flow. Crews would backfill the excavated area up to the level of the road and create an elevated grade in the fill such that water drains away from the pipe in either direction. Installation of erosion control may be required depending on the site conditions and size of the pipe. Erosion control may include rip rap for energy dissipation at the inlet and outlet of culverts (4- by 6-inch or 8- by 12-inch rip rap for a larger pipe) or, for smaller-sized pipes, may require jute cloth or weed-free straw to stabilize the area. The culvert pipe sizes would range between 12 to 48 inches. Rock outcrops²¹ would not be removed as part of project activities.

At wet crossings (where stream is actively running), a bypass/diversion system would be utilized to maintain water quality downstream of the work site. While bypass requirements will vary by site, as determined by permitting authorities, in general a cofferdam constructed of plastic sheeting and pea gravel or gravel bags (or soil if the stream is small) would be installed above the culvert diverting stream flows through a flexible screened hose and bypassed around the work area and back into the channel. Once the bypass is installed, work would be conducted as described above for dry crossings.

In some instances, for sites that are dry most of the year and rarely used (i.e., no public access or remote), crews may remove the culvert completely and replace it with a rock ford (using drain rock) to carry the water across the road.

For most culvert replacements, it is expected that ground disturbance activities would be limited to previously disturbed areas from the original culvert installation. The potential exception to this would be in locations where culvert pipe size must be increased up to two times the existing diameter or where headwall, wing wall, or other structures would be required. Construction footprints would not exceed the extents described above.²²

²¹ A rock outcrop is the part of a rock formation or bedrock that is exposed above the surface.

²² All the specific locations are not yet known, but it is expected that some culverts may need to be upsized by more than two inches.

For perennial streams, culvert replacement work would be conducted during the dry season, generally between April 15-November 15. Culvert replacements would not occur during the rainy season under the proposed project.

B.2.3. Sand Storage Shed on Intake Hill

The SFPUC proposes to construct a shed to store sand for winter road maintenance, rip rap, clean drain rock, and culverts on Intake Hill. The sand shed would be located above Cherry Lake Road and entirely within the transmission right of way (see **Figure 2D** and **Figure 6**). The location would be near the convergence of several U.S. Forest Service roads in a central location, allowing direct access to the site. The shed would be 50 feet in width, 50 feet in length, and 25 feet in height. The shed would be enclosed by three walls and open on one end for access during loading and unloading. The roof would be arched to minimize snow accumulation. The shed would be accessed by an existing, improved paved or compacted road, approximately 400 feet long from Cherry Lake Road. The area along the entrance to the shed would be paved. The shed would include lights, and electricity would be drawn from the adjacent Cherry distribution line. Lighting would consist of exterior lights in two locations: floodlights at the main entry would illuminate the loading area when trucks are in operation, and a smaller downward facing light would be installed over the pedestrian access door and used when operators are on site.

Site preparation would require grading and approximately 3 to 4 feet of excavation in a 2,500-square-foot area for the sand shed's foundation. Rock outcrops are not present at the sand shed location. The shed would be constructed from a prefabricated kit. Construction would take about one month and would be conducted by a crew of approximately eight people. Equipment would include graders, loaders, cement trucks, excavators, and a bulldozer. A crane may be used to place the prefabricated roof on the shed. No fuels or hazardous materials would be stored at the site. Sand would be maintained within the structure, and trucks would be loaded to prevent tracking of sand out of the shed.

Figure 6: Sand Shed Site Location



B.3. PROJECT CONSTRUCTION

B.3.1. Construction Schedule

Table 1 summarizes construction information for culvert replacement activities, construction of the sand shed, and maintenance activities associated with the *transmission vegetation management program*. **Table 1** includes the estimated duration of construction, timing, and schedule. As noted in **Table 1**, culvert replacement and vegetation management would be ongoing, but sand shed construction is a one-time event. Although maintenance work may be conducted year-round, activities including vegetation management and culvert replacement, would generally not occur during inclement weather (rain or snow). Most work is expected to occur during the dry season (generally April 15 to November 15), but could occur early or later if wet weather ends earlier or starts later in the season. Vegetation management activities along the transmission line would depend on the existing vegetation, thus some activities would not occur along the entire transmission line. For example, tree removals and mastication of shrubs would not be needed in grassland areas where vegetation management can be accomplished by mowing.

B.3.2. Construction Methods and Equipment

Table 1 provides a description of each construction and maintenance activity and lists the excavation limits, equipment, and crew size for each activity.

B.3.3. Construction Staging Areas

Construction staging areas for culvert replacements would require up to 4,800 square feet. Construction equipment and material would be staged in designated areas adjacent to the work sites. Existing roads and turnout areas will be used as staging sites to the maximum extent possible. Each staging area would be designated for construction setup and equipment and material storage. When staging on publicly accessible roads is required, one open lane would be maintained for through traffic.

For the sand shed storage construction, construction staging would be located adjacent to the sand shed, in an existing staging area which is approximately 20,000 square feet (500 feet by 400 feet). The area would be designated for construction contractor setup and equipment and material storage.

For vegetation management activities, staging areas would be contained within the transmission line right of way.

B.3.4. Spoil Disposal

Culvert replacement would require removal of material around existing culvert pipes, which could generate from 2 to 7 cubic yards of excess soil and rock (spoil). Spoil would be spread on the road, watered, and compacted. Spoil would not be placed within 100 feet of any surface waters or drainage courses or on slopes of greater than 10 percent, would not be piled more than 4 inches deep, and would not cover more than 1,000 square feet. Erosion control methods tailored to the site would protect water quality. No off-site spoil disposal is proposed.

Table 1: Summary of Proposed Construction and Maintenance Activities

Location	Proposed Activities	Anticipated Construction Schedule	Ground-Disturbing Activities and Approximate Depth and Dimensions of Excavation	Anticipated Construction Equipment	Average Workers per Day	Approximate Number of One-Way Trips per Day	Construction Timing (hours/days)
<i>Culvert Replacements (estimated for each site)</i>							
On access roads, as shown on Figures 2A-2D.	Depending on site characteristics and culvert condition, construction may involve excavation around the culvert pipes, removal and installation of new corrugated metal pipe, backfill, compaction, energy dissipaters, and erosion control. Excess soil would be spread on site. The culvert pipe sizes would range between 12 to 48 inches. At wet crossings, a bypass system would first be required to be installed. A temporary cofferdam would be installed, and water would be diverted around the work area using a 6- or 8-inch flexible hose. Most ground disturbance activities would primarily occur in previously disturbed areas.	Ongoing; construction would take approximately 1 day per site, and approximately 12 days per year	<u>Excavation</u> : 4-6 ft. average depth; up to 10 ft. max depth. 200 sq. ft average; up to 400 sq. ft max area.	<ul style="list-style-type: none"> • Excavator • Backhoe • Vibratory compactor • Grader • Bulldozer (small-medium) • Service, pick-up trucks • Transports (truck and trailer) • Water truck • Loader • pumps 	4-6	8	Week-days 7 a.m. to 6 p.m.
<i>Construction of Sand Shed at Intake Hill</i>							
Intake Hill, near Cherry Lake Rd.	A 3-sided 50 ft. x 50 ft. x 25 ft. (width, length and height) shed would be constructed. Excavation, grading and compaction would be performed as needed for the shed's foundation. A crane would be used to place a prefabricated, arched roof on the shed.	Approximately 1 month	<u>Excavation</u> : 3-4 ft. depth; 2,500 sq. ft. area.	<ul style="list-style-type: none"> • Manlifts • Loader • Cement truck • Grader • Bulldozer • Excavator • Flat-bed materials truck • Office trailer • Port-a-potties • Sheep's foot compactor (on end of excavator) • Crane 	8	2-20	Week-days 7 a.m. to 6 p.m.

Location	Proposed Activities	Anticipated Construction Schedule	Ground-Disturbing Activities and Approximate Depth and Dimensions of Excavation	Anticipated Construction Equipment	Average Workers per Day	Approximate Number of One-Way Trips per Day	Construction Timing (hours/days)
Transmission Vegetation Management Program							
Along SFPUC transmission right of way, where needed	Manual/Mechanical/Chemical/Cultural/Biological Controls <ul style="list-style-type: none"> <u>Manual Control</u>: Control of vegetation using hand-operated tools. <u>Mechanical Control</u>: Control of vegetation using equipment-mounted saws, mowers, or other devices. <u>Cultural control</u>: Control of vegetation through the establishment of compatible stable vegetation types or the use of mulching or other managed landscapes. <u>Biological control</u>: Control of vegetation using plants, animals, insects or pathogens. <u>Chemical Control</u>: Control of vegetation using herbicides. 	Ongoing; approximately 1-2 days per site, and up to 180 days per year	<u>Off-road use of tracked vehicles</u> : 2-4 inches depth (usually stirs up duff/ organic layer)	<ul style="list-style-type: none"> Hand-held equipment Shredder/masticator (tracked vehicle) Mechanical pruners Bucket truck 	2-4	4	Week-days 7 a.m. to 6 p.m.
On or adjacent to the SFPUC electrical transmission right of way, as needed	Tree Removals Trees would be felled, bucked and limbed. Limbs would be piled and burned, scattered on the forest floor or chipped and scattered. In some locations, if suitable for commercial tree sale, felled trees would be moved to a landing for loading and transported to a lumber or chipping facility. Where trees cannot be accessed by wheeled or tracked equipment, the use of helicopters may be required. Cut trees would be attached to and marked. Then the helicopter would then identify the flagged trees, pick them up, and fly them to a landing (typically within a quarter of a mile) for staging and eventual transport.	Ongoing; approximately 1-2 days per site, and approximately 6 days per year	<u>Skidding (dragging logs)</u> : Depth of ground 1-2 inches depth,; typically less than 200 ft. in length, and not more than 600 ft.	<ul style="list-style-type: none"> Chain saw Hydraulic loader Chipper Bulldozers Rubber tire skidders Feller buncher Water truck Fire truck or tank Helicopter (not anticipated, but possible) 	4	8	Week-days 7 a.m. to 6 p.m.
Source: SFPUC, 2017							

B.3.5. Annual Implementation Planning

Table 1 describes activities that would be required for sand shed construction and for the ongoing actions that would be implemented for culvert replacement and vegetation management, including types of equipment that would be used for each element of the project. Once a year, or as needed, vegetation management and culvert maintenance activities would be planned for project implementation. The SFPUC environmental planner would review the work plan provided by HHWP Operations and identify applicable mitigation measures for potential impacts. As needed, the environmental planner would coordinate avoidance and mitigation measures with other subject matter experts (e.g., qualified biologist, archeologist, pest control advisor) as needed.

B.3.6. SFPUC Standard Construction Measures

The SFPUC has adopted *standard construction measures* to be implemented during the construction of every SFPUC project and included in all SFPUC construction contracts.²³ The objective of these measures is to avoid and reduce construction-related impacts on the environment. Because they apply to all SFPUC projects, including projects located within San Francisco and other urban areas and projects located in rural and natural areas such as SFPUC watershed lands, the measures are necessarily broad. As such, the measures may be tailored to fit specific projects and some measures may not apply in whole or in part to all projects. The applicability of the standard construction measures to the proposed project is considered below under the related resource topics.

1. SEISMIC AND GEOTECHNICAL STUDIES: All projects will prepare a characterization of the soil types and potential for liquefaction, subsidence, landslide, fault displacement, and other geological hazards at the project site and will be engineered and designed as necessary to minimize risks to safety and reliability due to such hazards. As necessary, geotechnical investigations will be performed.

2. AIR QUALITY: All projects within San Francisco City (the City) limits will comply with the Construction Dust Control Ordinance. All projects outside the City will comply with applicable local and state dust control regulations. All projects within City limits will comply with the Clean Construction Ordinance. Projects outside City limits will comply with San Francisco or other applicable thresholds for health risks. All projects, both within and outside of City limits, will comply with either San Francisco or other applicable thresholds for construction criteria air pollutants.

To meet air quality thresholds, all projects (as necessary) will implement air quality controls to be tailored to the project, such as using high tier engines, Verified Diesel Emissions Control Strategies such as diesel particulate filters, customized construction schedules and procedures, and low emissions fuel.

²³ SFPUC (San Francisco Public Utilities Commission), 2015. SFPUC Standard Construction Measures. Harlan L. Kelly, Jr., General Manager, July 1.

3. WATER QUALITY: All projects will implement erosion and sedimentation controls to be tailored to the project site such as fiber rolls and/or gravel bags around storm drain inlets, installation of silt fences, and other such measures sufficient to prevent discharges of sediment and other pollutants to storm drains and all surface waterways, such as San Francisco Bay, the Pacific Ocean, water supply reservoirs, wetlands, swales, and streams. As required based on project location and size, a Stormwater Control Plan (in most areas of San Francisco) or a Stormwater Pollution Prevention Plan (outside of San Francisco and in certain areas of San Francisco) will be prepared. If uncontaminated groundwater is encountered during excavation activities, it will be discharged in compliance with applicable water quality standards and discharge permit requirements.

4. TRAFFIC: All projects will implement traffic control measures sufficient to maintain traffic and pedestrian circulation on streets affected by construction of the project. Traffic control measures may include, but not be limited to, flaggers and/or construction warning signage of work ahead; scheduling truck trips during non-peak hours to the extent feasible; maintaining access to driveways, private roads, and off-street commercial loading facilities by using steel trench plates or other such method; and coordination with local emergency responders to maintain emergency access. For projects in San Francisco, the measures will also, at a minimum, be consistent with the requirements of San Francisco Municipal Transportation Agency's Blue Book. Any temporary rerouting of transit vehicles or relocation of transit facilities would be coordinated with the applicable transit agency, such as San Francisco Municipal Transportation Agency's Muni Operations in San Francisco. All projects will obtain encroachment permits from the applicable jurisdiction for work in public roadways.

5. NOISE: All projects will comply with local noise ordinances regulating construction noise. The SFPUC shall undertake measures to minimize noise disruption to nearby neighbors and sensitive receptors during construction. These efforts could include using best available noise control technologies on equipment (i.e., mufflers, ducts, and acoustically attenuating shields), locating stationary noise sources (i.e., pumps and generators) away from sensitive receptors, erecting temporary noise barriers, and other such measures.

6. HAZARDOUS MATERIALS: Where there is reason to believe that site soil or groundwater that will be disturbed may contain hazardous materials, the SFPUC shall undertake an assessment of the site in accordance with any applicable local requirements (e.g., Maher Ordinance) or using reasonable commercial standards (e.g., Phase I and Phase II assessments, as needed). If hazardous materials will be disturbed, the SFPUC shall prepare a plan and implement the plan for treating, containing, or removing the hazardous materials in accordance with any applicable local, state, and federal regulations to avoid any adverse exposure to the material during and after construction. In addition, any unidentified hazardous materials encountered during construction likewise will be characterized and appropriately treated, contained, or removed to avoid any adverse exposure. Measures will also be implemented to prevent the release of hazardous materials used during construction, such as storing them pursuant to manufacturer recommendation, maintaining spill kits onsite, and containing any spills that occur to the extent safe and feasible followed by collection and disposal in accordance with applicable laws. SFPUC will report spills of reportable quantity to applicable agencies (e.g., the Governor's Office of Emergency Services).

7. BIOLOGICAL RESOURCES: All project sites and the immediately surrounding area will be screened to determine whether biological resources may be affected by construction. A qualified biologist will also carry out a survey of the project site, as appropriate, to note the general resources and identify whether habitat for special-status species and/or migratory birds are present. In the event further investigation is necessary, the SFPUC will comply with all local, state, and federal requirements for surveys, analysis, and protection of biological resources (e.g., Migratory Bird Treaty Act, federal and state Endangered Species Acts, etc.). If necessary, measures will be implemented to protect biological resources, such as installing wildlife exclusion fencing, establishing work buffer zones, installing bird deterrents, monitoring by a qualified biologist, and other such measures. If tree removal is required, the SFPUC would comply with any applicable tree protection ordinance.

8. VISUAL AND AESTHETIC CONSIDERATIONS. PROJECT SITE: All project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from public view where possible. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon project completion, project sites on SFPUC-owned lands will be returned to their general pre-project condition, including re-grading of the site and re-vegetation or re-paving of disturbed areas to the extent this is consistent with SFPUC's Integrated Vegetation Management Policy. However, where encroachment has occurred on SFPUC-owned lands, the encroaching features may not be restored if inconsistent with the SFPUC policies applicable to management of its property. Project sites on non-SFPUC land will be restored to their general pre-project condition so that the owner may return them to their prior use, unless otherwise arranged with the property owner.

9. CULTURAL RESOURCES: All projects that will alter a building or structure, produce vibrations, or include soil disturbance will be screened to assess whether cultural resources are or may be present and could be affected, as detailed below.

Archeological Resources. No archeological review is required for a project that will not entail ground disturbance. Projects involving ground disturbance will undergo screening for archeological sensitivity as described below and implement, as applicable, SFPUC's Standard Archeological Measures I (Discovery), II (Monitoring) and III (Testing/Data Recovery). Standard Construction Measure I will be implemented on all projects involving ground disturbance, and Standard Archeological Measures II and III will be implemented based on the screening process described below for projects assessed as having the potential to encounter archeological sites and/or if an archeological discovery occurs during construction.

Projects involving ground disturbance will initially be screened to identify whether there is demonstrable evidence of prior ground disturbance in the project site to the maximum vertical and horizontal extent of the current project's planned disturbance. For projects where prior complete ground disturbance has occurred throughout areas of planned work, SFPUC will provide evidence of the previous disturbance in the Categorical Exemption application and no further archeological screening will be required.

For projects that are on previously undisturbed sites or where the depth/extent of prior ground disturbance cannot be documented, or where the planned project-related ground disturbance will extend beyond the depth/extent of prior ground disturbance, additional screening will be carried

out as detailed below. The additional screening will be conducted by the SFPUC's qualified archeologist (defined as meeting the Secretary of the Interior's Professional Qualifications Standards [36 CFR 61]) and, if a consultant, selected in consultation with the San Francisco Planning Department's Environmental Review Officer and meeting criteria or specialization required for the resource type as identified by the Environmental Review Officer.

1) The SFPUC's qualified archeologist will conduct an archival review for the project site, including review of Environmental Planning's archeological geographical information system data and/or a records search of the California Historical Resources Information System and other archival sources as appropriate. The qualified archeologist will also conduct an archeological field survey of the project site if, in the archeologist's judgment, this is warranted by site conditions. Based on the results, the archeologist will complete and submit to Environmental Planning a Preliminary Archeological Checklist (version dated 4/2015, to be amended in consultation with the Environmental Review Officer as needed). This checklist will include recommendations for the need for archeological testing, additional research and/or treatment measures consistent with Archeological Measures I, II, and III, to be implemented by the project to protect and/or treat significant archeological resources identified as being present within the site and potentially affected by the project.

2) The Environmental Planning Archeologist (for projects within the City) or the Environmental Review Officer's archeological designee (for projects outside the City) will then conduct a Preliminary Archeological Review of the Preliminary Archeological Checklist and other sources as warranted; concur with the checklist's recommendations; and/or amend the checklist in consultation with the SFPUC archeologist or archeological consultant to require additional research, reports, or treatment measures as warranted based on his/her professional opinion.

3) The SFPUC shall implement the Preliminary Archeological Checklist/Preliminary Archeological Review recommendations prior to and/or during project construction consistent with Standard Archeological Measures I, II, and III, and shall consult with the Environmental Planning Archeologist in selecting an archeological consultant, as needed, to implement these measures.

4) Ground disturbing activities in archeologically sensitive areas, as identified through the above screening, will not begin until required preconstruction archeological measures of the Preliminary Archeological Checklist/Preliminary Archeological Review (e.g., preparation of an Archeological Monitoring Plan, Archeological Treatment Plan, and/or an Archeological Research Design and Data Recovery Plan) have been implemented.

B.3.7. Avoidance of Sensitive Natural Communities (Vernal Pools and Wet Meadows)

For protection of biological resources, the SFPUC would avoid any vegetation management work in sensitive natural communities, including vernal pools and wet meadows; culvert improvements would not occur in vernal pools and work in wet meadows would be avoided where feasible. Vernal pools and wet meadows would be protected by exclusion fencing if any work would occur within 100 feet of these sensitive natural communities. Appendix B contains maps showing sensitive natural communities where SFPUC would avoid vegetation management activities.

B.3.8. Best Management Practices for Controlling Noxious Weeds and Plant Pathogens

Staff and contractors would implement the following measures to prevent the spread of noxious weeds, invasive species, and plant pathogens during vegetation management, culvert replacement, and vegetation restoration activities:

- Provide prevention training to staff and contractors prior to starting work;
- Designate specific areas for cleaning tools, vehicles, equipment, clothing, and gear;
- Clean and sanitize tools, equipment, vehicles, and animals before transporting materials and before entering and leaving worksites; and clean clothing, footwear, and gear before leaving infested areas;²⁴
- Ensure that all work material sources used for supplies of filter fabric, sand, gravel, rock and mulch are weed-free prior to obtaining or transporting material;
- Obtain and use only certified weed-free straw or use fiber roll logs for sediment containment; and
- To avoid impacts associated with planting activities, tree planting will follow the *Guidance for plant pathogen prevention when working at contaminated restoration sites or sites with rare plants and sensitive habitat* maintained by the California Phytophthoras in Native Habitats Work Group.²⁵

B.4. PROJECT APPROVALS

The 1913 Raker Act authorized the Secretary of the Interior to issue rights of way (easements) over public lands to the City and County of San Francisco for purposes of constructing, operating and maintaining the Hetch Hetchy Water and Power Project. Reliable Power Project activities within San Francisco's Raker Act rights of way are generally authorized by the terms of the Raker Act, subject to limited federal approvals expressed in the terms of the Act, right of way stipulations, and other federal laws, where applicable.

The City of San Francisco must compensate the US Government for the value of merchantable timber removed from the right of way and adjacent areas under Raker Act section 4.

The Reliable Power Project includes new uses of National Forest System lands outside the City's Raker Act rights of way, and construction of a new structure (the sand shed) that was not included in the City's underlying transmission line right of way application that was approved

²⁴ BMPs from California Invasive Plant Council, Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors, 2012. Cal-IPC Publication 2012-01. California Invasive Plant Council, Berkeley, CA. Available at www.cal-ipc.org.

²⁵ California Phytophthoras in Native Habitats Work Group. 2016. Available at <http://www.suddenoakdeath.org/wp-content/uploads/2016/04/Sensitive-contam-site-bmp-FINAL-111716.pdf>

by the Forest Service in 1957. These proposed actions are subject to authorization by the Forest Service.

The permits and authorizations listed below are likely to be required from other federal and state agencies.

Overall Project:

- SFPUC – Project approval and adoption of CEQA Findings and a Mitigation Monitoring and Reporting Program

Culvert Replacements:

- U.S. Army Corps of Engineers – Clean Water Act section 404 Permit for any fill of wetlands or waters of the U.S. except for in kind replacement of existing culverts that are statutorily exempt under section 404(f) of the Clean Water Act as the maintenance of a currently serviceable structure.
- Central Valley Regional Water Quality Control Board – Clean Water Act section 401 Water Quality Certification following issuance of a federal permit or license.
- U.S. Fish and Wildlife Service – section 7 Endangered Species Act Consultation
- California Office of Historic Preservation – section 106 National Historic Preservation Act Consultation
- California Department of Fish and Wildlife – Streambed Alteration Agreement.

Vegetation Management:

- California Air Resources Board – Prescribed burning permit
- California Department of Forestry and Fire Protection – Public Agency, Public and Private Utility Right of Way Exemption for timber operations that are exempt from conversion and timber harvesting plan requirements.

Pursuant to sections 31.04(h)(3) and 31.11(h) of the San Francisco Administrative Code, the approval of the project by the first City decision-making body that adopts the final mitigated negative declaration would constitute the Approval Action of the proposed project. Therefore, the approval of the proposed project by the SFPUC would constitute the Approval Action of the proposed project. The Approval Action date would establish the start of the 30-day appeal period for appeal of the Final Mitigated Negative Declaration (FMND) to the Board of Supervisors pursuant to San Francisco Administrative Code section 31.04(h). Appeal of the PMND to the planning commission is required to be able to appeal the FMND to the Board of Supervisors pursuant to San Francisco Administrative Code section 31.16(d).

C. COMPATIBILITY WITH EXISTING ZONING AND PLANS

	<i>Applicable</i>	<i>Not Applicable</i>
Discuss any variances, special authorizations, or changes proposed to the Planning Code or Zoning Map, if applicable.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Discuss any conflicts with any adopted plans and goals of the City or Region, if applicable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Discuss any approvals and/or permits from City departments other than the Planning Department or the Department of Building Inspection, or from Regional, State, or Federal Agencies.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

No variances, special authorizations, or changes to the Planning Code or Zoning Map of San Francisco or any other jurisdictions are proposed as part of this project; therefore, these topics are not applicable and are not discussed further.

This section provides a general description of applicable land use plans and policies and how they apply to the project. Potential inconsistencies between the project and the applicable plans are also discussed. Section B.4 describes the anticipated permits and approvals required for project implementation. Project consistency with a particular plan is decided at the time of project approval by the agency charged with that determination. Land use plans typically contain numerous policies that emphasize differing legislative goals, and an interpretation of consistency requires decision-makers to balance the relevant policies. The board or commission that enacted a plan or policy determines the meaning of the policy as well as whether an individual project satisfies the policy at the time the board considers approval of the project.

The proposed project is located in Stanislaus, Tuolumne, and Mariposa counties, on property that is owned or managed by the SFPUC. The SFPUC is an agency of the City and is therefore under the jurisdiction of the City's charter and plans, where applicable. As discussed below, the SFPUC is not legally bound by the planning and building laws of local jurisdictions for projects on City-owned extraterritorial lands. However, non-City land use plans are discussed in this section to the extent that they provide general land use planning information for the jurisdiction in which the project is located.

C.1. CITY AND COUNTY OF SAN FRANCISCO PLANS AND POLICIES

The City and County of San Francisco (the City) land use plans and policies are primarily applicable to projects within the jurisdictional boundaries of the City and County of San Francisco, although in some cases they may apply to projects outside of these boundaries. The City has authority (San Francisco Charter, section 4.112) over the management, use, and control of land it owns outside of the city, subject to the SFPUC's exclusive responsibility for the construction, management, use, and control of the city's water supplies and utilities (San Francisco Charter, section 8B.121). Accordingly, the City relies on its own plans and policies with respect to extraterritorial lands, as applicable.

California Government Code section 53090 et seq. provides SFPUC with intergovernmental immunity from the planning and building laws of other cities and counties. SFPUC, however, seeks to work cooperatively with local jurisdictions where City-owned facilities are sited outside

of San Francisco to avoid conflicts with local land use plans as well as building and zoning codes. The SFPUC is also required under Government Code section 65402(b) to inform local governments of its plans to construct projects or acquire or dispose of extraterritorial property. Local governments have a 40-day review period to determine project consistency with their general plans. Under this requirement, the cities' or counties' determinations of consistency are advisory to SFPUC rather than binding.

C.1.1. San Francisco General Plan

The San Francisco General Plan,²⁶ as amended, sets forth the comprehensive long-term land use policy for the City. The General Plan consists of 10 issue-oriented plan elements that set forth goals, policies, and objectives for the physical development of San Francisco: Air Quality, Arts, Commerce and Industry, Community Facilities, Community Safety, Environmental Protection, Housing, Recreation and Open Space, Transportation, and Urban Design. The General Plan elements relevant to the project are briefly described below:

- **Air Quality Element** – Promotes clean air planning through objectives and policies that ensure compliance with air quality regulations.
- **Community Safety Element** – Addresses the potential geologic, structural, and nonstructural hazards to City-owned structures and critical infrastructure, with the goal of protecting human life and property from hazards.
- **Environmental Protection Element** – Addresses the impact of urbanization on the natural environment by promoting the protection of plant and animal life and freshwater sources and addressing the City's responsibility to provide a permanent clean water supply to meet present and future needs as well as to maintain an adequate water distribution system.

The San Francisco General Plan sets forth the City's comprehensive long-term land use policy, and as such, is primarily applicable to projects within the City's jurisdictional boundaries. The proposed project, which is located outside the City boundaries, would implement long-term vegetation management activities to improve the long-term reliability of the SFPUC electrical service to customers by reducing the risk of vegetation-related outages. The culvert replacements would improve drainage conditions along the access roads such that aggradation of sediment upstream and degradation of areas downstream from sedimentation movement is reduced. The proposed sand shed would improve efficiencies related to winter road maintenance by staging sand in a central location. The proposed project seeks to ensure the long-term reliability of the SFPUC power system and to maintain access to power system access roads. Therefore, the project would not appear to conflict with the Community Safety Element.

Construction activities related to the culvert replacements and sand shed would create minimal dust because of the limited extent of construction activities and would result in less than significant air quality impacts (see Section E.7, Air Quality). Biological and water quality impacts

26 City and County of San Francisco, San Francisco General Plan, 1996. Available at: <http://generalplan.sfplanning.org/>

are addressed and would be less than significant or mitigated to less-than-significant levels (see E.13, Biological Resources and E.15, Hydrology and Water Quality). Therefore, the proposed project would therefore not appear to conflict with the Air Quality and Environmental Protection Elements.

The proposed project would result in long-term improvement of the reliability of the power system to meet customer needs and is thus consistent with the Community Safety Element and its goals to protect human life and property from hazards.

C.1.2. The Accountable Planning Initiative

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which added section 101.1 to the Planning Code²⁷ to establish eight priority policies to the General Plan. The priority policies serve as the basis upon which inconsistencies in the San Francisco General Plan are to be resolved. The eight priority policies state that:

1. Neighborhood-serving retail uses be preserved and enhanced, and future opportunities for resident employment in and ownership of such businesses be enhanced.
2. Housing and neighborhood character be conserved and protected to preserve the cultural and economic diversity of the neighborhoods.
3. The City's supply of affordable housing be preserved and enhanced.
4. Commuter traffic not impede the Muni transit service or overburden streets or neighborhood parking.
5. Diverse economic base be maintained by protecting industrial and service sectors from displacement by commercial office development and future opportunities for resident employment and ownership in these sectors be enhanced.
6. The City achieve the greatest possible preparedness to protect against injury and loss of life in an earthquake.
7. Landmarks and historic buildings be preserved.
8. Parks and open space and their access to sunlight and vistas be protected from development.

Of the eight priority policies, only Policy 8 appears relevant to the project. Policies 1 through 7 are not relevant because the project would: (1) be located outside of San Francisco; (2) be located away from San Francisco neighborhoods; (3) not create a need for affordable housing; (4) not result in an increase in commuter traffic in San Francisco; (5) not result in commercial office development; (6) not include habitable buildings associated with SFPUC's water and power

27 City and County of San Francisco, San Francisco Planning Code, section 101.1. Available at [http://library.amlegal.com/nxt/gateway.dll/California/planning/planningcode?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:sanfrancisco_ca\\$sanc=JD_Planning](http://library.amlegal.com/nxt/gateway.dll/California/planning/planningcode?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca$sanc=JD_Planning), accessed on February 27, 2017.

system facilities; and (7) not affect landmarks or historic buildings. Implementation of the *transmission vegetation management program*, sand shed construction, and culvert replacement activities would occur within the existing SFPUC right of way and roadway right of way. The proposed project would include one aboveground sand shed structure. However, the sand shed would be located within the existing SFPUC right of way and would not affect wind or create shadows that would affect outdoor recreation and/or public areas (see Section E.9, Wind and Shadow, and Section E.10, Recreation). Therefore, there are no apparent inconsistencies between the project and the Accountable Planning Initiative policies.

C.1.3. San Francisco Sustainability Plan

Although the San Francisco Board of Supervisors endorsed the *Sustainability Plan for the City of San Francisco* in 1997, the Board has not yet committed the City to perform the actions outlined in the plan. The plan serves as a blueprint for sustainability, with many of its individual proposals requiring further development and public comment. The plan's underlying goals are to maintain the physical resources and systems that support life in San Francisco and to create a social structure that will allow such maintenance. The plan is divided into 15 topic areas, 10 of which address specific environmental issues: air quality; biodiversity; energy; climate change and ozone depletion; food and agriculture; hazardous materials; human health; parks, open spaces, and streetscapes; solid waste; transportation; and water and wastewater. The other five areas are broader in scope and cover many issues, including the economy and economic development; environmental justice; municipal expenditures; public information and education; and risk management. Under the topic of "water and wastewater" are goals addressing water reuse, water quality, water supply, groundwater supply, and infrastructure. Each topic area has a set of indicators designed for use over time in determining whether San Francisco is moving in a direction that supports sustainability for that area.

The *Sustainability Plan for the City of San Francisco* was developed to address the City's long-term environmental sustainability. The proposed project does not appear to conflict with the goals of the plan, because it would improve the reliability of the physical systems (power transmission) that support life in San Francisco.

C.2. SFPUC PLANS AND POLICIES

C.2.1. SFPUC Strategic Sustainability Plan

The SFPUC's 2011 *Strategic Sustainability Plan*²⁸ provides a framework for planning, managing, and evaluating SFPUC-wide performance, considering the long-term economic, environmental, and social impacts of the SFPUC's business activities. This plan consists of a "Durable Section" that contains goals, objectives, and performance indicators for use in implementing the SFPUC's vision and values. The goals and objectives are then used to drive the plan's "Dynamic Section," which contains specific actions, targets, measures, and budgeting. The SFPUC uses this document to evaluate its performance semiannually, to provide an annual score card, and to help the SFPUC measure progress on an annual basis.

²⁸ SFPUC, *Strategic Sustainability Plan*, March 2011. Available at: <http://sfwater.org/modules/showdocument.aspx?documentid=987>.

The plan contains objectives to “ensure compliance with regulatory requirement” and “optimize maintenance for water, wastewater & power assets”. The proposed project would implement long-term vegetation management to comply with the North American Electric Reliability Corporation’s standards and would improve maintenance access to the transmission right of way, meeting these objectives. As a result, the project would not obviously or substantially conflict with any plan provisions.

C.2.2. *Water Enterprise Environmental Stewardship Policy*

Adopted in June 2006, the Water Enterprise Environmental Stewardship Policy established the long-term management direction for City-owned lands and natural resources affected by operation of the SFPUC regional water system within the Tuolumne River, Alameda Creek, and Peninsula watersheds.²⁹ The provision applicable to the proposed project is:

- To the maximum extent practicable, the SFPUC will ensure that all operations of the water system (including water diversion, storage, and transport), construction and maintenance of infrastructure, land management policies and practices, purchase and sale of watershed lands, and lease agreements for watershed lands protect and restore native species and the ecosystems that support them. In cases where we have limited control, but where impacts of its operations exist, we will work with responsible parties to improve ecosystem health.

The proposed project would improve drainage by reducing the aggradation of sedimentation upstream of culverts and lowering the potential for sediment to move toward higher order watercourses. Proper drainage would thus have a positive effect on the surrounding ecosystem. Tree removal would also support this policy. Wildfire ignition risks are high when trees and vegetation strike power lines. Besides the immediate consequences of unintended fire, burned landscapes can also suffer when soils that have been exposed or destabilized by fire are washed into waterways. Therefore, prevention of accidental fire is a key part of preserving ecosystem and watershed health. As a result, the project would not obviously or substantially conflict with the Water Enterprise Environmental Stewardship Policy.

C.2.3. *Right of Way Integrated Vegetation Management Policy*

The right of way integrated vegetation management policy³⁰ was established to set standards for vegetation management within SFPUC right of way so that vegetation does not pose a hazard to the utility system or interfere with maintenance and operations. The vegetation management policy focuses on vegetation within water pipeline right of way but does not explicitly exclude other utilities. The policy outlines standard vegetation removal practices and acceptable types of vegetation that may exist within the right of way. An overarching goal of the vegetation management policy is to reduce herbicide use within the right of way wherever possible; however, the policy does not prescribe specific standards for herbicide use. The proposed project would protect the transmission corridor from vegetation encroachment, which is consistent with the policy. Herbicide use in the project area would occur on a limited basis, and herbicide use

²⁹ SFPUC, SFPUC Final Water Enterprise Environmental Stewardship Policy, June 27, 2006.

³⁰ SFPUC, Integrated Vegetation Management Policy, amended January 2015.

would be minimized. Therefore, the proposed project would not conflict with the vegetation management policy.

C.3. OTHER PLANS

C.3.1. County General Plans

The project is located primarily on extraterritorial lands owned by the City in unincorporated Stanislaus, Tuolumne, and Mariposa Counties. As described in Section C.1, California Government Code section 53090 et seq. provides SFPUC with intergovernmental immunity from the planning and building laws of other cities and counties. The SFPUC is not legally bound by the land use plans and policies of Stanislaus, Tuolumne, and Mariposa Counties, and any potential inconsistencies of the proposed project with the land use plans and policies of these jurisdictions is therefore not discussed in this document. However, non-City land use plans are discussed to the extent that they provide land use planning information for the jurisdictions in which the project is located. Section E of this document addresses aspects of compatibility with local land use planning and assesses whether the project would meet any of the following conditions:

- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., conflict with policies promoting bus turnouts or bicycle racks) or would cause a substantial increase in transit demand that cannot be accommodated by existing or proposed transit capacity or alternative travel modes (analyzed in Section E.5, Transportation and Circulation).
- Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (analyzed in Section E.6, Noise).
- For a project in an area covered by an airport land use plan (or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport), expose people residing or working in the project area to excessive noise levels (analyzed in Section E.6, Noise).
- Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (analyzed in Section E.13, Biological Resources).
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (analyzed in Section E.13, Biological Resources).
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan (analyzed in Section E.17, Mineral and Energy Resources)
- Conflict with existing zoning for agricultural use or a Williamson Act contract (analyzed in Section E.18, Agriculture and Forest Resources)

Determinations of project consistency with local general plans would be made by the pertinent land use jurisdictions, following notification by the SFPUC pursuant to state law. The project

proposes long-term vegetation maintenance within the SFPUC right of way, which has been maintained as a utility corridor with vegetation management performed as needed, as well as culvert repairs or replacement, and construction of a new sand shed. The proposed project would not result in any change of uses in or outside of the SFPUC or access road rights of way, and therefore would not appear to conflict with any adopted county and city plans and goals.

This Initial Study systematically identifies the potential environmental impacts associated with implementation of the project, as well as feasible measures to avoid or substantially lessen such effects. The criteria used in the impact analysis of this Initial Study support the intent of general plan goals and policies related to protection of the environment. As detailed throughout Section E, Evaluation of Environmental Effects, environmental impacts attributable to the project would be reduced to less-than-significant levels through implementation of proposed mitigation measures. Therefore, the project would not conflict with the local general plans.

C.3.2. Stanislaus National Forest Plan Direction

The Stanislaus National Forest Plan Direction of 2010³¹ outlines management goals for the forest. The forest plan addresses five specific areas, including old forest ecosystems, noxious weeds, and fire and fuels management. The forest plan contains detailed standards and guidelines addressing impacts to areas including air quality, fire and fuels, recreation, soils, and water. The plan contains guidelines for new rights of way or utilities, and expansion of existing utilities, but does not restrict existing utilities from performing necessary maintenance. Most project activities in Stanislaus National Forest would be within the existing SFPUC right of way or transmission line access roads maintained by the SFPUC pursuant to the Raker Act, and none of the proposed activities would conflict with the Plan.

C.3.3. California Forest Practice Rules

The California Forest Practice Rules³² regulate logging in California, with the goal that logging operations are conducted in a way that preserves fish, wildlife, forests, and streams. The Forest Practice Rules contain detailed requirements for timber harvesting. Article 9, section 4628 states that “no public agency shall be required to submit a timber harvesting plan or file an application for conversion with the board where the purpose of its timber operation is to construct or maintain a right of way on its own or on any other public property.”³³ The proposed project would fall under this exemption and would not appear to conflict with the Forest Practice Rules.

³¹ U.S. Department of Agriculture, Forest Service, *Stanislaus National Forest: Forest Plan Direction*, April 2010.

³² California Department of Forestry and Fire Protection, *California Forest Practice Rules 2017*, January 2017.

³³ Ibid.

D. SUMMARY OF ENVIRONMENTAL EFFECTS

This Initial Study evaluates the proposed project and discusses potential effects on the environment with respect to the resource topics listed below. The proposed project could potentially affect the environmental factors checked below. The following pages present a detailed checklist and discussion of each environmental factor.

<input type="checkbox"/> Land Use	<input type="checkbox"/> Air Quality	<input checked="" type="checkbox"/> Biological Resources
<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Greenhouse Gas Emissions	<input checked="" type="checkbox"/> Geology and Soils
<input type="checkbox"/> Population and Housing	<input type="checkbox"/> Wind and Shadow	<input type="checkbox"/> Hydrology and Water Quality
<input checked="" type="checkbox"/> Cultural Resources	<input type="checkbox"/> Recreation	<input type="checkbox"/> Hazards/Hazardous Materials
<input type="checkbox"/> Transportation and Circulation	<input type="checkbox"/> Utilities and Service Systems	<input type="checkbox"/> Mineral/Energy Resources
<input type="checkbox"/> Noise	<input type="checkbox"/> Public Services	<input type="checkbox"/> Agricultural and Forest Resources
		<input checked="" type="checkbox"/> Mandatory Findings of Significance

The impact evaluation considers the project impacts both individually as well as cumulatively. The Initial Study checklist presented in this section correlates with the California Environmental Quality Act (CEQA) significance criteria used to evaluate the project impacts for each environmental topic. For the significance criteria checked “Less than Significant with Mitigation Incorporated,” “Less than Significant Impact,” “No Impact,” or “Not Applicable,” the impact analysis determined that the project would not have a significant adverse impact with respect to that environmental resource. A full discussion is presented for criteria checked “Less than Significant with Mitigation Incorporated” and “Less than Significant Impact,” and a brief discussion is included for criteria checked “No Impact” or “Not Applicable.” The impacts corresponding to the topics checked in Section D, above, would be Less than Significant with Mitigation Incorporated. The impact analyses are presented in Sections E.1 through E.18, below.

Impacts are numbered throughout this Initial Study using an environmental topic identifier (e.g., “CR” for cultural resources) followed by sequentially numbered impacts. Mitigation measures are numbered to correspond to the associated impacts; for example, Mitigation Measure M-CR-1 addresses Impact CR-1. Cumulative impacts are discussed at the end of the impact analysis for each environmental topic and are identified by the letter C; for example, Impact C-CR addresses cumulative impacts on cultural resources. If multiple mitigation measures are required for a single impact, mitigation measures would include a distinguishing letter; for example, Mitigation Measure M-CR-1a.

D.1. PUBLIC RESOURCES CODE SECTION 21099

CEQA section 21099(b)(1) requires that the California Office of Planning and Research develop revisions to the CEQA Guidelines establishing criteria for determining the significance of transportation impacts for projects that “promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” CEQA section 21099(b)(2) states that, upon certification of the revised guidelines for determining transportation impacts pursuant to section 21099(b)(1), automobile delay—as described solely by

level of service or similar measures of vehicular capacity or traffic congestion—shall not be considered a significant impact on the environment under CEQA.

In January 2016, the California Office of Planning and Research published for public review and comment the *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA* recommending that transportation impacts for projects be measured using a vehicle miles traveled metric. On March 3, 2016, in anticipation of the future certification of the revised CEQA Guidelines, the San Francisco Planning Commission adopted the California Office of Planning and Research's recommendation to use the vehicle miles traveled metric instead of automobile delay to evaluate the transportation impacts of projects (Resolution 19579). (Note: the vehicle miles traveled metric does not apply to the analysis of impacts on non-automobile modes of travel such as riding transit, walking, and bicycling.) Accordingly, this Initial Study does not contain a discussion of automobile delay impacts but rather uses vehicle miles traveled to evaluate transportation-related effects.

The California Office of Planning and Research's proposed transportation impact guidelines provide screening criteria for identifying land use project types, characteristics, or locations that would avoid exceedances of these vehicle miles traveled thresholds of significance. The California Office of Planning and Research recommends that if a project or land use proposed as part of the project meets the below-described screening criterion, then vehicle miles traveled impacts are presumed to be less than significant for that land use and a detailed vehicle miles traveled analysis is not required. This screening criterion and how it is applied under the jurisdiction of the City is described below.

Small Projects. According to the California Office of Planning and Research, lead agencies may generally assume that a project would not have significant vehicle miles traveled impacts if the project would either: (1) generate fewer trips than the level for studying consistency with the applicable congestion management program, or (2) where the applicable congestion management program does not provide such a level, fewer than 100 vehicle trips per day. The Planning Department uses the screening criterion of 100 vehicle trips per day as the level at which most projects would not typically generate a substantial increase in vehicle miles traveled.

The subsection below discusses the screening criterion and threshold of significance used to determine whether public services and utilities would result in a substantial increase in vehicle miles traveled. The screening criterion and threshold of significance are consistent with CEQA section 21099 and with the screening criteria recommended in the California Office of Planning and Research's proposed transportation impact guidelines.

Public Service Land Uses (e.g., police, fire stations, public utilities). These land uses do not typically generate a substantial increase in vehicle miles traveled but rather support other land uses (e.g., office and residential). Therefore, these land uses are presumed not to generate substantial increases in vehicle miles traveled. The proposed project would not generate additional operational vehicle miles traveled because the vegetation management program would be implemented by existing staff, the culvert improvements would be performed by existing staff, and the sand shed construction would be a short-term activity done by a small construction team (approximately eight workers for one month at about 10 vehicle trips per day).

Because the proposed project meets the screening criterion, vehicle miles traveled impacts are presumed to be less than significant; as such, a detailed vehicle miles traveled analysis is not required for the proposed project, and vehicle miles traveled impacts are not discussed in Section E.5, Transportation and Circulation.

D.2. APPROACH TO CUMULATIVE IMPACT ANALYSIS

CEQA Guidelines, section 15130(b)(1) provides two approaches to a cumulative impact analysis: (1) the analysis can be based on a list of past, present, and reasonably foreseeable probable future projects producing closely related impacts that could combine with those of the proposed project, and (2) a summary of projections contained in a general plan or related planning document can be used to determine cumulative impacts. The following factors were used to determine an appropriate list of individual projects to be considered in this cumulative analysis:

- **Similar Environmental Impacts.** A relevant project contributes to effects on resources that are also affected by the project. A relevant future project is defined as one that is “reasonably foreseeable,” such as a project for which an application has been filed with the approving agency, or whose funding has been approved.
- **Geographic Scope and Location.** A relevant project is one in the geographic area where effects could combine. The geographic scope varies on a resource-by-resource basis. For example, the geographic scope for evaluating cumulative effects on air quality consists of the affected air basin.
- **Timing and Duration of Implementation.** Effects associated with activities for a relevant project (e.g., short-term construction or long-term operations) would likely coincide with the related effects of the project.

The proposed project, in combination with past, present, and reasonably foreseeable future projects near the proposed project, could result in cumulative impacts. **Table 2** lists these cumulative projects, which were identified based on the above-referenced factors. Cumulative projects with construction schedules that could overlap with construction of the proposed project are shown in **bold**. Potential cumulative impacts are addressed under each of the environmental topics. The locations of the cumulative projects are shown in **Figure 7**.

Table 2: Past, Present, and Reasonably Foreseeable Future Cumulative Projects

Project No.	Project Name	Project Description	Construction Dates (Bold Indicates Overlap with Proposed Project)	Project Proponent
1	Lower Cherry Aqueduct	The Lower Cherry Aqueduct is utilized as a backup water supply and delivers water from Cherry Creek to supplement the primary Hetch Hetchy reservoir supply during a drought year. The objective of the project will be to complete repairs along the Lower Cherry Aqueduct System, including work at Cherry Creek Diversion Dam, open canal reaches, pipe aerial crossing, and forebay. The scope of the project will include: rehabilitation of the existing Cherry Creek diversion dam, installation of two (2) new sluice gates with control unit and four (4) new slide gates, replacement of the hydraulic control room and gatehouse structure, rehabilitation of the diversion dam access trail, repair of reinforced concrete saddles, replace forebay drain pipe, installation of rail fence adjacent to the open canal. Repair activities would be performed using a helicopter, hand tools and heavy equipment. ¹	2018-2019	SFPUC
2	Warnerville Substation Upgrade	The Warnerville Substation Upgrade project consists of replacing the transformers to reduce the risk of overloads from new projects. In addition, the project would include replacing fencing, circuit breakers, and relays.	October 2016-June 2018 ²	SFPUC
3	Mountain Tunnel Long-Term Improvements Project	The project proposes to improve the condition of the existing, approximate 19-mile Mountain Tunnel to ensure the tunnel's continued ability to reliably provide quality drinking water to customers. Improvements consist of repairing internal tunnel defects, removing debris, improving maintenance access, reducing water infiltration, constructing a new portal and adit, and installing a flow control facility. In addition, the project proposes to improve specific roadways for safe access to the tunnel.	Unknown	SFPUC
4	Holm Powerhouse Rehabilitation and Kirkwood Powerhouse Oil Containment	This project includes completing a post-fire assessment of the Holm Powerhouse building, the powerhouse mechanical and electrical equipment, the powerhouse deluge tank, and the fiber optic cable from the powerhouse to the Intake switchyard; repair of the Holm Powerhouse roof; replacement of server cabinet components; replacement of new electrical switchgear that had been purchased for installation; removal of the damaged deluge tank; replacement of approximately 1,500 feet of fiber optic cable; and construction of an oil containment system at the Kirkwood Powerhouse. ¹	July 2018 - December 2019 ²	SFPUC
5	Mountain Tunnel Interim Repairs Project	Short-term repairs will be made in winter 2018/2019 to reduce risk of failures in the concrete lining. The interim repairs will require 60-day shutdowns. This project completes repairs started in 2017 (2017 Mountain Inspection and Repairs Project). ¹	July 2018-June 2019	SFPUC
6	Kirkwood Penstock Short Term Risk Reduction Measures	The Kirkwood penstock has experienced significant movement of the foundation materials resulting in the penstock detaching from one fixed saddle directly below one of the anchor blocks. Although the movement has not impacted the service utility, short- and long-term work plans are in progress. Short-term projects include repairs due to recent damage, installation of a monitoring system, and procurement of emergency spare equipment. Long-term plans include repairs to the lining, recoating, extensive foundation treatment, and rock protection at selective locations. ¹	August 2017-August 2018 ¹	SFPUC
7	Mountain Tunnel Access & Adit Improvement Project	This project consists of adits and access road improvements to allow for faster entry of construction workers and crews in the event of a water service interruption, to return the Mountain Tunnel to service. ¹	February 2016-June 2017 ²	SFPUC

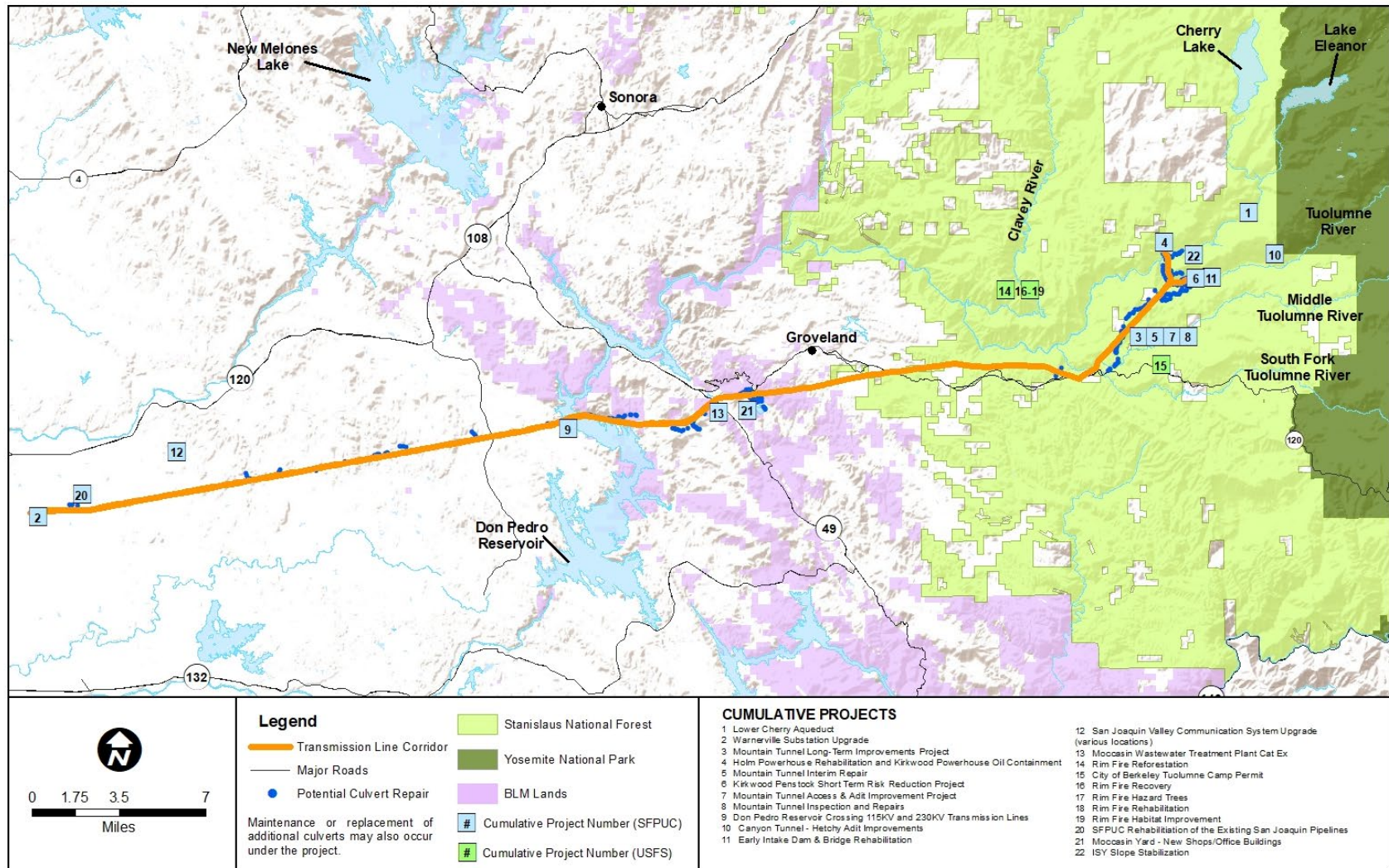
Project No.	Project Name	Project Description	Construction Dates (Bold Indicates Overlap with Proposed Project)	Project Proponent
8	2017 Mountain Tunnel Inspection and Repairs	The project provides for a tunnel inspection in 2017 to update the Condition Assessment conducted in 2008, as well as short-term repairs in 2017 and 2018 to reduce the risk of failures in the concrete lining. ¹	August 2016–March 2018 ¹	SFPUC
9	Don Pedro Reservoir Crossing 115KV and 230KV Transmission Lines	This project would replace the existing lattice towers with taller monopoles on each side of the reservoir crossing to comply with regulatory requirements. Regulatory requirements require a 50-foot minimum clearance between the high-water elevation of the reservoir, and the SFPUC 115 kV and 230 kV transmission lines. The clearance is currently less than the 50-foot minimum. ²	2015-2016 ¹	SFPUC
10	Canyon Tunnel - Hetchy Adit Improvements	This project involves rehabilitation of the Hetchy Adit at Canyon Tunnel. The Canyon Tunnel, built over 45 years ago, is approximately 10 miles long and delivers the SFPUC water supply from O'Shaughnessy Reservoir to Kirkwood penstock. The tunnel is in good condition, but rehabilitation work is required due to recent recorded leakage at this tunnel access point. The project includes installation of a new reinforced concrete plug downstream of the existing plug. Once the downstream plug is in place and tested, a short outage will be needed to remove the existing sliding-steel bulkhead door to allow the full pressure to reach the new plug. ¹	January 2017–June 2017 ¹	SFPUC
11	Early Intake Dam & Bridge Rehabilitation	The Early Intake Dam is reaching the end of its design life. The project objective is to replace or rehabilitate the Early Intake Dam, the Mountain Tunnel Intake Structure, the spillway structure, and associated mechanical and electrical equipment.¹	2023 - 2025	SFPUC
12	San Joaquin Valley Communication System Upgrade	The project consists of replacing four different existing communication and control systems that are outdated and require improvements to meet current regulatory standards. The project includes the installation of microwave towers, microwave equipment, electrical equipment, and other peripheral equipment. ¹	2014-2016 ¹	SFPUC
13	Moccasin Wastewater Treatment Plant	The Moccasin Wastewater Treatment Plant was installed in the 1970s and has been in continuous operation. The plant has reached the end of its reliable service life and requires replacement. The objective of this project is to replace and upgrade the facilities to treat the wastewater water to secondary treatment standards. The project also includes improvements to the Lower Camp lift station and installation of a fine screen, site work, yard piping, electronics, and instrumentation for remote monitoring. ¹	January 2017–September 2017 ¹	SFPUC
14	Rim Fire Reforestation	Approximately 48,000 acres of treatments on National Forest lands within the 2013 Rim Fire area including: deer habitat enhancement; natural regeneration; noxious weed eradication; reforestation; and thin existing plantations.³	2016-2029⁴	U.S. Forest Service
15	City of Berkeley Tuolumne Camp Permit	Reconstruction, occupancy, use, and maintenance of the City of Berkeley Tuolumne Camp, which was completely destroyed by the 2013 Rim Fire.⁵	2017-2019⁵	U.S. Forest Service
16	Rim Fire Recovery	Salvage dead trees to capture economic value; remove roadside hazard trees to protect public and worker safety; reduce fuels for future forest resiliency; improve roads for hydrologic function; and enhance wildlife habitat. ⁶	2014-2018	U.S. Forest Service
17	Rim Fire Hazard Trees	Removal of hazard trees along 194 miles (8,986 acres) of high use roads and across 1,329 acres of National Forest System lands within and adjacent to developed facilities. ⁷	2014-2016	U.S. Forest Service
18	Rim Fire Rehabilitation	Post-fire wildlife, watershed and range rehabilitation with heavy equipment treatments including: meadow restoration and installing water troughs and wildlife guzzlers.⁸	2016-2019	U.S. Forest Service

Project No.	Project Name	Project Description	Construction Dates (Bold Indicates Overlap with Proposed Project)	Project Proponent
19	Rim Fire Habitat Improvement	Post-fire wildlife, watershed, sensitive plants and special aquatic features habitat improvement with hand-only treatments including: pulling noxious weeds; fencing meadows and other sensitive areas; and creating nest structures for great gray owls. ⁹	2016-2017 ⁹	U.S. Forest Service
20	San Joaquin Pipeline Rehabilitation	Project to rehabilitate the existing San Joaquin Pipeline. Project consists of condition assessment, repair, rehabilitation, upgrades, and maintenance of the existing San Joaquin Pipeline System.²	2011-2031²	SFPUC
21	Moccasin Yard - New Shops/Office Buildings	The shops and buildings at Moccasin are original and vary from 45 to 80 years in age. The primary objective of this project is to build a 10,000-square-foot combined-function complex consisting of a plumbing shop, vegetation management shop, right of way shop, electronic technician shop, lockers, shower facilities, and break room. ¹	2017	SFPUC
22	Intake Switchyard Slope Stabilization	The Rim Fire caused severe burning of the slopes adjacent to the Intake switchyard which has increased the slope instability hazards, resulting in risks to health and safety, damage to property, and potential loss of operations. This project would mitigate these hazards by slope grading (flattening) with netting, sheet metal skirting along the fence to protect the switchyard, and surface water diversions.	2019-2020	SFPUC and FEMA
23	Transmission Line Clearance Mitigation Project	The Transmission Line Clearance Mitigation Project is a 15-year-long regulatory project addressing the 2010 North American Electric Reliability Corporation's Alert. The aim of the project is to correct deficiencies in transmission conductor clearances resulting for differences between the as-built condition verses the plan and profile of the transmission lines. The project will modify 54 towers on lines 5 & 6 and 18 towers on lines 3 & 4 between Holm Powerhouse and Warnerville switchyard. All solutions are modifications to existing towers and conductors except for 10 sites proposed for grading within the wire zone.	2015-2030	SFPUC

Sources:

- ¹ San Francisco Public Utilities Commission, MTIP Cumulative Projects List Spreadsheet, email from Antonia Sivyer to Tim Johnston dated September 12, 2018.
- ² San Francisco Public Utilities Commission, Copy of EMB Project tracking-HSIP Projects 06 06 16 Spreadsheet, email from Antonia Sivyer to Josh Uecker and Timothy Johnston, June 8, 2016
- ³ United States Department of Agriculture, U.S. Forest Service, *Rim Fire Reforestation Environmental Impact Statement*, April 2016.
- ⁴ United States Department of Agriculture, U.S. Forest Service, *Rim Fire Reforestation Environmental Impact Statement, Appendix R: Reforestation Schedule*, April 2016.
- ⁵ United States Department of Agriculture, U.S. Forest Service, *City of Berkeley Tuolumne Camp Permit (46690) Scoping Package, Stanislaus National Forest, Groveland Ranger District, Tuolumne County, California*, October 22, 2015.
- ⁶ United States Department of Agriculture, U.S. Forest Service, *Rim Fire Recovery (43033) Environmental Impact Statement*, August 2014.
- ⁷ United States Department of Agriculture, U.S. Forest Service, *Rim Fire Hazard Trees (43032) Environmental Assessment*, March 2014.
- ⁸ U.S. Forest Service Groveland Ranger District, *Rim Fire Rehabilitation (45861) Decision Memo Stanislaus National Forest, Groveland and Mi-Wok Ranger Districts, Tuolumne and Mariposa Counties, CA*, April 20, 2015.
- ⁹ U.S. Forest Service Mi-Wok Ranger District, *Rim Fire Habitat Improvement (45860) Decision Memo Stanislaus National Forest, Groveland and Mi-Wok Ranger Districts, Tuolumne and Mariposa Counties, CA*, April 16, 2015.

Figure 7. Cumulative Projects



E. EVALUATION OF ENVIRONMENTAL EFFECTS

This section includes an analysis of the potential environmental effects of the proposed project. Within each resource area is a brief discussion of the existing setting, an analysis of the potential impacts, and a determination of significance. Should this analysis find mitigation measures would be required, identified mitigation measures are also described, following the naming and numbering convention described in Section D, above.

E.1. LAND USE AND PLANNING

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
1. LAND USE AND LAND USE PLANNING— Would the project:					
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact LU-1: The proposed project would not physically divide an established community. (No Impact)

The division of an established community would typically involve the construction of a physical barrier to neighborhood access, such as a new freeway, or the removal of a means of access, such as a bridge or a roadway, which would not occur under the proposed project. The proposed project consists of vegetation management, culvert replacement, and construction of a sand shed, and would occur largely within land owned by SFPUC or on transmission line access roads through U.S. Forest Service land that SFPUC maintains by virtue of the Raker Act. The one potential exception to this is the proposed removal of hazard trees immediately adjacent to SFPUC right of way that are within the strike zone of the transmission line and still subject to Raker Act stipulations. The project corridor contains agricultural, rural, and forest lands with no residential uses. There are no established communities within or adjacent to the project corridor. The project activities would not divide the surroundings. The only new permanent structure included in the project would be the sand shed, which would be in a remote area with no surrounding community. For these reasons, the proposed project would not physically divide an established community, and no impact would occur.

Impact LU-2: The proposed project would not conflict with applicable land use plans, policies, and regulations of agencies with jurisdiction over the project adopted for the purposes of avoiding or mitigating an environmental effect. (No Impact)

The proposed project activities would not alter existing land uses. Implementation of the vegetation management program and culvert maintenance would largely occur within the existing right of way and along existing access roads, except for potential removal of hazard trees within the strike zone just

outside the right of way. Construction of the proposed sand shed would occur within the existing right of way and at a location compatible with the existing maintenance activities. As described in Section C, Compatibility with Existing Zoning and Plans, the proposed project is not expected to conflict with the plans and policies of the City, Tuolumne, Mariposa or Stanislaus counties. Therefore, no impact would occur.

E.2. AESTHETICS

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
2. AESTHETICS—Would the project:					
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and other features of the built or natural environment which contribute to a scenic public setting?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area or which would substantially impact other people or properties?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact AE-1: The proposed project would not have a substantial adverse effect on a scenic vista. (Less than Significant)

A project would have a significant effect on scenic vistas if it would substantially degrade important public view corridors or obstruct scenic views that can be seen from public areas by a substantial number of people. A scenic vista is generally an expansive, publicly accessible view that is recognized and valued for its scenic quality. Scenic vistas are typically available from vista points, designated scenic highways, or from parks. The Rim of the World Vista³⁴ is located directly underneath the transmission lines in the Stanislaus National Forest at the intersection of SR 120 and the project corridor, approximately 0.5 miles west of Colfax Spring.

The proposed project would be located within agricultural lands, open spaces, Bureau of Land Management lands, and the Stanislaus National Forest. Within the vicinity of the proposed project are scenic rivers and eligible scenic highways. Construction activities and vegetation maintenance activities may be visible to visitors in Stanislaus National Forest. The proposed project would include vegetation management, potential tree removal, as well as activities associated with construction of the sand shed and culvert replacements. The presence of construction or maintenance equipment along the project corridor would be temporary, and equipment would be removed following the culvert replacements and vegetation management activities. Implementation of the vegetation management program would more systematically maintain low plant cover within the transmission right of way wire zone, with taller vegetation in the border zone, transitioning to the forest area. Maintaining the transition zones would not likely result in a noticeable change from the Rim of the World Vista point. Currently, the view of the right

³⁴ U.S. Department of Agriculture Forest Service, *Rim of the World Vista*, Available at <https://www.fs.usda.gov/recarea/stanislaus/recarea/?recid=80018>, accessed February 21, 2017.

of way from the Rim of the World Vista point consists of an area cleared of tall trees. Thus, future views from this point with implementation of the project would be generally consistent with current views.

Culvert replacements would occur at a rate of approximately twelve culverts per year, all along existing access roads. Each culvert replacement would typically require no more than one day of construction activity and generally would not be visible from publicly accessible vantage points due to their general remoteness (away from major roadways) and typical surrounding topography (mostly rolling hills or mountainous). Upon completion, the disturbed areas would become revegetated and thus be unnoticeable over time. Furthermore, many of the culvert replacement activities would occur along access roads that are either not publicly accessible or rarely used by the public. Therefore, views of construction activities associated with replacement of culverts would be short-term in nature and would not have a substantial adverse effect on scenic vistas.

The proposed sand shed would be located adjacent to a transmission tower and would only be visible from the access roads serving this location and from the access road along the top of the opposite ridge (east of the Tuolumne River). Due to the topography and existing vegetation, the sand shed would be difficult to view from public roads, particularly as vegetation recovers from the Rim Fire. The sand shed would be in a previously visually-disturbed area where existing power lines and towers are present, and views would be fleeting. The sand shed would be located on the uphill side of Cherry Lake Road and would not block the view from the road down into the valley and river.

Since nearly all of the proposed project activities would occur within the existing transmission corridor and transmission access roads (as well as potential tree removals adjacent to the right of way if a tree poses a risk of striking the transmission lines), it would be generally consistent with current vegetation practices, and construction activities would be short term in nature and temporarily disturbed areas would be restored, potential impacts to scenic vistas would be less than significant.

Impact AE-2: The proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and other features of the built or natural environment which contribute to a scenic public setting. (Less than Significant)

Scenic resources include trees, rock outcroppings, and other landscape features that contribute to the scenic character of a public area. As noted previously, the proposed project is primarily located within open space and undeveloped land. As noted in Impact AE-1, the proposed project would not substantially change existing vegetation management, and culvert replacement would occur on a temporary, short-term basis at any given site and temporarily disturbed areas would be restored upon completion of work. Further, culvert replacement would be limited to existing access roads and the area immediately adjacent to the roads. Access roads do not contribute to a scenic public setting and are part of the utility corridor setting, which is not publicly accessible. The proposed sand shed would not be highly visible and would not impact scenic resources within the study area because it would not remove landscape features for its construction. Given that the project activities would be located within the existing transmission right of way and access roads and are short term in nature (although occurring indefinitely overtime), impacts related to scenic resources would be less than significant.

Impact AE-3: The proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings. (Less than Significant)

Most of the proposed project is located within undeveloped lands in both Stanislaus and Tuolumne Counties. From west to east, the project corridor traverses farmland (the Warnerville Substation to just west of Willms Road), open space (approximately Willms Road to Moccasin), developed land (Moccasin), and mountainous and forested open space east to the two eastern termination points of the proposed project (Holm and Kirkwood powerhouses). The project corridor crosses many creeks and rivers, including the Tuolumne River, a National Wild and Scenic River³⁵, and some of its tributary creeks. The proposed project crosses the Wild and Scenic designated portion of the Tuolumne River at Cherry Lake Road, south of the confluence of Tuolumne River and Cherry Lake Creek. The portion of SR 49 that runs within Tuolumne County is an eligible, but not officially designated, state scenic highway. However, Tuolumne County's General Plan does designate the portion of SR 49 near the proposed project as a scenic route. SR 8 from the junction with SR 49 to the eastern border of Tuolumne County is also an eligible, but not officially designated, state scenic highway.³⁶ As described below, the proposed project activities would not substantially degrade the visual character or quality of these scenic features or other surrounding areas.

Implementation of the vegetation management program would maintain the transmission line right of way in a manner consistent with current vegetation regulations and guidelines for transmission line safety. The locations of the existing transmission line corridor, transmission towers, and lines themselves would not be altered by the proposed project. The outcome of proposed vegetation control activities would result in compatible vegetation types that would still be consistent with the existing visual character of the corridor, regardless of the changes in vegetation within the corridor resulting from the proposed zone-based vegetation management.

Culvert replacement activities would result in temporary construction activity along roadways within the proposed project area. These activities would include excavation and potential temporary diversion rerouting of waterways. Culvert replacements would be completed within approximately a day at each site and the crossings restored. Culverts are generally not visually intrusive and are primarily underground. Roadways over the culverts would be restored following culvert replacement. Some culvert locations may include new features for erosion control, such as the addition of rip-rap along roadways or installation of energy dissipaters. Such structures are likely to be visible from the roadway but would not substantially degrade the existing visual character or quality of the site and its surroundings because they would be located along existing (or replacement) non-natural features (i.e., the roadway and culverts), and would not be visually obtrusive. Erosion control features would generally be low-profile and would not be widely visible except at the culvert crossings themselves.

³⁵ National Wild and Scenic Rivers System, *Tuolumne River, California*, Available at <https://www.rivers.gov/rivers/tuolumne.php>, accessed August 9, 2016.

³⁶ California Department of Transportation, Tuolumne County, California Scenic Highway Mapping System, Available at http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/touolumne.htm, accessed August 9, 2016.

The proposed sand shed would have a footprint of 2,500 square-feet and a height of 25 feet. Construction of the sand shed would change the visual character by introducing a new structure at the site. However, the sand shed would not be visible from public roadways except from the access road leading to this site and from an access road along the opposite ridge. Views of the sand shed from the access road leading to this site (Cherry Lake Road) would be fleeting. The sand shed would be located on the uphill side of Cherry Lake Road, and thus would not block views from the road. The existing visual character of the area includes power lines overhead and towers nearby. The shed would become more hidden from view as vegetation in the vicinity recovers from the Rim Fire. The proposed sand shed would therefore not substantially degrade the existing visual character of the project area and impacts would be less than significant.

Impact AE-4: The proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area or which would substantially impact other people or properties. (Less than Significant)

Implementation of the vegetation management program and culvert replacement activities would be completed during daylight hours and would not require lighting. Neither the vegetation management program nor the culvert replacement would install features that could create light or glare that would adversely affect day or nighttime views in the area or otherwise substantially impact other people or properties.

The sand shed would require exterior lights for safety and security. In the winter season, workers would likely need to access the sand shed during dark or low-light times of day (e.g., dawn or dusk), when lighting would be required. The sand shed's proposed location is remote and isolated from neighboring properties and people. Further, the sand shed would not be visible except from limited access roads in the area. Exterior lighting on the sand shed would therefore not adversely affect day or nighttime views in the area nor would it substantially impact other people or properties. However, because of the sand shed's proposed location in a remote area, any lighting installed as part of the sand shed would represent a new source of light. There would be two light sources at the sand shed. Floodlights at the main front entry would be used to illuminate the loading area when trucks are in operation. A second, smaller light over the pedestrian access door would be downward facing and used when operators are on site. (see Section B.2.3. Sand Storage Shed on Intake Hill). No features of the proposed project would create a source of glare because the only above-ground structure would be the sand shed, which would not include windows or reflective surfaces on its exterior. For the reasons stated above, impacts related to nighttime light would be less than significant.

Impact C-AE: The proposed project, in combination with past, present, or reasonably foreseeable projects near the project site, would not result in cumulatively significant impacts related to aesthetics. (Less than Significant)

The geographic scope for cumulative visual impacts is the viewshed of the proposed project from which vegetation management, culvert replacement, and sand shed construction activities would be visible. There are many cumulative projects that would occur within this viewshed, but because most of them involve repair or upgrade of existing facilities, very few projects would contribute to cumulative changes in the visual environment and, in turn, visual impacts. The only projects that could have cumulative visual impacts within the viewshed are the various Rim Fire projects, including the Recovery, Hazard Tree, Rehabilitation and Habitat Improvement projects (projects 18 through 21 in **Table 2**). The Rim Fire

itself had a substantial visual impact on the eastern end of the project corridor, and the Rim Fire Recovery and Hazard Tree removal projects resulted in removal of many trees that had been burned in the fire, including some trees along the project corridor. Subsequent Rim Fire projects have focused on restoration and have had beneficial impacts on the visual environment.

As a result, the minor visual impacts associated with vegetation management, culvert repair, and construction of the new sand shed would not change the visual character of the project area and are not expected to contribute to the same types of visual impacts associated with the Rim Fire projects. The project would thus not result in aesthetic impacts that would be cumulatively significant.

E.3. POPULATION AND HOUSING

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
3. POPULATION AND HOUSING— Would the project:					
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing units or create demand for additional housing, necessitating the construction of replacement housing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact PH-1: The proposed project would not induce substantial population growth in an area, either directly or indirectly. (No Impact)

In general, a project would be considered growth inducing if it would substantially increase population or new development that might not occur if the project were not implemented. The proposed project would not involve construction of housing, businesses, or extension of utilities or road infrastructure into undeveloped areas. The purpose of the project is to protect the existing infrastructure and ensure the reliability of the electrical transmission line between Holm and Kirkwood powerhouses and the Warnerville Substation. The project would not include any new connections of electrical infrastructure to the existing electrical infrastructure and would not expand the capacity of the electrical transmission system that could indirectly facilitate population growth. Therefore, the project would not induce growth or remove obstacles to population growth.

Vegetation management work would be conducted by two to four workers. Culvert repair and replacement work would require approximately four to six workers. The SFPUC anticipates that approximately 12 culverts would be replaced per year and that each culvert can be replaced in one day or less. Sand shed construction is expected to require approximately eight workers per day for approximately one month. All work needs would be met with the existing local and regional workforce.

Demand for workers would not be great enough to result in workforce relocation to the project area. Maintenance and construction crews would only rely on the surrounding communities for occasional use of services (gas, food, and supplies). As such, work crews would not demand services of surrounding businesses to an extent that would induce growth in their communities. Therefore, the proposed project would not result in direct or indirect population growth in the area, and no growth-inducing impacts would occur.

Impact PH-2: The proposed project would not displace substantial numbers of existing housing units or people, nor would it create substantial demand for additional housing that would necessitate the construction of replacement housing. (No Impact)

The project would occur largely within the SFPUC-owned right of way and the transmission line access roads. The project area does not contain any housing or residential use. Therefore, project implementation would not result in displacement of existing housing units or construction of new housing elsewhere. Because the proposed project would not displace existing housing units or create demand for additional housing, there would be no impact.

E.4. CULTURAL RESOURCES

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
4. CULTURAL RESOURCES—Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code §21074?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cultural Resources Studies

Archaeological records searches were conducted in 2010, 2016 and 2018, and archaeological surveys in 2013, 2016 and 2018 that, taken in combination, addressed approximately 42 linear miles of the 50-mile long vegetation management corridor and all potential culvert repair locations, as described below and summarized in **Table 3**. Eight miles of the transmission corridor were included in a records search, but not included in archaeological surveys, as no potentially ground-disturbing vegetation management activities are proposed for these areas. **Figure 8** shows the linear extent of the records searches and archaeological surveys along the transmission line corridor.

Table 3: Cultural Resource Reports Prepared for Project

Location and Length of Survey Corridor	Date of Records Search	Date of Archaeological Survey	Identified Sites	Technical Report Reference	Additional Features Covered
Holm and Kirkwood Powerhouses to Tower 154S, 17.4 miles	2010		22	CCIC-7735	
Holm and Kirkwood Powerhouses to Tower 154S, 16/17.4 miles ¹		2013	37 (24 recommended eligible)	WSA 2013	36 culverts
Holm and Kirkwood Powerhouses to Tower 154S, 17.4 miles	2018		5 additional sites	CCIC-10828 Paleowest 2018	
Tower 154S to Warnerville Switchyard, 33 miles	2016		48	Paleowest 2018	
Tower 207S to Tower 205S, 1,600 feet		2018	6 (none identified as eligible) ²	Paleowest 2018	12 culverts
Tower 154S to Tower 380S (Vernal Drive to Wilms Road), 25 miles		2018	23 (17 recommended eligible)	Paleowest 2018	237 culverts
Tower 380S (Wilms Road) to west end of transmission line, 8 miles		No survey	No information	None	

¹ Out of the 17.4-mile corridor, 16 miles were surveyed. Approximately 1.4 miles of the corridor was inaccessible due to topography, and vegetation management activities are not expected to occur in those areas.

² One historic railroad grade previously recommended as eligible but portion in project area is modern road, one historic road recommended as not eligible, one previously identified bedrock mortar could not be located, one was outside survey area, other sites should be treated as eligible

Figure 8A: Cultural Resources Survey Areas

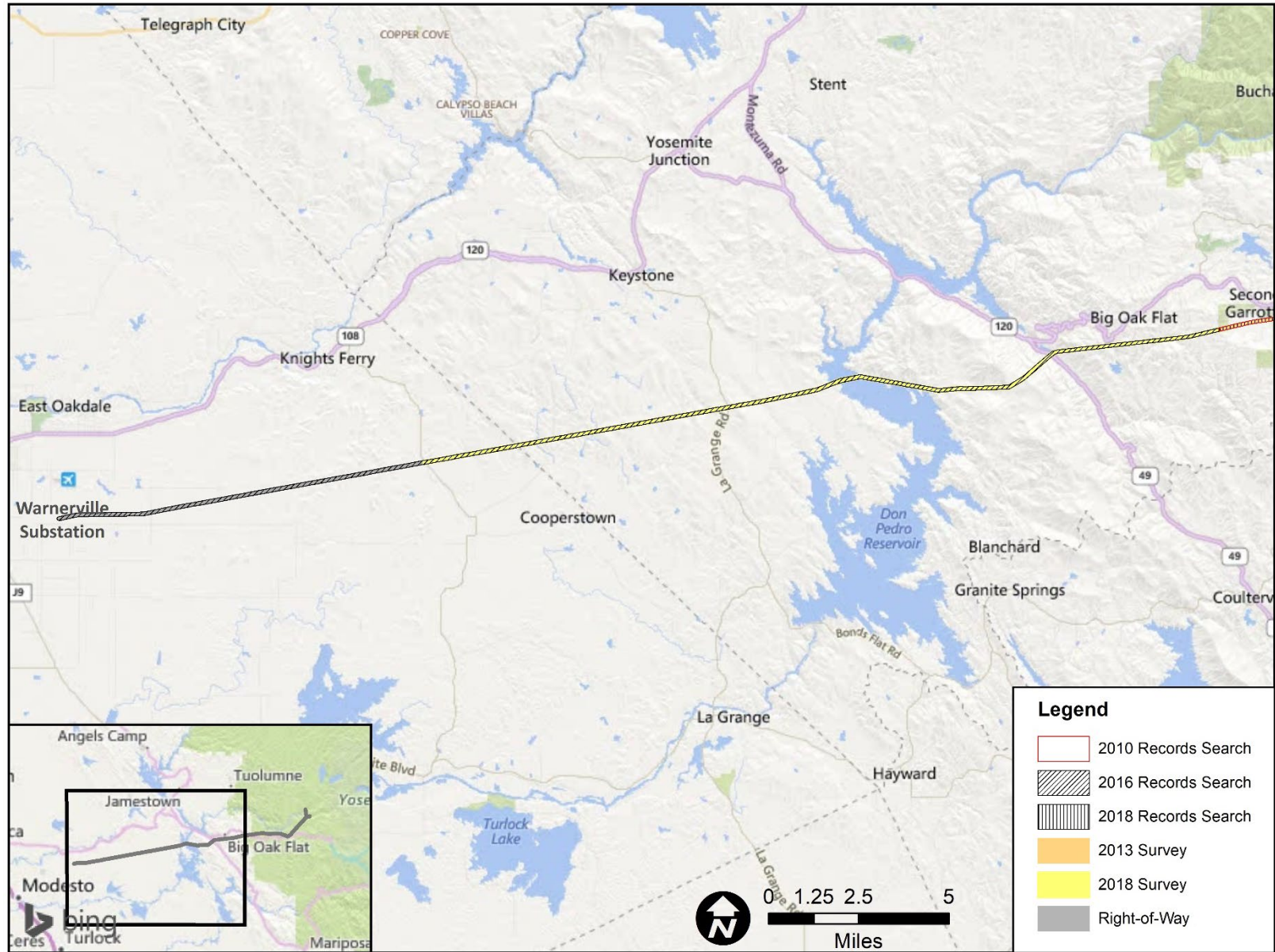
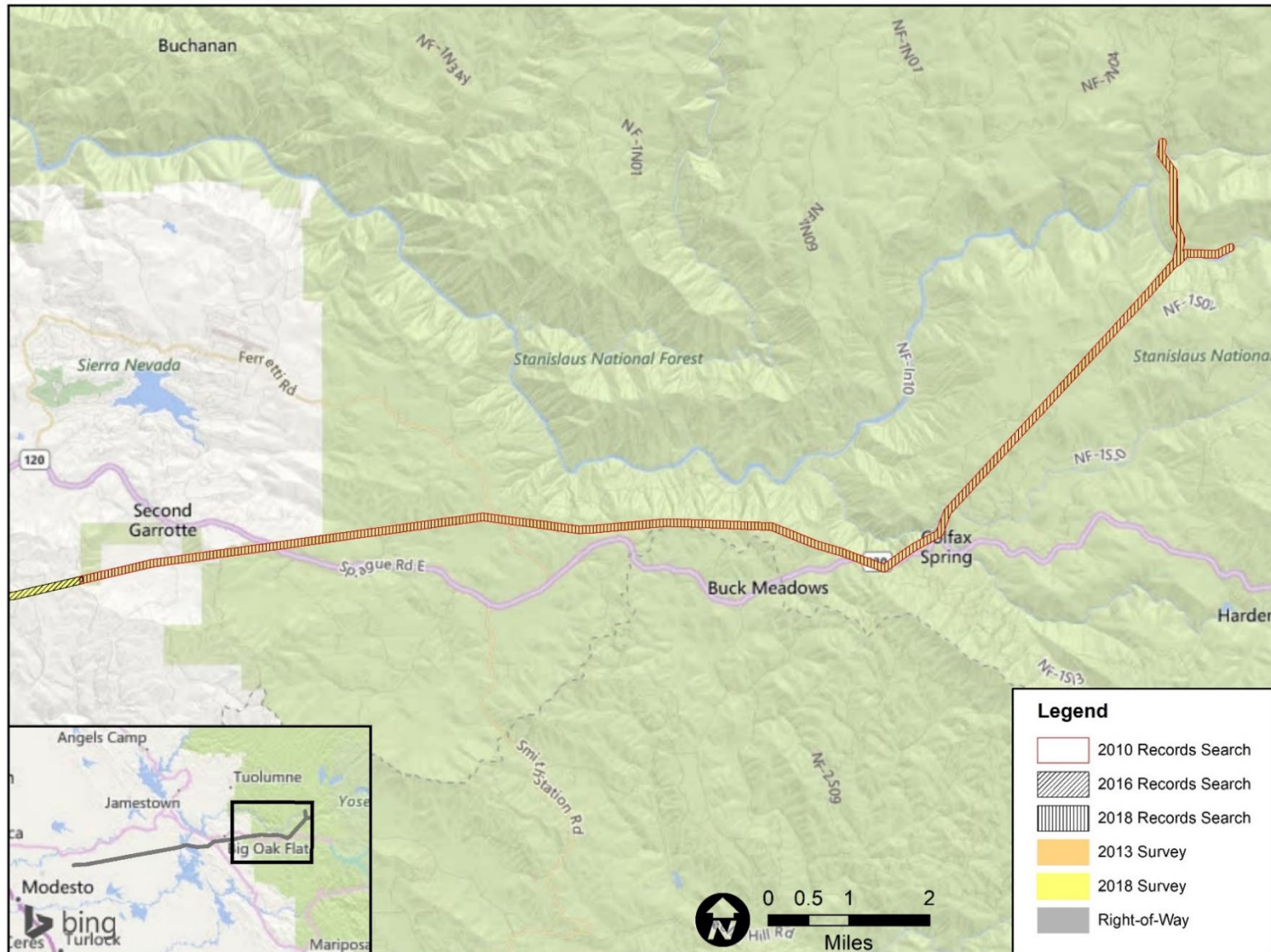


Figure 8B: Cultural Resources Survey Areas



In 2010, an archaeological records search of the eastern 17.4 miles of the project corridor was conducted by SFPUC's Hetch Hetchy Water and Power division (HHWP) at the Central California Information Center, at California State University, Stanislaus in Turlock, CA, in 2010 (File #7735 MO), and HHWP also obtained site records for this portion of the corridor from the US Forest Service. The US Forest Service also provided all of their GIS files for cultural resource studies and recorded archaeological sites within a 1-mile radius of the project area and several archaeological site records that were not included in the Central California Information Center's records search results. In 2013, a cultural resources survey was conducted for a portion of the project corridor from the Holm Powerhouse southward approximately 1.7 miles, the portion of the corridor from the Kirkwood Powerhouse westward approximately 0.7 miles, and from that point westward approximately 15 miles to a point west of Second Garotte (see **Figure 8**). The total mileage for the 2013 survey was approximately 16 miles.³⁷ In addition, 36 drainage facilities were also included in the survey. The survey evaluated the corridor and drainage facilities to identify the presence of both archaeological and historic-era built environment resources. The 2010 records search identified 52 previous studies in the project area, with 22 previously recorded archaeological sites. An additional 15 sites were newly recorded during the 2013 survey. All 37 identified sites within the corridor were evaluated to assess their potential eligibility for the National Register of Historic Places (National Register) and California Register, resulting in 24 sites being recommended as eligible.

On September 6, 2018 the Central California Information Center updated the records search File #7735 MO (updated File #10828 MO) for the easternmost 17.4 miles of the corridor to include newly recorded sites and new studies since 2013 in the eastern portion of the project area.³⁸ The results of the records search update indicate that ten additional studies have covered portions of the project area, and from these studies five additional previously recorded cultural resources were identified within the eastern part of the project area, which had been surveyed in 2013. These new resources are historic-era roads or ditches.

A records search of the remaining 33 miles of the project corridor from just east of Vernal Drive to Warnerville was conducted at the Central California Information Center (File #10099 NO) on December 5, 2016.³⁹ The records search also considered both archaeological and historic-era built environment resources. The records search study area was defined as a ¼-mile radius centered on the project corridor, which includes the corridor's 250-foot wide right of way, a 100-foot wide corridor for all access roads and a 50-foot radius buffer around each existing culvert location. The records search indicated 48 cultural resource studies (including archaeological and architectural resources) have been conducted previously within the project area, and another 26 studies have

³⁷ WSA, 2015. Archaeological Survey Report HHWP Reliable Power Project, Tuolumne County, California. Prepared for San Francisco Planning Department

³⁸ PaleoWest, 2018. *Results of the Archaeological Records Search for the Upcountry Section of the Hetch Hetchy Reliable Power Project*. Prepared for San Francisco Public Utilities Commission and San Francisco Planning Department, Environmental Planning Division.

³⁹ WSA, 2017. *Results of the Archaeological Records Search for the Hetch Hetchy Water Project Reliable Power Project*. Prepared for San Francisco Public Utilities Commission and San Francisco Planning Department, Environmental Planning Division.

been conducted within ¼ mile of the project area. The records search also indicated that 48 previously-recorded cultural resources sites are located in the project area. Six of the cultural resources sites had previously been assessed for eligibility for the California Register of Historical Resources, of which three were recommended as eligible and three as not eligible.

In 2018, a cultural resources survey was conducted for approximately 25 miles of the HHWP 250-foot-wide ROW from Tower 154S, just east of Vernal Drive, to Tower 380S, just east of Willms Road (generally, from Groveland to Willms Road), as well as 400-square-foot areas centered on 237 culvert locations, from Holm Powerhouse at the east end, to Wamble Road south of Oakdale, on the west end.⁴⁰ These culverts are proposed for improvements as part of the proposed project. The remaining 8 miles of right of way corridor from east of Tower 380S to the western end of the project alignment is primarily grasslands and agriculture and ground disturbing activities for vegetation management are not expected to occur as part of this project; thus, this area was not included in the project archaeological surveys. Fourteen archaeological sites were identified within the survey area. Of these, one was newly discovered during the survey. Although 22 resources were identified from the records search, 5 were determined to lie outside of the survey area. One additional site was discovered as a result of the survey. Of the 18 sites within the survey boundary, 5 are recommended as potentially eligible for listing in the National Register of Historic Places.

The results of the 2010 records search, the 2013 survey, the 2016 records search, and the 2018 records search and survey indicate that there are 60 cultural resources sites in the project area where ground-disturbing activities may occur, of which 29 are recommended as eligible for the National or California Register of Historic Places.

Culverts that would be replaced as part of the project are either stand-alone features under existing roads or are a part of the connected creek system. Culverts themselves generally do not meet the criteria to be identified as historically significant resources under the California Register.^{41,42}

Impact CR-1: The proposed project would potentially cause a substantial adverse change in the significance of an archaeological resource and potentially disturb human remains, including those interred outside of formal cemeteries. (Less than Significant with Mitigation)

Historical resources are those properties that meet the definitions in CEQA section 21084.1 and section 15064.5 of the CEQA Guidelines. “Historical Resources” include properties listed in, or formally determined eligible for listing in, the California Register of Historical Resources, or

⁴⁰ PaleoWest, 2018. *Archaeological Resource Survey Report for the HHWP Valley Area and Culvert Locations of the Reliable Power Project, Tuolumne and Stanislaus Counties, California*. Prepared for San Francisco Public Utilities Commission and San Francisco Planning Department, Environmental Planning Division.

⁴¹ WSA, 2015. *Archaeological Survey Report HHWP Reliable Power Project, Tuolumne County, California*. Prepared for San Francisco Planning Department.

⁴² WSA, 2017. *Results of the Archaeological Records Search for the Hetch Hetchy Water Project Reliable Power Project*. Prepared for San Francisco Public Utilities Commission and San Francisco Planning Department, Environmental Planning Division.

listed in an adopted local historic register. The term “local historic register” or “local register of historical resources” refers to a list of resources that are officially designated or recognized as historically significant by a local government pursuant to resolution or ordinance. Historical resources also include resources identified as significant in a historical resource survey meeting certain criteria. Additionally, properties that are not listed, but are otherwise determined by the lead agency to be historically significant based on substantial evidence, would also be considered historical resources. A property may be considered a historical resource if it meets any of the California Register criteria related to (1) events, (2) persons, (3) architecture, or (4) information potential that make it eligible for listing in the California Register, or if it is considered a contributor to an existing or potential historic district. The significance of a historical resource is materially impaired when a project “demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance.”

This impact addresses archaeological resources, including those that qualify as historical resources as defined in state CEQA Guidelines section 15064.5. A discussion of historical resources of the built environment (i.e., structures, buildings, objects, and districts) is provided in the discussion of Impact CR-2.

CEQA requires that the effects of a project on an archeological resource shall be taken into consideration and that if a project may affect an archeological resource that it shall first be determined if the archeological resource is an historical resource that is, if the archeological resource meets the criteria for listing in the California Register. To be eligible for listing to the California Register under Criteria 1, 2, or 3, an archeological site must contain artifact assemblages, features, or stratigraphic relationships associated with important events, or important persons, or be exemplary of a type, period, or method of construction.⁴³ To be eligible under Criterion 4, an archeological site need only show the *potential* to yield important information.⁴⁴ Most commonly, archeological resources that qualify as historical resource under CEQA, qualify for listing under Criterion 4 of the California Register.⁴⁵ An archeological resource may qualify for listing under Criterion 4 when it can be demonstrated that the resource has the potential to significantly contribute to questions of scientific/historical importance.

The 2013 archaeological surveys yielded 14 newly recorded historical or archaeological sites, of which eight were recommended as National and California Register-eligible.⁴⁶ The 2018 archaeological surveys yielded one newly recorded historical or archaeological site and 17 previously identified sites in the project area, of which five were recommended as National and

⁴³ CEQA Guidelines section 15064.5(a)(1) and (3) and (c)(1) and (2).

⁴⁴ California Office of Historic Preservation, California Register of Historic Resources, Criteria for Designation. Available at: http://ohp.parks.ca.gov/?page_id=21238. Accessed November 8, 2018.

⁴⁵ CEQA Guidelines section 15064.5 (a)(3)(D).

⁴⁶ WSA, 2015. *Archaeological Survey Report HHWP Reliable Power Project, Tuolumne County, California*. Prepared for San Francisco Planning Department

California Register-eligible.⁴⁷ Ground-disturbing activities associated with the proposed project could result in a significant impact to archaeological resources in the corridor.

Although no known human remains have been identified within the project site or general vicinity, the possibility of encountering human remains cannot be entirely discounted. Ground disturbing activities associated with project construction would be limited, but could directly affect previously undiscovered human remains, both in isolation and in the context of archaeological sites, which would constitute a significant impact.

With implementation of **Mitigation Measure M-CR-1a: Implementation of Project-level Archaeological/Historic Resource Review Procedures**, some impacts on previously recorded archaeological sites and previously undiscovered sites would be avoided or otherwise mitigated through an approved treatment plan. However, there is a potential that there may be instances in which ground disturbing activity within a site cannot be avoided, and also for accidental discovery of archaeological resources or human remains in locations where no sites were previously discovered. To address additional potential impacts to archaeological resources, procedures for accidental discovery, development of an archaeological monitoring program, and archaeological testing would be implemented, as applicable, as requirements of **Mitigation Measure M-CR-1b: General Archaeological Resource Protection Measures**. Implementation of M-CR-1b would ensure that impacts to archaeological resources are minimized by avoiding the resources, establishing exclusion areas and monitoring to ensure that archaeological deposits and/or human remains are not disturbed, undertaking an archaeological testing program, and conduct an archaeological data recovery program, which would reduce potential impacts on cultural resources to less-than-significant levels.

Mitigation Measure M-CR-1a: Implementation of Project-level Archaeological/Historic Resource Review Procedures

The following mitigation measure is required to avoid potential impacts from project activities on known and yet undiscovered archaeological and historical resources.

1. The SFPUC shall develop and maintain a confidential GIS database of cultural resources and associated site records within the area of potential effects in conjunction with preparation of the Mitigation Monitoring and Reporting program for this MND. This database shall include, at a minimum, site number; site type (historic, prehistoric, or both); location cross-referenced to transmission line tower numbers or other clearly identifiable geographic landmarks; eligibility recommendation; and citations to associated site records, surveys or other archaeological report in which the site is discussed. This database shall be maintained and updated, as needed, with the results of each subsequent archeological records searches or survey. Site locational data shall

⁴⁷ PaleoWest, 2018. Archaeological Resource Survey Report for the HHWP Valley Area and Culvert Locations of the Reliable Power Project, Tuolumne and Stanislaus Counties, California. Prepared for San Francisco Public Utilities Commission and San Francisco Planning Department, Environmental Planning Division

be held confidential, and made available only to the SFPUC environmental planner or to professional archaeologists. Locational information provided to work crews shall identify archaeological site areas as environmentally sensitive but shall not explicitly identify archaeological resources.

2. Prior to ground-disturbing activities, the SFPUC shall verify that the archeological records search of records at the California Historical Resources Information System Information Center, and of Forest Service and BLM records for the planned work locations occurred within the last 5 years. If not, the SFPUC shall update the record search for those areas.
3. Prior to ground-disturbing activities, the SFPUC shall verify that the archaeological field survey at the planned work locations occurred within the last 10 years. If not, the SFPUC shall conduct a new survey for those areas. The survey methodology shall maximize the identification of archeological resources, particularly for assessing areas with low visibility and higher potential for resources. The survey methodology shall be as follows:
 - a. All archaeological surveys shall comply with professional standards for complete intensive survey current at the time of the survey. Surveys shall be performed at no greater than 50-foot transect intervals, except in areas with slopes over 20% or areas where, based on the judgment of a professional archeologist, there either is no potential for resource to be detected (e.g. paved areas; filled areas) and/or to survive (e.g., road cuts to subsoil). All archaeological resources and historic features shall be documented, at a minimum, on the DPR 523 primary record. If site area documentation requires more than a single mapped point, an archaeological site record shall be completed and shall include a sketch map with a mapped datum point and identified site boundaries, to scale or labeled with dimensions. Each record also shall discuss the basis for establishment of site boundaries, and include an assessment of the potential for subsurface deposits within and beyond the mapped site boundaries.
 - b. Areas considered to have higher potential for resources are defined to be areas of shallow to moderate slope within approximately 300 feet of a stream, seasonal creek, spring, vernal pool, or other natural water source; along ridge lines; areas of moderate to shallow slope with bedrock outcroppings; and areas within approximately 300 feet of observed archaeological/historic architectural features.
 - c. In areas of higher potential for resources as defined above and where ground surface visibility is poor (i.e., less than approximately 40 percent), survey methods shall be intensified as follows: Survey transects shall be spaced no more than 30 feet apart. Surface scrapes shall be performed with a trowel or shovel to clear vegetation from a 1-foot by 1-foot area at no more than 50-foot intervals.

Particular attention shall be given to rodent burrow spoils and exposures provided by animal and vehicle tracks, road cuts and shoulders, and other fortuitous exposures.

4. An SFPUC environmental planner shall perform a site-specific review of each planned project activity and implement the following cultural resource management actions:
 - a. Identify whether the planned work would involve ground-disturbing activities (including but not limited to hand or mechanical excavation, such as excavation or grading for culvert replacements and associated maintenance or improvements; clearing, grading or excavation for construction of the sand shed; use of tracked equipment (such as a masticator); use of manual or mechanical equipment that entails removal of the roots of vegetation; and the dragging of felled trees or limbs.
 - b. Confirm whether the record search and survey at the location of planned ground-disturbing activities are current, per items 1 and 2, above.
 - c. Review if there are any known archeological resources near planned ground-disturbing activities and:
 - i. If no known resources are present within 50 feet of the nearest planned ground disturbing activities, the SFPUC may proceed with the proposed work. Mitigation Measure M-CR-1b.1 (Accidental Discovery) would be implemented, and Mitigation Measures M-CR-1b.2 (Archaeological Monitoring) and M-CR-1b.3 (Archaeological Testing/ Data Recovery), as applicable.
 - ii. If known resources are limited to historic linear features (e.g., walls, roads, railroad, transmission lines, and ditches) that do not include associated archaeological features or deposits are present within 20 feet of the planned work area, the SFPUC shall flag a 10-foot buffer around the resource as a ground-disturbance avoidance zone. Once the buffer is flagged, work may proceed outside this buffer. Mitigation Measure M-CR-1b.1 (Accidental Discovery) would be implemented, and Mitigation Measures M-CR-1b.2 (Archaeological Monitoring) and M-CR-1b.3 (Archaeological Testing/Data Recovery), as applicable.
 - iii. If any other known resource is present within 100 feet of the planned ground disturbing activities, the SFPUC environmental planner or a qualified archaeologist shall demarcate a 50-foot buffer around the previously-mapped boundary of the resource as a ground-disturbance avoidance zone. Once the buffer is demarcated on the ground work may proceed outside of this buffer.

- iv. If ground-disturbing activities must take place within a buffer identified above, a qualified archaeologist shall then conduct a new archaeological field survey to confirm or modify previously-recorded site boundaries and to demarcate the site boundary on the ground, and shall include within the boundary any areas where, based on professional archaeological judgment, there is reason to suspect that buried deposits might be present. The archeologist shall also update the archeological site record and map as needed. No ground-disturbing activities shall be conducted within the demarcated site boundary.
 - v. If avoidance of ground disturbing activities is not feasible within the site boundary of any historic or prehistoric archaeological resource (as demarcated by the qualified archaeologist under item iii, above), the SFPUC shall ensure that a qualified archaeologist develops a site-specific treatment plan in consultation with the Planning Department's archaeologist pursuant to Mitigation Measure M-CR-1b.3 (Archaeological Testing/Data Recovery). No ground disturbing activities shall take place within the site boundary of any historic or prehistoric archaeological site prior to Planning Department approval of the treatment plan.
5. The SFPUC shall submit an annual report to the Planning Department that includes a map or other spatial data showing where ground-disturbing activities occurred within the buffers of archeological sites and describes the impact avoidance measures implemented or refers to the treatment plans developed per item 4.c.v, above, for where ground-disturbing work within identified sites could not be avoided.
6. In the unlikely event that artifacts are incidentally collected from the field, the SFPUC shall follow U.S. Forest Service land management policies on U.S. Forest land; shall consult with the EP archaeologist on curation of finds made elsewhere; and shall ensure that any collected artifacts are curated with appropriate documentation at an established curation facility.
7. Where ground-disturbing activities would occur within the boundary of a known prehistoric site, the SFPUC shall offer an opportunity for the traditionally associated Native American group for that area to monitor the activity in conjunction with the archaeological monitoring or other archaeological treatment required per Measure M-CR-1b.1 (Accidental Discovery).

Mitigation Measure M-CR-1b: General Archaeological Resource Protection Measures

The following measures shall be implemented in the context of project review, as described above, and also as applicable during program implementation.

1. Accidental Discovery

The following mitigation measure is required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in *CEQA Guidelines* Section 15064.5(a) and (c), on tribal cultural resources as defined in *CEQA Statute* Section 21074, and on human remains and associated or unassociated funerary objects.

Work Crew Archeological Training. SFPUC shall ensure that the Planning Department archeological resource “ALERT” sheet is distributed to the work crews and crew supervisors and to any contractors involved in ground-disturbing work. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the “ALERT” sheet is circulated to all field personnel including, machine operators, field crew, supervisory personnel, etc.

Archaeological training shall be provided to all vegetation management personnel performing or managing soils disturbing activities by a qualified archaeologist or designee prior to the start of soils disturbing activities, annually or more frequently, as needed to ensure that all persons involved in the work have been trained. The training may be provided in person or using a video and include a handout prepared by or approved by the qualified archaeologist. The video and materials will be reviewed and approved by the Environmental Review Officer (ERO). The purpose of the training is to enable personnel to identify archaeological resources that may be encountered and to instruct them on what to do if a potential discovery occurs. Images of expected archeological resource types and archeological testing and data recovery methods should be included in the training.

The SFPUC shall provide the ERO annually with documentation confirming that all field personnel have received copies of the Alert Sheet and have taken the preconstruction archeological training.

Should any indication of an archeological resource be encountered during any soils disturbing activity of the project, the project SFPUC shall immediately notify the ERO and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures should be undertaken.

If the ERO determines that an archeological resource may be present within the project site, SFPUC shall retain the services of a qualified archaeological consultant. The archeological consultant shall advise the ERO as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the SFPUC, as detailed under 1.2 and 1.3, below. The ERO may also determine that the archeological resource is a tribal cultural

resource and will consult with affiliated Native Americans tribal representatives, if warranted.

Measures that will then be implemented, based on the recommendations of the archeological consultant in consultation with the ERO, tribal representatives that have requested consultation, and SFPUC. These measures might include: preservation in situ of the archeological resource; an archaeological monitoring program; an archeological testing program; or an interpretative program or other culturally appropriate treatment based on consultation. If an archeological monitoring program, archeological testing program, or interpretative program is required, it shall be consistent with the Environmental Planning (EP) division guidelines for such programs and reviewed and approved by the ERO in consultation with tribal representatives. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource may be at risk from vandalism, looting, or other damaging actions.

Consultation with Descendant Communities: On discovery of an archeological site⁴⁸ associated with descendant Native Americans, an appropriate representative of the Native American group, which shall include the Tuolumne Band of Me-Wuk, and the ERO shall be contacted. The Native American representative shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the ERO regarding appropriate treatment of the site, of recovered materials from the site, and, if applicable and desired, any interpretative treatment. A copy of the Final Archaeological Resources Report shall be provided to the representative of the descendant group.

Human Remains, Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and Federal Laws, including immediate notification of the County Coroner and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code Sec. 5097.98). The ERO shall also be immediately notified upon discovery of human remains. The archeological consultant, project sponsor, ERO, and MLD shall have up to but not beyond six days after the discovery to make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects. Nothing in existing State regulations or in this mitigation measure compels the project sponsor and the ERO to accept recommendations of an MLD. The archeological

⁴⁸ The term "archeological site" is intended here to minimally include any archeological deposit, feature, burial, or evidence of burial.

consultant shall retain possession of any Native American human remains and associated or unassociated burial objects until completion of any scientific analyses of the human remains or objects as specified in the treatment agreement if such an agreement has been made or, otherwise, as determined by the archeological consultant and the ERO. If no agreement is reached State regulations shall be followed including the reburial of the human remains and associated burial objects with appropriate dignity on the property in a location not subject to further subsurface disturbance (Pub. Res. Code Sec. 5097.98).

Final Archeological Resources Report. The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. The Draft FARR shall include a curation and deaccession plan for all recovered cultural materials. The Draft FARR shall also include an Interpretation Plan for public interpretation of all significant archeological features.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO, the consultant shall also prepare a public distribution version of the FARR. Copies of the FARR shall be distributed as follows: California Archaeological Site Survey Central California Information Center (CCIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the CCIC. The Environmental Planning division of the Planning Department shall receive one bound and one unlocked, searchable PDF copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of public interest in or the high interpretive value of the resource, the ERO may require a different or additional final report content, format, and distribution than that presented above.

2. Archaeological Monitoring Program

Based on the reasonable potential that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources and on human remains and associated or unassociated funerary objects. The project sponsor shall retain the services of an archaeological consultant. The archeological consultant shall undertake an archeological monitoring program. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of *construction* can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a) and (c).

Consultation with Descendant Communities. Applicable provisions of measure 1, above, shall be implemented.

Archeological monitoring program (AMP). The archeological monitoring program shall minimally include the following provisions:

- The archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the AMP reasonably prior to any project-related soils disturbing activities commencing. The ERO in consultation with the project archeologist shall determine what project activities shall be archeologically monitored.
- The archeological consultant shall undertake a worker training program for soil-disturbing workers that will include an overview of expected resource(s), how to identify the evidence of the expected resource(s), and the appropriate protocol in the event of apparent discovery of an archeological resource;
- The archaeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO until the ERO has, in consultation with the archeological consultant, determined that project construction activities could have no effects on significant archeological deposits;
- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;
- If an intact archeological deposit is encountered, all soils disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect all soil-disturbing work until the deposit is evaluated. The archeological consultant shall immediately notify the ERO of the encountered archeological deposit. The archeological consultant shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, present the findings of this assessment to the ERO.

If the ERO in consultation with the archeological consultant determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, at the discretion of the project sponsor either:

- A) The proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or
- B) An archeological testing and data recovery program shall be implemented, as detailed under 3, below.
- C) Treatment of human remains and reporting shall be implemented as specified under 1, above.

3. Archeological Testing

Based on a reasonable presumption that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried historical resources and/or on human remains and associated or unassociated funerary objects. The project sponsor shall retain the services of a qualified archaeological consultant. The archeological consultant shall undertake an archeological testing program as specified herein. In addition, the consultant shall be available to conduct an archeological monitoring and/or data recovery program if required pursuant to this measure. The archeological consultant's work shall be conducted in accordance with this measure at the direction of the ERO. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend ground disturbing work at the resource location for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a) and (c).

Consultation with Descendant Communities: Applicable provisions of measure 1, above, shall be implemented

Archeological Testing Program. The archeological consultant shall prepare and submit to the ERO for review and approval an archeological testing plan (ATP). The archeological testing program shall be conducted in accordance with the approved ATP. The ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the proposed project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

At the completion of the archeological testing program, the archeological consultant shall submit a written report of the findings to the ERO, as detailed under measure 1, above. If based on the archeological testing program the archeological consultant finds that significant archeological resources may be present, the ERO in consultation with tribal representatives and the archeological consultant shall determine if additional measures are warranted. Additional measures that may be undertaken include additional archeological testing, archeological monitoring, and/or an archeological data recovery program. No archeological data recovery shall be undertaken without the prior approval of the ERO or the Planning Department archeologist. If the ERO determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, at the discretion of the project sponsor either:

- D) The proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or
- E) A data recovery program shall be implemented, unless the ERO in consultation with tribal representatives determines that the archeological resource is of greater interpretive or other cultural value than research significance and that interpretive or other cultural treatment of the resource is feasible.

Archeological Data Recovery Program. The archeological data recovery program shall be conducted in accord with an archeological data recovery plan (ADRP). The archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the ADRP prior to preparation of a draft ADRP. The archeological consultant shall submit a draft ADRP to the ERO. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.

The scope of the ADRP shall include the following elements:

- *Field Methods and Procedures.* Descriptions of proposed field strategies, procedures, and operations.
- *Cataloguing and Laboratory Analysis.* Description of selected cataloguing system and artifact analysis procedures.
- *Discard and Deaccession Policy.* Description of and rationale for field and post-field discard and deaccession policies.
- *Interpretive Program.* Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program.
- *Security Measures.* Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.
- *Final Report.* Description of proposed report format and distribution of results.
- *Curation.* Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.

Human Remains, Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall be implemented as detailed under section 1, above.

Final Archeological Resources Report. The archeological consultant shall submit a Draft and Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken, as detailed under section 1, above.

Impact CR-2: The proposed project would potentially cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5. (Less than Significant with Mitigation)

Known built environment historic resources identified in the project area include sites associated with mining, roads, railroads, habitation and development of the Hetch Hetchy Water System. Surveys conducted for the project identified several previously unknown historic architectural resources, and there may be potential for the presence of additional sites that have not been previously identified. Vegetation management activities using manual, chemical, cultural or biological control would not disturb identified or previously unknown historic-era resources because they would not include grading, mass excavation or the use of vibration-inducing equipment. However ground disturbing activities such as culvert replacements, construction of the sand shed, shredding (use of a masticator), and dragging felled trees could disrupt both known and unknown historic built environment sites.

Areas of the project corridor where ground disturbing activities could occur have been surveyed for cultural resources.⁴⁹ The project corridor west of Wilms Road was not surveyed for cultural resources as no ground-disturbing project activities are anticipated in this location. The surveys and associated records searches serve as cultural resources inventories and guidance to avoid potential impacts from implementation of the proposed project, as detailed in **Table 3**. However, there is a potential for ground-disturbing vegetation management activities to be needed near or within site boundaries of known resources. The project thus has a potential to cause a substantial adverse change in the significance of a historic built environment resource, which would be a significant impact. To address the potential for impacts to the historic built environment, a project-level resource review would be implemented as a requirement of **Mitigation Measure M-CR-1a: Implementation of Project-level Archaeological/Historic Resource Review Procedure**. Implementation of M-CR-1a would ensure that historic and archaeological resources are avoided where possible, protected by exclusion areas, or addressed through a site-specific treatment plan approved by the Planning Department. Additionally, **Mitigation Measure M-CR-1b: General Archaeological Resource Protection Measures**, would ensure protection of previously unidentified resources by requiring training, suspension of work and evaluation by an archaeologist in the event that accidental discoveries are encountered and appropriate treatment of any accidental discoveries. Implementation of the Project-level Archaeological/Historic Resource Review Procedures and General Archaeological Resource Protection Measures would reduce impacts to less than significant.

⁴⁹ Cultural resources include both historical and archaeological resources.

Impact CR-3: The proposed project would potentially cause a substantial adverse change in the significance of a tribal cultural resource as defined in CEQA section 21074. (Less than Significant with Mitigation)

Tribal cultural resources are those resources that meet the definitions in CEQA section 21074. Tribal cultural resources include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are also either: (a) included or determined to be eligible for inclusion in the California Register of Historic Resources (California Register) or (b) included in a local register of historical resources, as defined in Public Resources Code section 5020.1(k). The lead agency may determine a resource to be a tribal cultural resource based on substantial evidence and with the concurrence of the affiliated tribal group. Archaeological resources (California Register-eligible or not) may also constitute tribal cultural resources. Based on discussions with Native American tribal representatives, prehistoric archaeological resources are presumed to be potential tribal cultural resources. A tribal cultural resource would be adversely affected if a project has the potential to impact its significance. In addition, as discussed under Impact CR-2, unknown archaeological resources may be encountered during construction, and such resources could be identified as tribal cultural resources at the time of discovery or at a later date. Therefore, the potential adverse effects of the proposed project on identified and previously unidentified archaeological resources, as discussed under Impact CR-2, could also represent a significant impact on tribal cultural resources.

Pursuant to Assembly Bill 52, which became effective on July 1, 2015, the CEQA lead agency is required to contact the Native American tribes that are culturally or traditionally affiliated with the geographic area in which the project is located within 14 days of a public agency's decision to undertake a project (or a determination that the project application is complete). Notified tribes have 30 days to request consultation with the lead agency to discuss potential impacts on tribal cultural resources and measures for addressing those impacts. Accordingly, on April 11, 2018, the Planning Department mailed a "Tribal Notification Regarding Tribal Cultural Resources and CEQA" related to this project to Native American tribal representatives in the project vicinity, as identified by the Native American Heritage Commission. During the 30-day comment period, one Native American tribal representative from the Northern Valley Yokut Tribe / Ohlone / Bay Miwuk Tribe contacted the Planning Department to request consultation. However, after numerous attempts to follow up on the initial contact, the tribal representative did not accept the offer to set up a meeting to discuss any concerns about the project.⁵⁰ On February 8, 2017, during consultation in conjunction with an archaeological survey prior to the initiation of consultation regarding tribal cultural resources for this project, a tribal representative of the Tuolumne Me-Wuk band requested to be contacted for consultation on potential tribal cultural resources if the SFPUC were to determine that it would not be possible to avoid ground disturbance at a known Native American site.⁵¹

⁵⁰ Email correspondence between Tim Johnston, San Francisco Planning Department, and Katherine Perez, Northern Valley Yokut / Ohlone / Bay Miwuk, dated from April 11, 2018 through June 6, 2018

⁵¹ Stanley Cox, Cultural Director of Tuolumne Me-Wuk Tribal Council, letter to WSA dated February 8, 2017

Mitigation Measure M-CR-3: Development and Implementation of Tribal Cultural Resources Treatment Program, below, would require preservation-in-place of the tribal cultural resources, if determined effective and feasible for the avoidance of impacts, and/or other treatments as agreed upon during consultation, or other protection plan. Combined with **Mitigation Measures M-CR-1a: Project-level Archaeological/Historic Resource Review Procedures** and **M-CR-1b: General Archaeological Resource Protection Measures** (discussed above beginning on page 63), these measures would reduce potential adverse effects on tribal cultural resources to a less-than-significant level by requiring avoidance of the resources through establishment of work-exclusion areas (while also providing for tribal access if requested by tribe) and monitoring to ensure that tribal cultural resources are not disturbed, or appropriate culturally-sensitive treatment if avoidance is not feasible.

Combined with **Mitigation Measures M-CR-1a: Project-level Archaeological/Historic Resource Review Procedures** and **M-CR-1b: General Archaeological Resource Protection Measures**, **Mitigation Measure CR-3** would reduce potential adverse effects on tribal cultural resources to a less-than-significant level by requiring avoidance of the resources through establishment of exclusion areas and monitoring to ensure that tribal cultural resources are not disturbed; appropriate culturally-sensitive treatment if preservation-in-place is not feasible; and other measures to preserve the cultural values represented by the affected resource.

In the event that construction activities disturb unknown archeological sites that are considered tribal cultural resources, any inadvertent damage would be considered a significant impact. With implementation of **Mitigation Measures M-CR-1a, M-CR-1b** (as described above), and **M-CR-3**, the proposed project would have a less-than-significant impact with mitigation on previously undocumented tribal cultural resources.

Mitigation Measure M-CR-3: Tribal Cultural Resource Protection, Tribal Consultation and Implementation of Tribal Cultural Resources Treatment Plan.

Upon identification of cultural resources of Native American origin that are within the area where ground-disturbing project activities will occur, the Environmental Review Officer (ERO) will consult with the tribal representative(s) to determine whether the resource represents a Tribal Cultural Resource. If the tribe indicates that the resource is a Tribal Cultural Resource, the ERO shall consult with the SFPUC and the tribe to determine whether effective long-term protection and the avoidance of impacts are feasible, and to identify how this will be accomplished. Potential means may include, but would not be limited to measures such as flagging of boundaries on the ground prior to work and avoiding the resource; allowing brush to grow to obscure the resource; and blocking vehicle access routes to or across the resource. The identified measures will be memorialized in a memo attached to the archaeological site record.

If the ERO, in consultation with the affiliated Native American tribal representatives and the SFPUC, determines that there are no feasible and effective means of preserving the tribal cultural resource in place, the ERO and SFPUC shall consult with the tribal representative and a qualified archaeologist to implement additional applicable measures as outlined in **Mitigation Measures M-CR-1a: Project-level Archaeological/Historic Resource Review Procedures** and **M-CR-1b: General Archaeological Resource Protection Measures**, such as archeological testing or monitoring, as appropriate to preserve the archaeological values of

the resource. SFPUC shall supply the tribe with copies of the reports of archaeological work. SFPUC's archaeological consultant shall prepare and distribute to the tribe a synopsis of archaeological results for the use of the tribe in a format of the tribe's choice.

In addition, in cases where project work will substantially damage a significant Tribal Cultural Resource, and if requested by the tribe, the ERO and SFPUC shall consult with the tribe to develop a **Tribal Cultural Resources Treatment Plan**, to identify additional interpretive, educational or cultural measures to preserve the tribal cultural values represented by the resource, and the plan shall be implemented by SFPUC. The plan shall identify, as applicable, materials, content and formats, venues for installation, producers or artists for the displays, as applicable; a long-term maintenance program; and a schedule for implementation; and will be subject to approval by SFPUC and the ERO. The plan may include, but would not be limited to, measures such as the following:

- Development and installation or distribution of interpretive products such as artifact displays, interpretive signage, and artist installations by Native American artists;
- Preparation and distribution and/or archival preservation of oral histories
- Educational materials or classroom teaching kits related to the affected resource;
- One or more archaeological training presentations for the tribe and identification of opportunities for the tribe to participate in future archaeological projects or resource monitoring
- Measure to ensure access to traditional resources, such as basketry or stone tool materials associated with the TCR site, or to provide access to alternative sources of such material at other protected locations

Impact C-CR: The project, in combination with past, present, and reasonably foreseeable future projects in the vicinity, could result in a significant cumulative impact on cultural resources. (Less than Significant with Mitigation)

The geographic scope for cumulative cultural resources impacts encompasses the area where vegetation management, culvert improvements, and sand shed construction would occur. Project activities would occur along the transmission line right of way which extends along the south face of the Tuolumne Canyon through the foothills to the eastern edge of the Central Valley; culvert improvements would occur on transmission line access roads, generally within about a mile of the transmission line alignment. Most cumulative projects identified above in **Table 2** are assumed to involve some degree of ground disturbance or other potential effect to cultural resources and would thus have the potential to significantly impact historic architectural resources, archaeological resources, tribal cultural resources and/or human remains. However, it is important to note that adverse effects on historic resources are site-specific, and cumulative impacts could only occur where ground disturbance associated with the proposed project and cumulative projects would occur at the same location.

Twenty-three previous, proposed, and foreseeable projects were identified near the proposed project area. Of these 23 projects, 18 appear to be outside the project corridor where ground

disturbing activities would occur and are therefore unlikely to combine with the proposed project to result in significant cumulative impacts on cultural resources. The remaining five projects are discussed in the following paragraphs.

Warnerville Substation Upgrade and Rehabilitation of Existing San Joaquin Pipeline

Two projects will be constructed along the proposed project corridor near the Warnerville switchyard, west of Emery Road: the Warnerville Substation Upgrade and Rehabilitation of the Existing San Joaquin pipeline. However, no ground-disturbing activities associated with the proposed project's transmission vegetation management activities are expected in this area because the existing vegetation is comprised of agriculture and grasses and is already compatible with the wire and border zones of the transmission lines. Culverts that may overlap with the SFPUC rehabilitation of the existing San Joaquin pipelines overlie the previously disturbed pipeline alignment, and therefore historical or archaeological resources are not expected to be encountered. As a result, it is not expected that the proposed project would combine with these two projects to result in significant cumulative impacts on cultural resources.

Don Pedro Reservoir Crossing 115kV and 220kV Transmission Lines

This project would replace existing transmission towers at Don Pedro Reservoir. Ground-disturbing activities of the Don Pedro Reservoir Crossing 115kV and 220kV Transmission Lines project and the proposed project would not be expected to overlap because the areas around the transmission line towers are already clear of large vegetation and vegetation management associated with the proposed project would therefore not involve ground-disturbing activities. The reservoir crossing project involves work on the transmission lines and towers and would not be expected to have ground-disturbing activities overlapping with potential culvert replacements in the area. For these reasons, the proposed project in combination with the Don Pedro Reservoir Crossing 115kV and 220kV Transmission Lines project would not result in significant cumulative impacts on cultural resources.

Moccasin Wastewater Treatment Plant and Moccasin Yard – New Shops/Office Buildings

Two projects are identified at SFPUC's Moccasin facilities, which the proposed project crosses: the Moccasin Wastewater Treatment Plant and Moccasin Yard – New Shops/Office Buildings. The two projects are within a built environment where no vegetation management requiring ground disturbing activities would occur as a result of the proposed project. Therefore, the proposed project in combination with these two projects would not result in significant cumulative impacts to cultural resources.

E.5. TRANSPORTATION AND CIRCULATION

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
5. TRANSPORTATION AND CIRCULATION— Would the project:					
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site does not contain any physical features that would result in a change in air traffic patterns, does not contain design features that would increase hazards or incompatible use, and there are no public transit, bicycle, or pedestrian facilities that would be affected by the project. Therefore, Topics E.5(b), E.5(c), E.5(d) and E.5(f) are not applicable and are not discussed further.

Vegetation maintenance and culvert replacements would occur in the counties of Tuolumne, Stanislaus, and Mariposa (800 feet of transmission right of way vegetation management only), which have established level-of-service standards implemented by their respective congestion management agencies. The agencies (Tuolumne County Transportation Commission, Stanislaus Council of Governments) have level-of-service standards and documented congestion management plans that are intended to regulate long-term traffic impacts due to future development and do not apply to construction projects. The project would require periodic operation and maintenance (e.g., site inspections, vegetation management) like existing practices. Project operations would therefore not result in a significant change in vehicle trips over the project lifetime. Because the project would not generate long-term traffic, consideration of level-

of-service impacts on congestion management plan roadways or local roadways during operation of the project components is not applicable. Therefore, Topic E.5(b) above is not applicable and is not discussed further.

The analysis assumes that the maintenance- and construction-related vehicle and truck trips would travel to and from the project corridor using the regional and local roadways described below. Due to the location of the project corridor, it is expected that most construction vehicles and workers would use SR 120, SR 49, and Cherry Lake Road to access the project area.

Operations and maintenance activities associated with each project facility would require periodic monitoring and maintenance, commensurate with current on-going operations and maintenance activities, but would require no additional staffing. Therefore, there would be no increase in long-term vehicle trips to the sites once activities associated with culvert replacement and sand shed construction are complete. Because the project would not result in an increase in long-term trips relative to existing conditions, impacts to traffic congestion on affected roadways would be negligible and are not included in the assessment of transportation impacts.

E.5.1. Setting

The study area for transportation and circulation consists of a network of regional and local roadways (paved and unpaved, generally with two travel lanes), including public roads primarily within Stanislaus and Tuolumne counties, as well as roads on U.S. Forest Service, Bureau of Land Management, and private land. These roadways would be used by construction workers' vehicles and maintenance staff. Construction vehicles would include trucks used to transport construction equipment and materials, to access work sites for the construction of culverts and the sand shed, and to perform vegetation management activities along the transmission line corridor. The project corridor is located along many access roads and crosses over roads, highways, and occasional backcountry hiking trails.

Regional Roadways

Main access to the project corridor would be provided from two regional roadways. SR 120 is located close to or in the general vicinity of the project corridor throughout its length, with the highway located no more than about seven miles away at any point, and at times running directly underneath the utility corridor. SR 120 is an east-west, two-lane highway that generally extends from Manteca through Yosemite National Park. Near Moccasin, the project corridor passes directly over SR 49, a two-lane highway that runs in a northwest-southeast direction through the project area (see **Figure 2C**). SR 120 and SR 49 provide primary access to the project area.

Local Roadways

Between Oakdale and Moccasin, the corridor crosses over County Road J59, which is a 2-lane road that runs in a northwest-southeast direction through the project area. In addition, all along its length, the corridor passes over a large network of rural local roads that are under the jurisdiction of a municipality, the county, are privately owned, or are on U.S. Forest Service lands. Cherry Lake Road (National Forest System Rd. 1N07) is a primary forest travel route between SR 120 and the project corridor's eastern termini (see **Figure 2D**). It intersects SR 120 about 13.5 miles east of the town of Groveland and extends north and eastward into the

Tuolumne River Canyon. Also accessed from Cherry Lake Road near the utility corridor is a popular rafting put-in near SFPUC's Holm Powerhouse on Cherry Creek, a short distance upstream of the Tuolumne River confluence. Cherry Lake Road also provides access to O'Shaughnessy Dam and Hetch Hetchy Reservoir (in Yosemite National Park) via Hetch Hetchy Road, which intersects Cherry Lake Road about 5.5 miles north of SR 120. These roads typically are not used as thoroughfares, but provide access for public recreation, San Jose Family Camp, San Francisco's Camp Mather, the private Camp Tawonga, other private land holdings, power and water facilities operation and maintenance by SFPUC employees, U.S. Forest Service and National Park Service personnel, and logging activities. Destinations along Hetch Hetchy Road also may be accessed from SR 120 via Evergreen Road.

Traffic counts obtained in 2012 recorded about 200 average daily trips on Cherry Lake Road during the dry season, with increases to 350 to 400 average daily trips during peak summer events such as the music festivals at Camp Mather over Memorial Day and Labor Day weekends.⁵² However, on these event weekends about half of the vehicles used only the portion of Cherry Lake Road between SR 120 and the Hetch Hetchy Road intersection.

Transmission Right of Way Access Roads

There is a system of access roads along the utility corridor that are used to access the transmission corridor for operations and maintenance activities. These access roads are primarily unpaved spurs that branch off larger paved roads that are part of the main road system in the project area.

Transit Networks

The project corridor runs primarily through rural areas that are not heavily served by public transit. In Stanislaus County, Stanislaus Regional Transit operates bus service as far east as the City of Oakdale but does not provide service to the project area.⁵³ In Tuolumne County, Tuolumne County Transit provides bus service, but only near the SR 120 corridor, in the communities of Jamestown, Sonora, Columbia, East Sonora, Crystal Falls, and Twain Harte.⁵⁴ The utility corridor does not pass through any of these communities. The Yosemite Area Regional Transportation System provides public transit service to Yosemite National Park, with buses entering Yosemite Valley from Merced, Mammoth Lakes, Sonora, and Fresno.⁵⁵ The only Yosemite Area Regional Transportation System route that passes near the project corridor originates in Sonora and travels east along SR 120 to Yosemite Valley. There are two transit stops within one mile of the project corridor: at Yosemite Pines RV Park/Old Yosemite Road and Buck Meadows Restaurant on SR 120.

⁵² USDA U.S. Forest Service, Lower Cherry Aqueduct Emergency Rehabilitation Project EA (canceled), April 2015.

⁵³ Stanislaus Regional Transit, Bus Route Information, <https://www.srt.org/maps-schedules/countywide/route-60/>, accessed on October 17, 2016.

⁵⁴ Tuolumne County Transit, *Bus Route Information*, www.tuolumnecountytransit.com, accessed on October 17, 2016.

⁵⁵ Yosemite Area Regional Transportation System, *Bus Route Information*, Available at www.yarts.com, accessed on October 17, 2016.

Bicycle Routes and Pedestrian Trails

The project corridor passes through areas that are generally not traversed by bicyclists and pedestrians. For the most part, the project corridor is located in areas of rugged topography that are not easily accessible to bicyclists and pedestrians. There are no designated pedestrian or bicycle lanes on the local roadways adjacent to or near the project corridor. SR 120 is used occasionally by bicyclists and pedestrians. The highway is a Class III bike route which allows for shared use of the road with automobiles and pedestrians but does not provide designated space for bicycles or pedestrians.⁵⁶ Backcountry hiking and mountain biking may occur in areas surrounding the project corridor, but these activities would not be impeded by project activities.

Impact TR-1: The proposed project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, considering all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. (Less than Significant)

The proposed project would not permanently eliminate existing or planned alternative transportation facilities such as bicycle lanes, sidewalks, transit stops, and bus routes. There are no pedestrian or bicycle facilities along the access roads to the transmission line. Access to and use of the two Yosemite Area Regional Transportation System bus stops along SR 120 near the project corridor would not be affected by project activities because project activities would not occur along SR 120. Truck trips associated with the project are expected to be commensurate with existing on-going maintenance activities. The proposed project would not conflict with an applicable congestion management program.

Implementation of the proposed vegetation management program and construction activities associated with the culvert replacements and the sand shed would generate short- and long-term vehicle traffic. The number of trips would be minimal and would vary depending on the activity and material delivery needs. **Table 1** in Section B.3 shows the average number of one-way trips per day that would be generated by the various proposed project components.

As described in Section B, Project Description, the implementation of the vegetation management program is not expected to require additional staffing. Trips associated with vegetation management program implementation would replace existing vegetation maintenance trips, thus resulting in no substantial change in existing conditions. A typical crew size for manual/mechanical/chemical vegetation management control methods would require approximately two workers, with up to four workers working on any given day. Implementation of the vegetation management program would be variable but would occur for up to 180 days per year with an average of four one-way trips per day. Crews would meet at Moccasin and typically carpool to project sites. Truck traffic for implementing the vegetation management program control methods would include transporting equipment (e.g., shredder, mulcher) to the site and would generate two one-way trips per site if heavy equipment is required. These trips,

⁵⁶ Caltrans, *District 10 Bicycling Guide*, August 2009.

associated with the vegetation management activities, would replace existing vegetation maintenance trips and would not result in net new trips.

The vegetation management program would also include limited tree removal, generating up to eight one-way truck trips per day, for up to six days per year spread over a timespan of a few months. Two one-way truck trips would be required for the hauling of logs from landings to conversion facilities (e.g., in Sonora). Felled trees would be staged in existing landings and along access roads wide enough to stage logs without limiting vehicle passage. The existing road network would be used for tree removal truck traffic. SR 120 would be the main roadway for log truck traffic.

The culvert replacement and sand shed construction-related trips would result in temporary increases in vehicle trips on the area roadways. Culvert replacement activities would require a crew of approximately four to six workers per day for each work site. Each culvert replacement site would generate up to 10 one-way truck trips per day (including equipment delivery) for approximately eight days per year. Sand shed construction would occur over a one-month period with approximately eight workers per day. The period of maximum trips would be during assembly of the building when approximately 20 one-way trips per day would be generated over a period of 10 days, including delivery of the crane and prefabricated building material.

The number of construction-related trips would vary depending on the construction phase, would not necessarily occur at the same time of day, and would be dispersed in different areas of the project corridor. Construction activities would generate an increase in traffic on SR 120, SR 49, and Cherry Lake Road. However, given the low volume, limited number of days, and short-term nature of the activities, construction trip impacts on local and regional traffic would be less than significant.

Traffic Circulation. Implementation of the vegetation management program and construction-related activities of the culvert replacements and sand shed could affect traffic circulation in the project corridor vicinity. For each of the project components, the use of large machinery and trucks may be required. Some roads that would be used to access the project corridor are narrow and winding, such that movement of large construction vehicles would temporarily and intermittently reduce the capacity of local roadways because of their slower movements and larger turning radii.

The sand shed site would be accessed by large construction vehicles from Cherry Lake Road to deliver equipment (e.g., crane) and prefabricated building material. These construction vehicles would need to make wide right turns at the shed site access point, which could conflict with south/southwest bound traffic on Cherry Lake Road and could result in temporary delays if public traffic is present when trucks are present making wide right turns. Construction staging areas for culvert replacements would be within the roadway, with staging areas occupying an area up to 400-feet long and 12-feet wide (approximately one lane of traffic). Many of the culvert replacements would occur along access roads and other service roads not used by the public and thus would have no impact on traffic circulation. However, some culvert replacement activities would be located along Cherry Lake Road. Construction staging along Cherry Lake Road would reduce it to one travel lane, reducing its capacity for up to one day per site. Traffic impacts would be short term in duration and traffic controls would be implemented (see Section B.3.6, SFPUC

Standard Construction Measures, above), thus maintaining potential impacts at less-than-significant levels.

Sand Shed Operations. Current sand application needs in winter are being met by sand delivered from outside the project vicinity. The shed would be located at a strategic location and would allow sand to be stockpiled seasonally. The sand shed would likely decrease the distances currently traveled to Intake Hill, Mather Road, and Yosemite National Park for sand application, and would not result in net new trips associated with the winter road maintenance. Therefore, no impact to traffic circulation would occur for operations related to the sand shed.

Impact TR-2: The proposed project would not result in inadequate emergency access. (Less than Significant)

Implementation of the vegetation management program would not result in changes to existing circulation patterns or emergency access. Truck traffic would be like existing maintenance activities. Large machinery or logging trucks may occasionally slow traffic, particularly in steep or windy road areas, but these impacts would be small, like existing truck traffic impacts, and temporary in nature. Therefore, impacts to emergency access from vegetation management activities would be less than significant.

The proposed project's culvert replacements would not degrade but would improve long-term maintenance access within and near the utility corridor compared to conditions without the project. During construction, some activities may occur within the travel lane of the road. Temporary, short-term lane closures on public roads could occur during construction of culvert replacement activities. However, access for emergency vehicles would be maintained always. Furthermore, construction activities would not be expected to impact circulation or emergency access along SR 120 or SR 49, the primary regional thoroughfares in the project area because if work would take more than one day, a steel plate would be placed over any open excavation in the road (applicable to public roads only) to provide access during non-work hours. The project would maintain emergency access during short-term construction activities and would have a less than significant impact.

Construction staging areas and construction activities for the sand shed would occur on site, with no roadway or lane closures. Primary access to the project site would be from existing public roadways or access roads. Because the construction-related increases in truck traffic would be temporary and minor in relation to the existing traffic volumes, the impacts to emergency access would be less than significant.

Impact C-TR: Construction of the proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity, would not result in a significant cumulative impact on transportation and circulation. (Less than Significant)

The geographic scope of cumulative transportation and circulation impacts includes the local and regional roadways that would be used for short-term project construction activities and accessed by construction workers and construction vehicles, as well as access roads that would be affected by construction of culvert improvements. There would be no long-term operational traffic impacts because ongoing vegetation management activities are expected to generate essentially the same level of traffic that is associated with existing activities.

The proposed project and all the cumulative projects identified in **Table 2** would generate construction traffic that would use local and regional roadways, and there is a potential that, if construction periods were to overlap, the cumulative impact on local traffic could be noticeable. Because maintenance activities would continue to occur indefinitely and because culvert improvements are expected to occur annually over multiple years, it is possible that construction traffic associated with the proposed project could overlap with a major construction project such as the Mountain Tunnel Long-Term Improvements Project (project 3). There could be a short-term cumulatively significant impact on traffic. However, the construction traffic (worker trips and haul trucks) associated with the proposed project would be small (a maximum of 8 round trips per day, mainly during the dry season), so construction traffic associated with the proposed project is not expected to make a cumulatively considerable contribution to traffic impacts from the other identified cumulative projects.

Culvert replacement activities associated with the proposed project would temporarily disrupt traffic on transmission line access roads, but these roads receive limited traffic, and it is not expected that any of the other cumulative projects would result in lane or road closures. Therefore, there would not be a significant impact associated with road/lane closures to which both the proposed project and the identified cumulative projects would contribute. Cumulative traffic impacts would thus be less than significant.

E.6.NOISE

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
6. NOISE—Would the project:					
a) Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Be substantially affected by existing noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project would not include activities within 2 miles of a private airstrip. In addition, the proposed project would not include development of noise-sensitive facilities that would be affected by existing noise levels. Therefore, Topics E.6(f) and E.6(g) are not applicable and not discussed further.

E.6.1. Setting

The project corridor generally traverses rural and open space areas, with few sources of noise. The major sources of noise in the area are transportation and agriculture related. SR 120, a two-lane, undivided highway, runs roughly parallel to the project corridor and crosses the corridor in some locations. SR 120 is a main route into Yosemite National Park from the west. Noise from traffic on SR 120 can occasionally exceed 70 dBA community noise equivalent level but is not as loud as larger highways such as Highway 99 due to less traffic and slower speeds.⁵⁷ Agricultural operations, including planting, harvesting, and crop dusting activities, also contribute to noise in

⁵⁷ Stanislaus County, Stanislaus County General Plan Update Final EIR, April 2016.

Stanislaus County. Other sources of noise in the project vicinity include airports. The Oakdale Airport is approximately 0.5 mile from the project corridor near its western end. The Oakdale Airport serves small aircraft less than 12,500 lbs.⁵⁸ Approximately 800 feet of the project corridor traverses Mariposa County 1 mile north of Buck Meadows in a rural area with no noise sources in the immediate vicinity.

Sources of noise along the project corridor in Tuolumne County include a Sierra Northern Railroad line in the western Tuolumne County, timber harvesting, and occasional helicopter operations. The Sierra Northern Railroad passes through the project corridor an average of twice a week to transport lumber from the Sierra Pacific Industries Standard Mill located north of Don Pedro Reservoir.⁵⁹ Timber harvesting is another source of noise in the project vicinity, as Stanislaus National Forest, like other National Forests, permits logging. Logging noise is similar to construction noise in that it primarily involves the sounds of heavy machinery. Equipment noise may include sounds of chainsaws, diesel motors, back-up beepers, and other engines or power tools. There is occasional helicopter use in the Stanislaus National Forest area. The U.S. Forest Service maintains a fleet of helicopters and deploys them in the event of wildland fires.⁶⁰ As part of the Rim Fire Recovery Plan and fuel reduction efforts, helicopters are used in limited areas for tree salvage operations.⁶¹

Finally, recreational activities such as off-highway vehicles, target shooting, and hunting may be sources of noise in Stanislaus National Forest. Recreational off-highway vehicles must produce less than 101 dBA (at 20 inches).⁶² Noise from recreational sources would be temporary and seasonal. Noise from off-highway vehicle use would occur primarily during the summer, and gunfire noise from hunting would occur mainly during the fall. Target shooting may also be a source of noise throughout the year in some areas of the forest.

Sensitive Receptors

There are no sensitive receptors (residences) located within the nearby vicinity of the sand shed construction site; the closest sensitive receptor appears to be approximately 8,000 feet to the southeast of the sand shed construction site.

There are sensitive receptors (residences) located within 250 feet of project facilities at several locations along the transmission line corridor where vegetation management would occur. Sensitive receptors are not located within 250 feet of identified culvert improvements, but that could change for future culvert work not currently identified. Most of the sensitive receptors are located along the western and central portions of the transmission line.

⁵⁸ Stanislaus County, Stanislaus County General Plan Update Final EIR, April 2016.

⁵⁹ HHWP, Personal communication from Michael Vroman to Josh Uecker regarding RFI #2, February 22, 2017.

⁶⁰ U.S. Forest Service, Eye on the Sky, n.d. Available at <https://www.fs.usda.gov/detail/stanislaus/home/?cid=stelprd3836698>, accessed February 22, 2017.

⁶¹ USDA U.S. Forest Service, Rim Fire Recovery (43033) Record of Decision Stanislaus National Forest, August 2014.

⁶² U.S. Forest Service, OHV Noise Monitoring/Enforcement, Stanislaus National Forest. June 2012. Available at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd524946.pdf, accessed February 13, 2017.

Impact NO-1: The proposed project would not result in exposure of persons to or generation of noise levels more than standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (Less than Significant)

The proposed project activities would take place in Stanislaus, Tuolumne, and Mariposa Counties in rural areas. The Noise Elements of all three county General Plans seek to limit exposure of the communities to excessive noise, but do not include regulations applicable to the proposed project due to the generally remote nature of the project alignment and site locations, as well as the temporary nature of noise associated with project activities. Stanislaus County has a noise ordinance, but Tuolumne and Mariposa Counties do not.

Project construction activities (culvert and sand shed construction) would use machinery including a bulldozer, backhoe, loaded trucks, and other equipment (**Table 1**). These activities would result in short-term noise increases at individual sites. The Stanislaus County Noise Ordinance exempts public utilities' construction activities from the ordinance. Project construction activities would occur between 7 a.m. and 6 p.m.; no nighttime construction would take place. Although exempt, this construction schedule would be consistent with Stanislaus County's noise ordinance time limits.⁶³ Therefore, the proposed project activities would not conflict with the Stanislaus County noise ordinance during construction, and the impact would be less than significant. As stated above, Tuolumne and Mariposa Counties do not have noise ordinances. Further, there are no sensitive receptors near the location of the culvert and sand shed construction.

Activities associated with vegetation management would be a source of intermittent noise over the long term, but commensurate with existing on-going vegetation management activities. Vegetation management treatments along the transmission corridor would be prescribed every six years, as described in Section B, Project Description. Vegetation management would occur during dry seasons, but the entire project corridor would not undergo treatments in a single year. Vegetation management at an individual site could occur once per year, or less, depending on the nature of the vegetation, the topography, and other site-specific conditions. Noise associated with vegetation management would include chainsaws, chippers, loaders, and other pieces of equipment (see **Table 1**), like those associated with existing vegetation management activities.

The proposed project would not generate noise levels more than standards established by general plans, noise ordinances, or other applicable standards, and impacts would therefore be less than significant.

Impact NO-2: The proposed project would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. (Less Than Significant)

Project activities would be expected to generate minimal and short-term groundborne vibration or groundborne noise. Certain pieces of equipment, such as a vibratory compactor, bulldozer, and loaded trucks, may be used during sand shed construction and culvert maintenance. Significance thresholds for vibration from the California Department of Transportation are used

⁶³ Stanislaus County, Stanislaus County Noise Control Ordinance CS 1070 §2, 2010.

to determine whether the proposed project's construction and operation activities would result in vibration impacts. For purposes of the analysis, a threshold of 0.3 in/sec PPV⁶⁴ was used for continuous/frequent/intermittent sources (e.g., compactors, excavation equipment, vibratory pile drivers, and vibratory compaction equipment). A response threshold of 0.10 in/sec PPV⁶⁵ was used to evaluate the human annoyance potential from continuous/frequent/intermittent sources. Typical vibration levels for the equipment proposed for construction and maintenance activities would range between 0.003 PPV (small bulldozer) to 0.210 (vibratory roller) at 25 feet from a receptor.⁶⁶ No noise- or vibration-sensitive receptors are in the immediate vicinity of the project corridor where new project construction or ongoing operations would occur. Given that vibration attenuates at a rate slightly greater than 50 percent for each doubling of distance⁶⁷ and due to the lack of sensitive receptors at locations where new project activities would occur, groundborne vibration from the proposed project's construction and maintenance activities would not be perceptible and there would be no impact associated with vibration.

Impact NO-3: The proposed project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. (No Impact)

The proposed project's maintenance and operational activities would not create any new permanent sources of noise, as these activities are mostly existing, ongoing activities. The project includes maintenance and temporary construction activities. Vegetation management and sand shed use would not result in a net increase in permanent worker vehicle trips. Therefore, there would be no increase in traffic noise that could cause a permanent increase in existing ambient noise levels. Further, there are no sensitive receptors near the location of the culvert and sand shed construction. Therefore, the project would have no permanent noise impact.

Impact NO-4: The proposed project would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. (Less than Significant)

As described in Section B, Project Setting, all project construction and maintenance activities would occur from Monday through Friday, 7 a.m. to 6 p.m., mostly during the dry season. No nighttime construction activities are proposed.

Because the project corridor is in a largely rural area, the analysis considers whether construction noise would result in a noticeable but temporary increase in ambient noise levels. The main source of ambient noise in the project area is SR 120. Daytime ambient noise levels 50 feet from the center line of SR 120 range from 70-73 dBA; at night noise levels range from 62-72 dBA.⁶⁸

⁶⁴ Caltrans, Transportation and Construction Vibration Guidance Manual, September 2013.

⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ San Francisco Planning Department, Final Mitigated Negative Declaration Sunol Long Term Improvements Projects, December 2, 2015.

⁶⁸ Illingworth & Rodkin, Inc., *Stanislaus County General Plan Update Technical Reference Document for Noise Analysis*, November 25, 2005. Appendix IV-A of Noise Element, Stanislaus County General Plan.

Typical project construction equipment would include bulldozers, backhoes, chainsaws, skidders, graders, chippers, manlifts, and other equipment listed in **Table 1**. These pieces of equipment would generate noise levels between 80-85 dBA at 50 feet.⁶⁹ Vegetation management and culvert replacement activities are largely existing, ongoing activities. The proposed project would formalize the approach to these activities but would not substantially increase their frequency or impacts. Project construction would result in temporary noise increases depending on the activity, but there are no sensitive receptors close to the location where new noise-generating activities (e.g., sand shed construction) would occur (the nearest sensitive receptor, appears to be located approximately 1.5 miles from the sand shed site).

Each culvert replacement would generate a maximum of eight truck trips per day during the dry season, and sand shed construction would generate a maximum of up to 16 truck trips per day for a month or less. The addition of a small number of truck trips during construction would be temporary and would occur in rural areas with no nearby noise sensitive receptors. Therefore, noise impacts from project vehicle use would be less than significant.

Vegetation management and sand shed use would not occur daily. Vegetation management would occur on a schedule prescribed every six years in accordance with the vegetation management program. Work would occur mainly during the dry season and would not involve revisiting the same site daily. Sand shed use would also be occasional and limited to winter months, consisting of restocking the shed with sand and distributing sand from the shed when winter weather is inclement. These activities would not result in substantial periodic increases in ambient noise levels. Furthermore, noise associated with vegetation management activities would be like existing, ongoing maintenance activities. Therefore, this impact would be less than significant.

The noisiest component of the proposed project would be helicopter use. Helicopters may be used infrequently for tree removal operations in areas where it is infeasible to access the site with a truck or other vehicle or where access is restricted due to the presence of sensitive biological resources. Helicopter flyover, landing, and takeoff during these activities would result in noise levels of approximately 80-100 effective perceived noise in decibels.^{70,71} Helicopter noise would thus result in a temporary increase in ambient noise levels in the project vicinity. However, since the use of helicopters for the vegetation management program is expected to be infrequent and the increase in noise would be limited to the short period when the helicopter is flying over any one sensitive noise receptor, the proposed project would not result in a substantial temporary or periodic increase in ambient noise levels and impacts would be less than significant.

⁶⁹ U.S. Department of Transportation, Highway Traffic Noise: Construction Noise Handbook, August 2006. Available at https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook00.cfm, accessed February 13, 2017.

⁷⁰ U.S. Department of Transportation, Federal Aviation Administration, *Advisory Circular 36-1H*, May 25, 2012. Available at https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2036-1H.pdf, accessed on February 13, 2017.

⁷¹ Actual noise levels vary depending on the helicopter type.

Impact NO-5: The proposed project would not expose people residing or working in the airport land use plan area to excessive noise levels. (No Impact)

Approximately 3.5 miles of the western end of the project corridor is located within the airport land use plan area for Oakdale Airport.⁷² The proposed project would only consist of vegetation management activities in this area and no construction would occur. Generally, project activities would not take place on more than one day at any site. Therefore, the project would not result in the exposure of workers or residents near the Oakdale Airport to excessive noise levels and there would be no impact.

Impact C-NO: The proposed project, in combination with other past, present and reasonably foreseeable future projects in the vicinity, would result in less than significant cumulative impacts to noise. (Less than Significant)

The geographic scope for noise impacts is limited to those sensitive receptors that could be affected by noise from project activities. The proposed project would not conflict with general plan or noise ordinance standards, and there are no sensitive receptors in areas adjacent to construction and maintenance areas. Active recreationalists in the Stanislaus National Forest and agricultural areas along the western part of the project corridor are not considered sensitive receptors for purposes of this analysis because it can be reasonably assumed that recreationalists in these areas would, of their own accord, quickly pass by or otherwise avoid any temporary sources of noise associated with the proposed project. As a result, there would not be a significant cumulative noise impact to which both the proposed project and other projects contribute.

⁷² City of Oakdale, Oakdale Municipal Airport, n.d. Available at <http://www.oakdalegov.com/oakdale-municipal-airport>, accessed on February 7, 2017.

E.7.AIR QUALITY

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
7. AIR QUALITY—Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal, state, or regional ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The air quality analyses were conducted in accordance with guidelines and significance thresholds of the various air districts with jurisdiction over the areas in which the proposed project activities and building are located. Both temporary (construction-related) and long-term (operational) air quality impacts are addressed.

E.7.1. Setting

Regulatory Background

The California Air Resources Board has divided California into regional air basins according to topographic air drainage features. The project sites are in two of these regional air basins: the Mountain Counties Air Basin and the San Joaquin Valley Air Basin. The Mountain Counties Air Basin is located over the western portion of the Sierra Nevada Mountains, including most of the Sierra Nevada foothills. The San Joaquin Valley Air Basin, the second largest air basin in the state, is defined by the Sierra Nevada Mountains to the east, the Coast Range Mountains to the west, and the Tehachapi Mountains to the south. The San Joaquin Valley Air Basin is a “bowl” that opens to the north at the Carquinez Strait, where the San Joaquin-Sacramento Delta empties into San Francisco Bay.⁷³

⁷³ SJVAPCD, Guide for Assessing and Mitigating Air Quality Impacts, Technical Document, Information for Preparing Air Quality sections in EIRs, Planning Division, Mobile Source/CEQA section, January 10, 2002. Available at <http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Tech%20Doc%20Jan%202002%20Rev.pdf>. accessed March 1, 2017.

Regulatory Framework

Federal Standards

The 1970 Clean Air Act (last amended in 1990, 42 United States Code 7401 et seq.) requires regional planning and air pollution control agencies to prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled to achieve all standards by the specified deadlines. The ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. They are designed to protect those segments of the public most susceptible to respiratory distress, known as sensitive receptors, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above the ambient air quality standards before adverse health effects are observed.

State Standards

The Clean Air Act Amendments of 1970 established the National Ambient Air Quality Standards, and individual states retained the option to adopt more stringent standards and to include other pollution sources. California had already established its own State Ambient Air Quality Standards when federal standards were established, and because of the unique meteorological problems in California, there is considerable diversity between the state and federal standards, as shown in **Table 4**. The state standards tend to be at least as protective as federal standards and are often more stringent.

Attainment Status

In 1988, California passed the California Clean Air Act (California Health and Safety Code section 39600 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or nonattainment, but based on the state standards rather than the federal standards.

Project activities would mainly be in counties under the jurisdiction of the Tuolumne County Air Pollution Control District (approximately three-quarters of the project) and San Joaquin Valley Air Pollution Control District (approximately one-quarter of the project). A very small portion of the transmission line (approximately 400 feet, which is roughly 0.2 percent of the total transmission length) runs across the northern boundary of Mariposa County Air Pollution Control District. As a result, this portion of the project corridor is of negligible size and project activities would be limited to ongoing maintenance activities like existing maintenance practices. Therefore, the Mariposa Air Pollution Control District is not discussed further.

Table 4 presents a summary of the Mountain Counties Air Basin's (under the jurisdiction of the Tuolumne County Air Pollution Control District) and the San Joaquin Valley Air Basin's attainment status with respect to federal and state standards. As indicated in the table, the

Table 4: State and Federal Ambient Air Quality Standards and Attainment Statuses

Pollutant	Averaging Time	(State) SAAQS ¹			(Federal) NAAQS ²		
		Standard	Mountain Counties Air Basin Attainment Status	San Joaquin Valley Air Basin Attainment Status	Standard	Mountain Counties Air Basin Attainment Status	San Joaquin Valley Air Basin Attainment Status
Ozone (O ₃)	1 hour	0.09 ppm	N	N/Severe	No Federal Standard	—	— ³
	8 hours	0.070 ppm	N	N	0.075 ppm	U/A	N/Extreme
Carbon Monoxide (CO)	1 hour	20 ppm	A	A	35 ppm	U/A	U/A
	8 hours	9 ppm	A	A	9 ppm	U/A	U/A
Nitrogen Dioxide (NO ₂)	1 hour	0.18 ppm	A	A	0.1 ppm ⁴	U/A	NA
	Annual	0.030 ppm	A	A	0.053 ppm	U/A	U/A
Sulfur Dioxide (SO ₂) ⁵	1 hour	0.25 ppm	A	A	0.075 ppm	NA	NA
	3 hours	NA	NA	NA	0.5 ppm	U/A	U/A
Particulate Matter (PM ₁₀)	24 hours	50 µg/m ³	U*	N	150 µg/m ³	U*	A
	Annual arithmetic mean	20 µg/m ³	U*	N	NA	—	—
Fine Particulate Matter (PM _{2.5})	24 hours	NA	NA	NA	35 µg/m ³	U/A	N
	Annual	12 µg/m ³	U*	N	12 µg/m ³	U/A	N
Sulfates	24 hours	25 µg/m ³	A	A	No Federal Standard	—	—
Lead ^f	30 days	1.5 µg/m ³	A	A	NA	—	—
	Quarter	NA	NA	NA	1.5 µg/m ³	ND	ND
	Rolling 3-month average	NA	—	—	0.15 µg/m ³	U/A	U/A

Sources: U.S. Environmental Protection Agency, *Nonattainment Areas for Criteria Air Pollutants (Green Book)*, Available at: <https://www.epa.gov/green-book>; California Air Resources Board (ARB), *Area Designations Maps/ State and National*, Available at: <https://www.arb.ca.gov/desig/adm/adm.htm>; SJAPCD, *Ambient Air Quality Standards & Attainment Status*, Available at <http://www.valleyair.org/aqinfo/attainment.htm>

Notes:
A = attainment; N = nonattainment; U = unclassified; NA = not applicable, no applicable standard; ND = no designation; ppm = parts per million; µg/m³ = micrograms per cubic meter. — = not indicated or no information available.
*Tuolumne County is unclassified due to a lack of data.

¹ SAAQS = State Ambient Air Quality Standards (California). SAAQS for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All other State standards shown are values not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average (i.e., all standards except for lead and the PM₁₀ annual standard), some measurements may be excluded. In particular, measurements are excluded that the California Air Resources Board determines would occur less than once a year on average.

² NAAQS = National Ambient Air Quality Standards. NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the three-year average of the fourth highest daily concentration is 0.075 ppm (775 ppb) or less. The 24-hour PM₁₀ standard is attained when the three-year average of the 99th percentile of monitored concentrations is less than 150 µg/m³. The 24-hour PM_{2.5} standard is attained when the three-year average of 98th percentile is less than 35 µg/m³. National air quality standards are set by U.S. Environmental Protection Agency (EPA) at levels determined to be protective of public health with an adequate margin of safety.

³ The U.S. EPA revoked the national 1-hour ozone standard on June 15, 2005.

⁴ To attain this standard, the three-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

⁵ On June 2, 2010, the U.S. EPA established a new 1-hour sulfur dioxide (SO₂) standard, effective August 23, 2010, which is based on the three-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO₂ national standards must continue to be used, however, until one year following U.S. EPA initial designations of the new 1-hour SO₂ national standard. The U.S. EPA expects to designate areas by June 2012.

Mountain Counties Air Basin is designated as “nonattainment” for state ozone⁷⁴ standards; Tuolumne County is unclassified for federal ozone standards and for state PM₁₀ (particulate matter, less than 10 microns in diameter) standards, since no PM₁₀ data are available for this area. The San Joaquin Valley Air Basin is designated as “severe nonattainment” for the state 1-hour ozone standard; “nonattainment” for the state ozone 8-hour standard; “extreme nonattainment” for the federal 8-hour ozone standard; and “nonattainment” for the state PM₁₀ standard and both state and federal standards for PM_{2.5} (fine particulate matter, less than 2.5 microns in diameter). The San Joaquin Valley Air Basin is designated as “attainment” for all other criteria pollutants listed in **Table 4**.

Sensitive Receptors

There are no sensitive receptors (residences) located within the nearby vicinity of the sand shed construction site; the closest sensitive receptor appears to be approximately 8,000 feet to the southeast of the sand shed construction site.

There are sensitive receptors (residences) located within 250 feet of project facilities at several locations along the 50-mile-long transmission line corridor where vegetation management would occur. Most of these sensitive receptors are located along the western and central portions of the transmission line.

CEQA Thresholds of Significance

For this analysis, the following thresholds of significance, as identified by the state CEQA Guidelines (Appendix G) are used to determine whether implementation of the proposed projects would result in significant air quality impacts. An air quality impact is considered significant if the proposed project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Both the Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District have published recommended air quality CEQA thresholds of significance, which are displayed below in **Table 5**. Project impacts in both air districts are compared against these thresholds to evaluate if the project would result significant air quality impacts under CEQA.

⁷⁴ Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen.

Table 5: Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District CEQA Thresholds of Significance

Pollutant	Construction-related Emission Thresholds		Operational Emission Thresholds			
	Tuolumne County Air Pollution Control District	San Joaquin Valley Air Pollution Control District	Tuolumne County Air Pollution Control District		San Joaquin Valley Air Pollution Control District	
Criteria Air Pollutants and Precursors (Regional)	Annual Emissions (tpy)	Annual Emissions (tpy)	Maximum Daily Emissions (lbs/day)	Annual Emissions (tpy)	Maximum Daily Emissions (lbs/day)	Annual Emissions (tpy)
ROG	None	10	1000	100	None	10
NOx	None	10	1000	100	None	10
SOx	None	27	None	None	None	27
PM ₁₀	None	15	1000	100	None	15
PM _{2.5}	None	15	None	None	None	15
CO	None	100	1000	100	None	100
Risks and Hazards - Siting a New Source	(Same as Operational Thresholds) Cancer Risk > 10 in a million Non-Cancer Hazard Index > 1.0	(Same as Operational Thresholds) Cancer Risk > 20 in a million Non-Cancer Chronic Hazard Index > 1.0 Non-Cancer Acute Hazard Index > 1.0	Cancer Risk > 10 in a million Non-Cancer Hazard Index > 1.0		(Same as Operational Thresholds) Cancer Risk > 20 in a million Non-Cancer Chronic Hazard Index > 1.0 Non-Cancer Acute Hazard Index > 1.0	

Impact AQ-1: The proposed project would not conflict with or obstruct implementation of the applicable air quality plan. (Less Than Significant)

The project would involve the construction of a 2,500-square-foot sand storage shed in Tuolumne County, the repair or replacement of culverts in both Tuolumne and Stanislaus Counties at a rate about 12 per year, and long-term vegetation management activities along an approximately 50-mile stretch of transmission lines running through Tuolumne and Stanislaus counties. Although similar vegetative management activities currently take place and are part of the existing condition of the site, they are included as part of the project to conservatively estimate emissions from total project activities. Most of the project, including the sand storage shed, would be located within the jurisdiction of the Tuolumne County Air Pollution Control District; approximately one-quarter of the transmission line and associated culverts along access roads are located within Stanislaus County under the jurisdiction of the San Joaquin Valley Air Pollution Control District. The sand storage shed construction would result in short-term direct emissions of air pollutants in the Tuolumne County Air Pollution Control District. The operational activities (culvert replacements and long-term vegetation management), would result in short- and long-term direct emissions of air pollutants in the Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District.

The California Clean Air Act requires the air pollution control district in each region of the state to prepare a plan showing the district's strategy for achieving attainment of the state standards. The Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District are the regional agencies responsible for overseeing compliance with state and federal laws, regulations, and programs within the Mountain Counties Air Basin and San Joaquin Valley Air Basin, respectively.

The San Joaquin Valley Air Pollution Control District has adopted four plans^{75,76,77,78} that set forth the San Joaquin Valley Air Pollution Control District's strategies for attaining the federal ozone, PM₁₀, and PM_{2.5} ambient air quality standards in the San Joaquin Valley Air Basin. The Tuolumne County Air Pollution Control District outlines air quality related goals, policies, and implementation programs in their General Plan and protects air quality and public health in Tuolumne County (located in the Mountain Counties Air Basin) through issuance of permits, which ensure that all equipment processes with a potential for air pollutant emissions comply with federal, state, and local district regulations.⁷⁹

75 SJVAPCD, 2013 *Plan for the Revoked 1-Hour Ozone Standard*, San Joaquin Valley Air Pollution Control District, September 19, 2013. Available at http://www.valleyair.org/air_quality_plans/Ozone-OneHourPlan-2013.htm, accessed March 1, 2017.

76 SJVAPCD, 2016 *Ozone Plan for 2008 8-Hour Ozone Standard*, June 16, 2016, Available at http://www.valleyair.org/air_quality_plans/Ozone-Plan-2016.htm, accessed March 1, 2017.

77 SJVAPCD, 2007 *PM₁₀ Maintenance Plan and Request for Redesignation*, September 20, 2007, Available at <https://www.arb.ca.gov/planning/sip/sjvpm07/sjvpm07.htm>, accessed March 1, 2017.

78 SJVAPCD, 2015 *PM_{2.5} State Implementation Plan*, Available at <https://www.arb.ca.gov/planning/sip/planarea/sjvpm25.htm>, accessed March 1, 2017.

79 TCAPCD, *Tuolumne County General Plan, Chapter 12: Air Quality Element*, December 26, 1996, Available at <https://www.tuolumnecounty.ca.gov/DocumentCenter/View/1137>.

If a proposed project would generate long-term operational emissions that are less than the applicable operational CEQA thresholds of significance, the project would be consistent with regional air quality planning efforts and would not conflict with or obstruct implementation of the applicable air quality plan. As shown in the sections below, operational emissions from the project in the Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District would not exceed significance thresholds. Therefore, this project would not obstruct or conflict with implementation of the applicable clean air plans, and the impact on air quality would be less than significant.

To further support the less than significant conclusion, when sand shed construction emissions (short-term) in the Tuolumne County Air Pollution Control District are conservatively considered along with operational Tuolumne County Air Pollution Control District emissions, estimated emissions would still be well below the Tuolumne County Air Pollution Control District operational CEQA thresholds, as shown in **Table 6**, below.

Table 6: Project-Related Annual Emissions in the Tuolumne County Air Pollution Control District

Category	Project Component	Emissions (tpy) ^{1,2}			
		ROG	NOx	PM ₁₀	CO
Construction	Sand Shed	0.071	0.75	0.36	0.51
Operational Maintenance	Culvert Replacements	0.048	0.47	0.21	0.31
Operational Vegetation Management ³	Tree Removal	0.017	0.17	0.0087	0.12
	Transmission Corridor	0.12	0.84	0.069	0.76
	Pile Burning	0.0048	0.0010	0.0043	0.035
Construction Emissions Total		0.071	0.75	0.36	0.51
Operational Emissions Total		0.19	1.5	0.29	1.2
Construction + Operational Annual Emissions ⁴ (tpy)		0.26	2.2	0.65	2.2
Tuolumne County Air Pollution Control District Operational Annual CEQA Thresholds (tpy)		100	100	100	100
Exceeds Threshold?		No	No	No	No
Construction + Operational Daily Emissions ⁵ (lbs/day)		19	190	60	130
Tuolumne County Air Pollution Control District Operational Annual CEQA Thresholds (lbs/day)		1000	1000	1000	1000
Exceeds Threshold?		No	No	No	No
Notes: ROG = reactive organic gases; NOx = nitrogen oxides; PM = particulate matter; CO = carbon monoxide; tpy = tons per year. ¹ Off-road equipment emissions were calculated using CalEEMod default equipment emission factors and load factors. Equipment emissions were calculated using the equation shown below: $\text{Emissions} = \text{EF} * \text{HP} * \text{T} * \text{LF}$ EF = emission factor HP = equipment horsepower T = operational hours LF = load factor Fugitive dust from off-road equipment was calculated consistent with CalEEMod® guidance. Shredding/mulching/grinding vegetation fugitive dust emissions calculated consistent with the Bay Area Air Quality Management District's permit handbook guidance for tub grinders. ² Mobile emissions include worker, vendor, and hauling trip emissions. Mobile emissions were calculated in CalEEMod. ³ Although similar vegetative management activities currently take place and are part of the existing condition of the site, they are included as part of the Project to conservatively estimate emissions from total Project activities. Pile burning emissions calculated consistent with AP-42 guidance for open forest burning. ⁴ Construction and operational emissions are added together to show the most conservative year of emissions (Year 1) when both construction activities and operational activities are occurring. ⁵ Daily construction emissions are estimated based on the most conservative year of emissions (Year 1, including construction and operational emissions considered together) averaged over the number of workdays per project component.					

Implementation of SFPUC Standard Construction Measure 2 (Air Quality), as proposed, would further reduce potential impacts on air quality to less-than-significant levels. As described in Section B.3 – Project Construction, SFPUC Standard Construction Measure 2 has two applicable components for the Project:

1. *All SFPUC projects outside San Francisco city limits will comply with applicable local and State dust control regulations, health risk thresholds, and applicable thresholds for criteria air pollutants.*

All construction activities would occur within the Tuolumne County Air Pollution Control District, and, as described in the following sections, the project's estimated emissions would be below all construction-related health risk and criteria air pollutant thresholds in the Tuolumne County Air Pollution Control District. There are no specific construction fugitive dust requirements in the Tuolumne County Air Pollution Control District. However, some of the operational activities occurring in San Joaquin Valley Air Pollution Control District are "construction-like" (i.e., earth moving, grading, and bulldozing activities are occurring) and would be subject to San Joaquin Valley Air Pollution Control District dust control regulation VIII, which limits visible dust emissions from fugitive dust sources to less than 20 percent opacity. Since the project's estimated emission would be below all relevant air quality thresholds, the project is expected to be compliant with this San Joaquin Valley Air Pollution Control District regulation. Despite expected compliance, the SFPUC would implement some of the San Joaquin Valley Air Pollution Control District recommended fugitive dust control techniques (watering of unpaved surfaces and areas and limiting speeds on unpaved roads, which are not accounted for in the project emissions calculations), in accordance with its Standard Construction Measure 2 (Air Quality), demonstrating further expectation of compliance and lessened project impacts compared to thresholds.⁸⁰

2. *To meet air quality thresholds, all projects will implement air quality controls tailored to the specific project. A variety of controls may be implemented to reduce project impacts, such as using high tier engines, Verified Diesel Emissions Control Strategies, such as diesel particulate filters, customized construction schedules and procedures, and low emissions fuel.*

As described in the following impact discussions, the project's emissions would be below all relevant air quality thresholds in the Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District (both construction and operational). Thus, no further air quality controls would be implemented.

Impact AQ-2: The proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. (Less Than Significant)

Construction activities (short-term) typically result in emissions of fugitive dust, criteria air pollutants, and diesel particulate matter. Emissions of criteria pollutants and diesel particulate matter are primarily a result of the combustion of fuel from on-road and off-road vehicles. However, reactive organic gases are also emitted from activities that involve painting or other types of architectural coatings or asphalt paving activities.

⁸⁰ Available at: http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf.

During the approximately one-month construction period for the sand shed, construction would have the potential to result in fugitive dust emissions, criteria air pollutants and diesel particulate matter in the Tuolumne County Air Pollution Control District. Construction of the proposed sand storage shed would contribute to regional criteria air pollutants, generating fugitive dust (including PM₁₀ and PM_{2.5}) from construction activities including excavation, grading, and vehicle travel on both paved and unpaved surfaces. Other criteria pollutants would also be generated from the exhaust emissions of construction equipment and vehicles, including nitrogen oxides. By its very nature, regional air pollution is largely a cumulative impact in that no single project is sufficient in size to, by itself, result in non-attainment of air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality impacts. If a project's contribution to cumulative air quality impacts is considerable, then the project's impact on air quality would be considered significant.⁸¹

Thresholds established by these air districts to determine whether an individual project's criteria pollutant emissions significantly affect the attainment status of each air district are presented above in **Table 5**. As shown, the Tuolumne County Air Pollution Control District does not have thresholds for construction related emissions of criteria pollutants. Projects that would result in criteria air pollutant emissions below these significance thresholds would not violate an air quality standard, contribute substantially to an air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants within the Tuolumne County Air Pollution Control District or San Joaquin Valley Air Pollution Control District.

Tuolumne County Air Pollution Control District

The sand shed would be constructed within the jurisdiction of the Tuolumne County Air Pollution Control District. The overall construction duration for the sand storage shed is estimated to be approximately one month. Emissions from the project's construction equipment and worker vehicles would be generated from multiple sources, including various trucks, a loader, a manlift, a grader, a bulldozer, an excavator, a compactor, and a crane. Construction-related criteria pollutant emissions were calculated for the project as a function of construction activity, construction duration, average vendor and worker trip mileage, and number of worker and vendor trips. The California Emission Estimator Model (CalEEMod®)⁸² and equivalent methods were used to calculate construction emissions using the equipment list provided in the Project Description. Default data from CalEEMod® was used where project-specific data was not available. An estimate of construction emissions in the Tuolumne County Air Pollution Control District is presented in **Table 6** above.

Project operational activities would also have the potential to generate criteria pollutants in the Tuolumne County Air Pollution Control District. Proposed ongoing operations include the repair or replacement of up to 12 culverts per year and ongoing long-term vegetation management along the transmission line corridor (approximately 37 miles of which is in the Tuolumne County Air Pollution Control District). Operational emissions would be emitted from off-road and on-

⁸¹ SJVAPCD, *Guidance for Assessing and Mitigating Air Quality Impacts*, March 19, 2015, Available at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf.

⁸² CAPCOA, *CalEEMod User's Guide*, 2013, Available at: <http://www.caleemod.com>.

road equipment used for culvert maintenance and replacement and vegetation management activities. Although similar vegetative management activities currently take place and are part of the existing condition of the site, they are included as part of the project to conservatively estimate emissions from total project activities. On-road vehicle emissions were estimated in CalEEMod®. Off-road equipment emissions were calculated using CalEEMod® methods and CalEEMod® default diesel equipment emission factors. Default data from CalEEMod® was used where project-specific data was not available. Pile burning emissions were calculated consistent with AP-42 guidance for open burning of forest residues, and shredding/mulching/grinding vegetation fugitive dust calculations were conducted consistent with the Bay Area Air Quality Management District's permit handbook emission factor for tub grinders (an emission factor based on a previous edition of AP-42 for "log debarking")⁸³. Calculation methods are outlined in **Tables 6 and 7**. Operational emissions for the Tuolumne County Air Pollution Control District are presented in **Table 6** above.

To assess the maximum potential impact in the Tuolumne County Air Pollution Control District that could occur during the project, the sand shed construction, culvert maintenance/replacement, and vegetative management activities were highly conservatively assumed to occur in the same year and were added together. Estimated annual and daily emissions were compared to the project-generated thresholds shown in **Table 5**. **Table 6** above shows the maximum project emissions in the Tuolumne County Air Pollution Control District compared to applicable thresholds.

Because the maximum project-generated emissions would not exceed project thresholds for the Tuolumne County Air Pollution Control District, increases in criteria pollutant emissions from project construction and operation would be less than significant in the Tuolumne County Air Pollution Control District.

⁸³ BAAQMD, *Permit Handbook*, 2017, Available at: <http://www.baaqmd.gov/~media/files/engineering/permit-handbook/baaqmd-permit-handbook.pdf>.

**Table 7: Project-Related Emissions in the
San Joaquin Valley Air Pollution Control District**

Category	Project Component	Emissions (tpy) ^{1,2}					
		ROG	NOx	SOx	PM ₁₀	PM _{2.5}	CO
Operational Maintenance	Culvert Replacements	0.048	0.47	5.0E-04	0.21	0.12	0.31
Operational Vegetation Management ³	Tree Removal	0.017	0.17	2.0E-04	0.0087	0.0079	0.12
	Transmission Corridor	0.12	0.84	0.0011	0.069	0.064	0.76
	Pile Burning ⁴	0.0048	0.0010	--	0.0043	0.0043	0.035
Operational Total		0.19	1.5	0.0018	0.29	0.20	1.2
San Joaquin Valley Air Pollution Control District Operational CEQA Thresholds		10	10	27	15	15	100
Exceeds Threshold?		No	No	No	No	No	No
<p>Notes: ROG = reactive organic gases; NOx = nitrogen oxides; PM=particulate matter; CO = carbon monoxide; tpy = tons per year.</p> <p>¹ Off-road equipment emissions were calculated using CalEEMod default equipment emission factors and load factors. Equipment emissions were calculated using the equation shown below:</p> <p>Emissions = EF * HP * T * LF EF = emission factor HP = equipment horsepower T = operational hours LF = load factor</p> <p>Fugitive dust from off-road equipment was calculated consistent with CalEEMod® guidance. Shredding/mulching/grinding vegetation fugitive dust emissions calculated consistent with the Bay Area Air Quality Management District's permit handbook guidance for tub grinders.</p> <p>² Mobile emissions include worker, vendor, and hauling trip emissions. Mobile emissions were calculated in CalEEMod.</p> <p>³ Although similar vegetative management activities currently take place and are part of the existing condition of the site, they are included as part of the Project to conservatively estimate emissions from total Project activities. Pile burning emissions calculated consistent with AP-42 guidance for open forest burning.</p> <p>⁴ Pile burning ROG emissions were conservatively estimated using AP-42 emission factors for nonmethane TOC. It was conservatively estimated that all particulate emissions were included in both PM₁₀ and PM_{2.5}.</p>							

San Joaquin Valley Air Pollution Control District

The project within the jurisdiction of the San Joaquin Valley Air Pollution Control District would not include construction activities but would involve ongoing operational activities, consisting of: 1) the repair or replacement of up to 12 culverts per year; and 2) ongoing long-term vegetation management along the transmission line corridor (approximately 13 miles of which is located within the San Joaquin Valley Air Pollution Control District). Operational emissions would be produced by off-road and on-road equipment used for culvert maintenance and replacement and vegetation management activities. To estimate the project's maximum impact, both activities were assumed to occur at once over 180 days and within a 12-month period. Emissions from the project's equipment and worker vehicles would be generated from multiple sources, including a backhoe, a grader, a bulldozer, an excavator, a chipper, and various trucks, among others. Operational criteria pollutant emissions were calculated for the project as a function of equipment activity, duration, average vendor and worker trip mileage, and number of worker and vendor trips. On-road vehicle emissions were estimated in CalEEMod®. Off-road equipment emissions were calculated using CalEEMod® methods and CalEEMod® default diesel equipment emission factors. Default data from CalEEMod® was used where project-specific data was not available. Pile burning emissions were calculated consistent with AP-42 guidance for open burning of forest residues, and shredding/mulching/grinding vegetation fugitive dust

calculations were conducted consistent with the Bay Area Air Quality Management District's permit handbook guidance for tub grinders⁸⁴.

As noted above, to assess the maximum potential impact in the San Joaquin Valley Air Pollution Control District that could occur during the project, culvert maintenance/replacement and vegetative management activities were assumed to occur concurrently and were added together. An estimate of operational emissions in the San Joaquin Valley Air Pollution Control District is presented in **Table 7** above. Estimated annual emissions were compared to the project operational thresholds shown in **Table 5**. As indicated in **Table 7**, the project's estimated emissions in the San Joaquin Valley Air Pollution Control District would be well below the San Joaquin Valley Air Pollution Control District significance thresholds; therefore, the project's estimated operational-related criteria pollutant emissions are less than significant.

Because the maximum project operational emissions would not exceed project thresholds for San Joaquin Valley Air Pollution Control District, increases in criteria pollutant emissions from project construction and operation would be less than significant in the San Joaquin Valley Air Pollution Control District.

Impact AQ-3: The proposed project would not expose sensitive receptors to substantial pollutant concentrations. (Less Than Significant)

Combustion emissions from off-road equipment and on-road vehicles (i.e., heavy equipment and delivery, and worker commute vehicles) would be generated during project construction and operation and could expose sensitive receptors to diesel particulate matter and other toxic air contaminants. Off-site diesel particulate matter and other toxic air contaminant emissions include those generated by worker commute vehicles and by diesel haul/delivery trucks used during construction and operations. Toxic air contaminant emissions from construction worker commute trips would be minor compared to the emissions generated by off-road equipment and delivery trucks. In addition to these off-site emissions, diesel-powered off-road equipment would release diesel particulate matter at each project site. Combustion and exhaust contain many different toxic air contaminants that are associated with various health risk factors.

Off-road equipment (which includes construction-related and operational-related equipment) is a large contributor to diesel particulate matter emissions in California, although since 2007, the California Air Resources Board has found the emissions to be substantially lower than previously expected.⁸⁵ Newer and more refined emission inventories have substantially lowered the estimates of diesel particulate matter emissions from off-road equipment such that off-road

⁸⁴ BAAQMD, *Permit Handbook*, 2017, Available at: <http://www.baaqmd.gov/~media/files/engineering/permit-handbook/baaqmd-permit-handbook.pdf>.

⁸⁵ ARB, *Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Amendments to the Regulation for In-Use Off-Road Diesel-Fueled Fleets and the Off-Road Large Spark-Ignition Fleet Requirements*, p.1 and p. 13 (Figure 4), October 2010.

equipment is now considered the sixth largest source of diesel particulate matter emissions in California.⁸⁶

Additionally, many federal and state regulations are requiring cleaner off-road equipment. Specifically, both the U.S. EPA and California have set emissions standards for new off-road equipment engines, ranging from Tier 1 to Tier 4. Tier 1 emission standards were phased in between 1996 and 2000, and Tier 4 Interim and Final emission standards for all new engines were phased in between 2008 and 2015. To meet the Tier 4 emission standards, engine manufacturers are required to produce new engines with advanced emission-control technologies. Although the full benefits of these regulations will not be realized for several years, the U.S. EPA estimates that by implementing the federal Tier 4 standards, nitrogen oxide and PM emissions will be reduced by more than 90 percent.⁸⁷ Additionally, the California ARB has adopted a regulation (2007) to reduce PM and nitrogen oxide emissions from in-use (existing) off-road heavy-duty diesel vehicles, which phases in retrofits to existing engines.⁸⁸ Furthermore, California regulations limit maximum idling times to five minutes, which further reduces public exposure to diesel particulate matter emissions.⁸⁹

Construction Emissions. There are no sensitive receptors (residences) located within the nearby vicinity of the sand shed construction site; the closest sensitive receptor is approximately 8,000 feet to the southeast of the sand shed construction site. Based on: 1) the proposed short construction duration (when construction equipment would operate) of approximately one month, 2) the estimated PM emissions (including diesel particulate matter) in the Tuolumne County Air Pollution Control District being significantly below any relevant air quality threshold, and 3) the large distance to the closest sensitive receptor, the health risks at the nearest sensitive receptor located at approximately 8,000 feet southeast of the construction site would not exceed the Tuolumne County Air Pollution Control District's construction-related risks and hazards significance thresholds of 10 in one million for cancer risk and the hazard index of 1 for non-cancer risk. Therefore, the project would result in a less-than-significant air quality impact related to health risk.⁹⁰

Operational Emissions. There are sensitive receptors (residences) located within 250 feet of project facilities at several locations along the 50-mile-long transmission line corridor where vegetation management would occur. Based on: 1) the proposed short duration (when off-road equipment and on-road vehicles would operate) at each location along the project corridor of approximately one day for the culvert replacements/repair, and 90 days for vegetation management (which will likely not all be conducted in the same area); 2) the large distance over which the emissions would occur over the course of the year (along an approximately 50-mile

86 ARB, *Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed Amendments to the Regulation for In-Use Off-Road Diesel-Fueled Fleets and the Off-Road Large Spark-Ignition Fleet Requirements*, October 2010.

87 U.S. EPA, *Clean Air Nonroad Diesel Rule: Fact Sheet*, May 2004.

88 ARB, *In-Use Off-Road Diesel-Fueled Fleets Regulation, Adopted July 26, 2007*. Website updated July 28, 2016. Available at <https://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm>. Accessed March 2, 2017.

89 California Code of Regulations, Title 13, Division 3, § 2485.

90 TCAPCD does not have significance threshold for construction-related diesel particulate matter emissions (TCAPCD, 2012. APCD CEQA Thresholds).

stretch of transmission lines); and 3) the estimated PM emissions (including diesel particulate matter) in the Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District being significantly below any relevant air quality thresholds, the health risks at these adjacent and nearby receptors would not exceed the Tuolumne County Air Pollution Control District's or San Joaquin Valley Air Pollution Control District's operational-related risks and hazards significance thresholds of 10 in one million for cancer risk and the hazard index of 1 for non-cancer risk. Therefore, the project would result in a less-than-significant air quality impact related to health risk.

Impact AQ-4: The proposed project would not create objectionable odors affecting a substantial number of people. (Less than significant)

Typical odor sources of concern include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting facilities. Construction and operation of the proposed project would not result in odors related to these typical sources. During construction of the project facilities, combustion emissions from the use of diesel fuel in off-road equipment could generate localized odors; however, there are no sensitive receptors (residences) near project construction activities; the closest sensitive receptor appears to be approximately 8,000 feet to the southeast of the sand shed construction site.

Operation of the project would produce combustion emissions from the use of diesel fuel in off-road equipment and could generate localized odors. There are several sensitive receptors (residences) located near the 50-mile-long transmission line corridor (within approximately 250 feet in some cases) where odors from diesel exhaust during project operations could be perceptible. However, project operation would involve operation of a small amount of diesel equipment for a limited duration (approximately one day for each culvert). Additionally, vegetation management activities would move along the 50-mile transmission line and would not remain at one location along the corridor for an extended period. Even if odors were temporarily perceivable by these receptors, the exposure would be short term, and a substantial number of people would not be affected. Therefore, the project's construction impacts related to objectionable odors would be less than significant.

Impact C-AQ: The proposed project, in combination with past, present, and reasonably foreseeable future development in the project area, would not result in a cumulatively considerable contribution to a significant cumulative air quality impact. The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal, state, or regional ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). (Less than Significant)

As discussed above, regional air pollution is primarily a cumulative impact. Emissions from past, present, and future projects contribute to the region's adverse air quality on a cumulative basis. No single project by itself is large enough to result in regional non-attainment of ambient air

quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts.⁹¹ If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Project operation would involve operation of a small amount of diesel equipment for a limited duration (approximately one day for each culvert). Additionally, vegetation management activities would move along the 50-mile transmission line and would not remain at one location along the corridor for an extended time. Due to the limited exposures at any single location, additional analysis to assess cumulative impacts is unnecessary. As discussed under Impact AQ-2, the proposed project would produce less than significant construction and operational emissions and thus the project's contribution to significant cumulative air quality impacts would not be cumulatively considerable. The health risk to individual sensitive receptors caused by the project would also be less than significant due to the limited duration and extent of exposure to operations and maintenance activities. As a result, the cumulative impact on air quality would be less than cumulatively considerable (less than significant).

Cumulatively considerable increases in criteria pollutants and increase in cumulative health risks are not anticipated as the project would not involve substantial long-term air quality emissions, and because the cumulative effects on any sensitive receptors nearby to the proposed project would be limited by the distance to most sensitive receptors, the short duration of the activities at each location, and the lack of other projects nearby. Project emissions are compared below to applicable air district thresholds, which indicate whether emissions would be cumulatively considerable.

Tuolumne County Air Pollution Control District

To address cumulative impacts on regional air quality, the Tuolumne County Air Pollution Control District has established thresholds of significance for project-level criteria air pollutant emissions. These thresholds represent the levels at which a project's individual emissions would result in a cumulatively considerable contribution to the Tuolumne County Air Pollution Control District's existing air quality violations of criteria pollutants. If average annual emissions were to exceed these thresholds, the project would result in a cumulatively significant impact. As shown in **Table 6** above, the combined construction and operational criteria pollutant and precursor emissions associated with the project would not exceed the Tuolumne County Air Pollution Control District significance thresholds, and therefore the project's contribution to cumulative impacts on regional air quality would be less than cumulatively considerable, a less-than-significant impact.

San Joaquin Valley Air Pollution Control District

As indicated in **Table 7** above, operational-related criteria pollutant and precursor emissions associated with the project would not exceed the San Joaquin Valley Air Pollution Control

91 SJVAPCD, *Final Draft Guidance for Assessing and Mitigating Air Quality Impacts*, March 19, 2015. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf. Accessed March 2, 2017.

District significance thresholds, and therefore the project's contribution to cumulative impacts on regional air quality would be less than cumulatively considerable, a less-than-significant impact.

E.8. GREENHOUSE GAS EMISSIONS

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
GREENHOUSE GAS EMISSIONS— Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Greenhouse gas (GHG) emissions and global climate change represent cumulative impacts. GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the combination of GHG emissions from past, present, and future projects have contributed and will continue to contribute to global climate change and its associated environmental impacts. The following analysis of the proposed project's impact on climate change focuses on the project's contribution to cumulatively significant GHG emissions. Given that the analysis is in a cumulative context, this section does not include an individual project-specific impact statement.

CEQA Guidelines section 15183.5 allows for public agencies to analyze and mitigate GHG emissions as part of a larger plan for the reduction of GHGs and describes the required contents of such a plan. Accordingly, San Francisco has prepared Strategies to Address Greenhouse Gas Emissions⁹² which presents a comprehensive assessment of policies, programs, and ordinances that collectively represent San Francisco's qualified GHG reduction strategy in compliance with the CEQA guidelines. These GHG reduction actions have resulted in a 28 percent reduction in GHG emissions in 2015 compared to 1990 levels,⁹³ exceeding the year 2020 reduction goals outlined in Executive Order S-3- 05, and Assembly Bill 32 (also known as the Global Warming Solutions Act).⁹⁴

Given that the City' has met the state and region's 2020 GHG reduction targets and San Francisco's GHG reduction goals are consistent with, or more aggressive than, the long-term goals established under Executive Order S-3-05,⁹⁵ Executive Order B-30-15,^{96,97} and Senate Bill

⁹² San Francisco Planning Department, Strategies to Address Greenhouse Gas Emissions in San Francisco, 2010. This document is available online at: <http://www.sf-planning.org/index.aspx?page=2627>.

⁹³ San Francisco Department of the Environment, Climate Plans and Reports web page. Available at: <https://sfenvironment.org/climate-plans-reports>, accessed February 26, 2018.

⁹⁴ Executive Order S-3-05, Assembly Bill 32, and the Bay Area 2010 Clean Air Plan set a target of reducing GHG emissions to below 1990 levels by year 2020.

⁹⁵ Office of the Governor, Executive Order S-3-05, June 1, 2005. Available at <http://www.pcl.org/projects/2008symposium/proceedings/Coatsworth12.pdf>, accessed March 16, 2016.

(SB) 32^{98,99} the City's GHG reduction goals are consistent with Executive Order S-3-05, Executive Order B-30-15, AB 32, SB 32 and the *Bay Area 2010 Clean Air Plan*. Therefore, proposed projects that are consistent with the City's GHG reduction strategy would be consistent with the GHG reduction goals, would not conflict with these plans or result in significant GHG emissions, and would therefore not exceed San Francisco's applicable GHG threshold of significance.

2004 Climate Action Plan for San Francisco 2004.¹⁰⁰ The Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Gas Emissions outlines citywide actions to reduce GHGs in the energy, transportation, and solid waste sectors. The plan includes GHG reduction strategies such as targeting emissions from fossil-fuel use in cars, power plants, and commercial buildings; developing renewable energy technologies like solar, wind, fuel cells, and tidal power; and expanding residential and commercial recycling programs. The plan identifies implementing agencies for GHG reduction strategies in the various sectors. The Climate Action Plan describes actions the SFPUC was taking and intended to take to reduce GHGs at that time.

2010 Strategies to Address Greenhouse Gas Emissions in San Francisco.¹⁰¹ This document examines the degree to which programs in the 2004 Climate Action Plan have been implemented as well as other programs that were not originally conceived under the Climate Action Plan. The

Executive Order S-3-05 sets forth a series of target dates by which statewide emissions of GHGs need to be progressively reduced, as follows: by 2010, reduce GHG emissions to 2000 levels (approximately 457 million metric tons of carbon dioxide equivalents (MTCO₂E)); by 2020, reduce emissions to 1990 levels (approximately 427 million MTCO₂E); and by 2050 reduce emissions to 80 percent below 1990 levels (approximately 85 million MTCO₂E). Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

- ⁹⁶ Office of the Governor, *Executive Order B-30-15*, April 29, 2015. Available at <https://www.gov.ca.gov/news.php?id=18938>, accessed March 3, 2016. Executive Order B-30-15, issued on April 29, 2015, sets forth a target of reducing GHG emissions to 40 percent below 1990 levels by 2030 (estimated at 2.9 million MTCO₂E).
- ⁹⁷ San Francisco's GHG reduction goals are codified in section 902 of the Environment Code and include: (i) by 2008, determine City GHG emissions for year 1990; (ii) by 2017, reduce GHG emissions by 25 percent below 1990 levels; (iii) by 2025, reduce GHG emissions by 40 percent below 1990 levels; and by 2050, reduce GHG emissions by 80 percent below 1990 levels.
- ⁹⁸ Senate Bill 32 amends California Health and Safety Code Division 25.5 (also known as the California Global Warming Solutions Act of 2006) by adding section 38566, which directs that statewide greenhouse gas emissions to be reduced by 40 percent below 1990 levels by 2030.
- ⁹⁹ Senate Bill 32 was paired with Assembly Bill 197, which would modify the structure of the State Air Resources Board; institute requirements for the disclosure of greenhouse gas emissions criteria pollutants, and toxic air contaminants; and establish requirements for the review and adoption of rules, regulations, and measures for the reduction of greenhouse gas emissions.
- ¹⁰⁰ San Francisco Department of the Environment and San Francisco Public Utilities Commission, *Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Gas Emissions*, September 2004.
- ¹⁰¹ San Francisco Planning Department, *Strategies to Address Greenhouse Gas Emissions in San Francisco*, 2010, p. VIII-22. Available online at: <http://www.sf-planning.org/index.aspx?page=2627>.

document provides an update on the energy efficiency and renewable energy programs that would help reduce GHG emissions.

2013 San Francisco Climate Action Strategy.¹⁰² SF Environment published an update to the 2004 CAP in 2013. This report provides a summary of progress and examples of successful policies and programs and outlines a set of actions that can be taken by citizens, businesses, and government. In the energy sector, the document includes many areas where the SFPUC has acted, including moving toward 100 percent GHG-free and renewable electricity in buildings, implementing energy efficiency programs, and implementing the GoSolarSF incentive program. The Strategy also reported on progress in GHG emissions reductions in the municipal sector, due in part to the SFPUC's carbon-free Hetch Hetchy Power and reductions in natural gas use in municipal buildings, a focus of the SFPUC's energy efficiency program.

2011 Updated Electricity Resource Plan. In Ordinance 81-08, the City and County of San Francisco endorsed a goal for the City to have a GHG free electric system by 2030, generating, deploying and procuring all its energy needs from renewable and zero-GHG electric energy sources. The purpose of the 2011 Update of San Francisco's 2002 Electricity Resource Plan (2002 ERP) is to identify the next steps that San Francisco must take to achieve this goal. It identifies recommendations that promote zero GHG energy, influence procurement of electric resources at the wholesale level, and expands reliable, reasonably-priced, and environmentally sensitive electric service. The most recent annual update prepared for the SFPUC Commission in 2015¹⁰³ highlighted the past year's activities, which included: working toward implementation of the CleanPower SF program, offering San Francisco residents and businesses a cleaner electricity supply; completing the Power Enterprise Business Plan, identifying strategies to increase delivery of clean energy supplies in San Francisco; successful certification of the SFPUC's Kirkwood generating units as eligible renewable energy resources under California's Renewables Portfolio Standard; and initiating GHG-free SFPUC electric service to the residents of the Shipyard, San Francisco's newest neighborhood.

SFPUC Climate Action Plan Annual Reports. Ordinance 81-08 also required each City department to report annually on its own departmental emissions and emissions reductions. SFPUC prepared annual reports to the Climate Action Plan in 2009, 2010, 2011, 2012, 2013, and 2014. The most recent annual report (Climate Action Annual Report Fiscal Year 2012-2013) was prepared in 2014. Each annual report summarizes GHG emissions associated with electricity, natural gas and fleet fuels consumed by the SFPUC for the previous fiscal year for its own operations and highlights the SFPUC's activities to reduce GHG emissions. According to the 2014 report, total GHG emissions from facility energy use (natural gas and electricity) decreased 76 metric tons (2.9 percent) in FY 12-13 compared to the previous year.

¹⁰² San Francisco Department of the Environment, *San Francisco Climate Action Strategy, 2013 Update*. October.

¹⁰³ SFPUC, San Francisco's 2011 Updated Electricity Resource Plan, March, 2011.

E.8.1. Climate Action Plan

In February 2002, the San Francisco Board of Supervisors passed the Greenhouse Gas Emissions Reduction Resolution (Number 158-02) committing the City to a GHG emissions reduction goal of 20 percent below 1990 levels by the year 2012. The resolution also directed the San Francisco Department of the Environment, the SFPUC, and other appropriate City agencies to complete and coordinate an analysis of and planning for a local action plan targeting GHG emissions reduction activities. In September 2004, the Department of the Environment and the SFPUC published the *Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Gas Emissions*.¹⁰⁴ The *Climate Action Plan* examines the causes of global climate change and evaluates human activities that contribute to global warming, providing projections of climate change impacts on California and San Francisco from recent scientific reports; presents estimates of San Francisco's baseline GHG emissions inventory and reduction targets; describes recommended emissions reduction actions in the key target sectors – transportation, energy efficiency, renewable energy, and solid waste management – to meet stated goals by 2012; and presents next steps required over the near term to implement the plan. Although the Board of Supervisors has not formally committed the City to perform the actions addressed in the plan, and many of the actions require further development and commitment of resources, the plan serves as a blueprint for GHG emission reductions, and several actions are now in progress.

The *Climate Action Plan* cites an array of potential environmental impacts on San Francisco resulting from climate change, including rising sea levels that could threaten coastal wetlands, infrastructure, and property; increased storm activity that could increase beach erosion and cliff undercutting; warmer temperatures that could result in more frequent El Niño storms, in turn causing more rain than snow in the Sierra and thus reducing the snow pack, which is an important source of the region's water supply; decreased summer runoff and warming ocean temperatures that could affect salinity, water circulation, and nutrients in the Bay, potentially altering Bay ecosystems; other possible effects on food supply and the viability of the state's agricultural system; possible public health effects related to degraded air quality and changes in disease vectors; and other social and economic impacts.

The plan presents estimates of San Francisco's baseline GHG emissions inventory and reduction targets. It indicates that burning fossil fuels in vehicles and for energy use in buildings and facilities is the major contributor to San Francisco's GHG emissions. The plan includes GHG reduction strategies such as targeting emissions from fossil-fuel use in cars, power plants, and commercial buildings; developing renewable energy technologies like solar, wind, fuel cells, and tidal power; and expanding residential and commercial recycling programs. According to the plan, achieving these goals will require the cooperation of many different City agencies. The City achieved its 2012 goal, with greenhouse gas emissions in that year at 23 percent below 1990

104 San Francisco Department of the Environment/San Francisco Public Utilities Commission, *Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Gas Emissions*, September 2004. Available at: <http://www.sfdenvironment.org/sites/default/files/fliers/files/climateactionplan.pdf>.

levels.¹⁰⁵ In 2015, San Francisco successfully reduced emissions 28 percent below 1990 levels from 6.2 million to 4.4 million metric tons of carbon dioxide equivalent (mtCO₂e).

The project does not appear to obviously or substantially conflict with the *Climate Action Plan*.

SFPUC Actions to Address Climate Change

Current SFPUC actions to reduce GHG emissions include the following:

- The SFPUC's renewable generation program has installed 21 solar photovoltaic projects on municipal facilities, with 8 megawatts of solar capacity and continues to plan for additional projects to increase local renewable energy generation. In addition, the SFPUC operates cogeneration plants at its Southeast and Oceanside Wastewater Treatment Plants that generate both electricity and process heat, and are primarily fueled by digester biogas, a by-product of wastewater treatment operations. These facilities generate 2 megawatts and 1 megawatt at peak, respectively.
- The SFPUC's GoSolarSF program continues to provide incentives to San Francisco residents, businesses, and nonprofits. In FY 2014-15, \$1.9 million in incentives resulted in the installation of 2.2 megawatts of new local solar generation at over 570 locations in the city.
- The SFPUC's energy efficiency program continues to reduce electricity use and natural gas consumption in municipal buildings year after year and is expanding its focus in the coming year with new program offerings for the private sector.
- Expanding existing GHG-free electricity programs to serve more customers in San Francisco. In spring 2015, the new residents at the Hunters Point Shipyard became San Francisco's newest green power neighborhood, receiving Hetch Hetchy Power for 100 percent of their electric needs. May 2016 marked the launch of the CleanPowerSF program, which is now delivering cleaner energy to San Francisco residents and business through the Green (40 percent renewable) and SuperGreen (100 percent renewable) enrollment options.
- The SFPUC recently opened the College Hill Learning Garden, in Bernal Heights. This educational site features kid-friendly interactive features such as solar panels, rain gardens, a mini-green roof and a composting toilet, all designed to teach our youngest learners about how they can be stewards of our water, energy, food, and waste systems.
- The SFPUC continues to encourage the use of sustainable transportation in all forms, including changing its diesel purchases from petroleum-based diesel and biodiesel to renewable diesel.

¹⁰⁵ ICF International, Technical Review of the 2012 Community-wide Inventory for the City and County of San Francisco, January 21, 2015.

Tuolumne County Air Pollution Control District GHG Reduction Strategy

In 2012, the Tuolumne County Transportation Council completed the Tuolumne County Regional Blueprint GHG Study,¹⁰⁶ which indicates in 2010, Tuolumne County emitted approximately 782,846 MTCO₂e GHG emissions as a result of activities and operations that took place within the transportation, residential (energy consumption), non-residential (energy consumption), off-road vehicles and equipment, agriculture and forestry, wastewater, and solid waste sectors. The study includes screening criteria for GHG analyses and a project level threshold of 4.6 metric tonnes CO₂e per service population. Proposed projects that are less than the applicable screening criteria are consistent with AB 32 and the countywide target and are not subject to detailed GHG emissions analyses. The sand storage shed meets the screening criteria for an industrial building because it is less than 5,000 square feet.¹⁰⁷ Therefore, a detailed GHG emissions assessment is not needed for the construction of the sand storage shed but is provided below for reference. The study also recommended a countywide target to reduce the county's GHG emissions 15 percent below 2010 levels by 2020 (equivalent to 665,419 MTCO₂e), in addition to a project-level threshold of 4.6 MTCO₂e per service population per year that can be applied evenly to future land development applications countywide to ensure that new development reduces its share of emissions consistent with AB 32 and the countywide reduction target.¹⁰⁸ The County Board of Supervisors adopted the Tuolumne County Regional Blueprint Greenhouse Gas Study and associated project-level thresholds in January 2012. Because the vegetation management and culvert replacement/repair work are not a land development project, these thresholds do not apply. For comparison purposes, it is noted that estimated emissions from the proposed project are well below the Bay Area Air Quality Management District threshold of 1,100 MTCO₂e.

San Joaquin Valley Air Pollution Control District GHG Reduction Strategy

Stanislaus County also has a greenhouse gas inventory,¹⁰⁹ which indicates that in 2005, Stanislaus County emitted approximately 6,042,232 MT CO₂e. The largest sources of emissions were from on-road transportation, building electricity, agriculture, and building natural gas use.

The San Joaquin Valley Air Pollution Control District guidance for assessing and reducing the impacts of project-specific GHG emissions¹¹⁰ does not specify significance thresholds for construction-related or operational GHG emissions but relies on the use of performance-based

¹⁰⁶ Tuolumne County, *Tuolumne County General Plan Update EIR, section 4.7 Global Climate Change*.
<http://www.tuolumnecounty.ca.gov/DocumentCenter/View/5762>. Accessed March 1, 2017.

¹⁰⁷ Ibid.

¹⁰⁸ Tuolumne County, *Tuolumne County Regional Blueprint Greenhouse Gas Study*, January 2012.
http://media.wix.com/ugd/fe950e_6fa366b85161406ab2acee5174c8b318.pdf. Accessed March 1, 2017.

¹⁰⁹ Stanislaus County, *Stanislaus Countywide Regional Community Greenhouse Gas Inventory*, July 2013.
<http://www.stancounty.com/planning/pl/StanRST-Docs/County/STANISLAUS%20COUNTY%20GHG%20REPORT.pdf>. Accessed March 1, 2017.

¹¹⁰ SJVAPCD, *Final Staff Report - Addressing Greenhouse Gas Emission Impacts Under the California Environmental Quality Act*, December 2009. <http://www.valleyair.org/Programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>. Accessed online March 2, 2017.

standards, otherwise known as Best Performance Standards, to assess the significance of project-specific GHG emissions on global climate change during the environmental review process, as required by CEQA. Use of these standards is a method of streamlining the CEQA process to determine the significance of a project's increase in GHG emissions; it is not a required emission reduction measure. Projects implementing these standards would be determined to have a less-than-significant impact. Otherwise, demonstration of a 29-percent reduction in GHG emissions from business-as-usual is required to determine that a project would have a less-than-significant impact. The guidance does not limit a lead agency's authority to establish its own process and guidance for determining significance of project-related impacts on global climate change.

Impact C-GG-1. The proposed project would generate GHG emissions but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulations adopted for reducing GHG emissions. (Less than Significant)

The most common GHGs resulting from human activity are CO₂, black carbon, methane, and nitrous oxide.¹¹¹ Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operational phases. Direct operational emissions include GHG emissions from new vehicle trips, fossil fuel combustion, and area sources (natural gas combustion). Indirect emissions include emissions from electricity providers, energy required to pump, treat, and convey water, and emissions associated with landfill operations.

Thresholds established by the Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District to determine whether an individual project's GHG emissions significantly contribute to climate change are summarized in **Table 8**.

¹¹¹ OPR, Technical Advisory- CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review, June 19, 2008. Available at the Office of Planning and Research's website at: <https://www.opr.ca.gov/docs/june08-ceqa.pdf>. Accessed March 2, 2017.

Table 8: Comparison of Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District CEQA GHG Thresholds of Significance

Source	Construction-related Thresholds		Operational Thresholds	
	Tuolumne County Air Pollution Control District ¹	San Joaquin Valley Air Pollution Control District ²	Tuolumne County Air Pollution Control District ¹	San Joaquin Valley Air Pollution Control District ²
Projects other than Stationary Sources	None	None	4.6 MT CO ₂ e/ service population/ year	Compliance with District-approved BPS or quantify GHG emissions and demonstrate project achieves AB32 targeted 29 percent GHG emissions reductions compared to Business-as Usual (BAU)
<p>Sources:</p> <p>¹ Email communications from Bill Sandman, Deputy Air Pollution Control Officer, Tuolumne County Air Pollution Control District, on October 24 and November 3, 2011 regarding the District's GHG significance thresholds. As cited in San Joaquin Valley Communication System Upgrade Project. Final Mitigated Negative Declaration. Planning Department Case No. 2012.0183E. June 27, 2013</p> <p>² SJVAPCD, <i>FACT SHEET, Addressing Greenhouse Gas Emissions Impact under the California Environmental Quality Act (CEQA)</i>, 2012. Available at http://www.valleyair.org/Programs/CCAP/bps/fact_sheet_for_development_sources.pdf, accessed January 27, 2012</p> <p>Notes: BAU = business-as-usual; BPS = Best Performance Standards; GHG = greenhouse gas</p>				

As indicated in **Table 8**, the Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District do not have quantified significance thresholds for construction-related GHG emissions.^{112,113}

Project construction activities are estimated to occur over approximately one month, beginning in 2017. **Table 9** presents the project's estimated annual construction-related emissions for 2017. As indicated in the table, construction activities associated with the project would generate up to an estimated 73 MTCO₂e, which is a relatively small amount of GHGs in comparison to statewide GHG emissions. In addition, construction-related GHG emissions would be temporary in nature and limited to the approximately one-month construction period. For these reasons, project construction would not conflict with state AB 32 and SB 32 goals or local GHG reduction policies. The project would also be subject to the existing California Air Resources Board regulation (Title 13 of the California Code of Regulations section 2485), which limits idling of diesel-fueled commercial motor vehicles; compliance with this regulation would

¹¹² Email communications from Bill Sandman, Deputy Air Pollution Control Officer, TCAPCD, on October 24 and November 3, 2011 regarding the District's GHG significance thresholds. As cited in San Joaquin Valley Communication System Upgrade Project. Final Mitigated Negative Declaration. Planning Department Case No. 2012.0183E. June 27, 2013.

¹¹³ SJVAPCD, Final Staff Report - Addressing Greenhouse Gas Emission Impacts Under the California Environmental Quality Act, December 2009. <http://www.valleyair.org/Programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>. Accessed online March 2, 2017.

further reduce GHG emissions associated with project construction vehicles. Therefore, the project's construction-related GHG emissions would be less than significant.

Table 9: Estimated Annual Project-related GHG Emissions in Tuolumne County Air Pollution Control District

Category	Project Component	Emissions (MT/yr) ¹
		CO ₂
Construction	Sand Shed	73
Operational Maintenance	Culvert Replacements	46
Operational Vegetation Management	Tree Removal	18
	Transmission Corridor	97
	Pile Burning ²	0.72
Construction Emissions Total		73
Operational Emissions Total		162
Construction + Operational Emissions Total		235
Tuolumne County Air Pollution Control District Operational CEQA Thresholds		N/A
Notes: CO ₂ = carbon dioxide; MT/yr = metric tons per year. ¹ On-site emissions were calculated using CalEEMod default equipment emission factors. Off-site emissions were calculated in CalEEMod. ² Pile burning were calculated using an emission factor and HHV from 40 CFR Part 98, Table C-1.		

The project's direct operational GHG emissions would be from off-road equipment used for culvert replacements/repair and vegetation management activities, from vegetation pile burning activities, as well as from on-road vehicle traffic from worker trips. As shown in **Table 10**, GHG emissions from these sources would total a maximum of 162 MTCO₂e in both Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District. Emissions shown represent maximum potential annual emissions for each county; therefore, the emissions presented for each county assume that all 12 culvert repair/replacements would take place in that county and all vegetation management activities would take place in that county. Indirect emissions would also be emitted by the electricity used in the sand storage shed. It is not possible to accurately quantify GHG emissions resulting from the project's incremental increase in electricity demand from its provider because no estimate for sand shed electricity consumption is currently available. Given the structure's proposed use, it was assumed to require less electricity than otherwise comparable CalEEMod warehouse land uses. The structure is expected to draw a small amount of electricity from PG&E's grid. Although emissions from electricity use would occur, these emissions would be negligible compared to the rest of the project.

The Tuolumne County Air Pollution Control District and San Joaquin Valley Air Pollution Control District do not have significance thresholds for operational emissions that apply to a project of this land use and size, but the San Joaquin Valley Air Pollution Control District evaluates significance of GHG emissions based on use of performance-based standards.^{114,115}

¹¹⁴ Email communications from Bill Sandman, Deputy Air Pollution Control Officer, TCAPCD, on October 24 and November 3, 2011 regarding the District's GHG significance thresholds. As cited in San Joaquin Valley Communication System Upgrade Project. Final Mitigated Negative Declaration. Planning Department Case No. 2012.0183E. June 27, 2013.

¹¹⁵ SJVAPCD, Final Staff Report - Addressing Greenhouse Gas Emission Impacts Under the California Environmental Quality Act, December 2009. <http://www.valleyair.org/Programs/CCAP/12-17->

Performance-based standards are expected to equal or exceed a 29-percent reduction in GHG emissions from stationary sources and development projects. Given the limited duration of activities for culvert maintenance/replacement (approximately 12 days per year), and limited use of diesel equipment for vegetation management, these project-related operational emissions are considered less than significant.

Table 10: Estimated Annual Project-related GHG Emissions in San Joaquin Valley Air Pollution Control District

Category	Project Component	Emissions (MT/yr) ¹
		CO ₂
Operational Maintenance	Culvert Replacements	46
Operational Vegetation Management	Tree Removal	18
	Transmission Corridor	97
	Pile Burning ²	0.72
Operational Total		162
San Joaquin Valley Air Pollution Control District Operational CEQA Thresholds		N/A
Notes: CO ₂ = carbon dioxide; MT/yr = metric tons per year. ¹ On-site emissions were calculated using CalEEMod default equipment emission factors. Off-site emissions were calculated in CalEEMod. ² Pile burning were calculated using an emission factor and HHV from 40 CFR Part 98, Table C-1.		

Further, for reference, the Bay Area Air Quality Management District does have a bright-line operational GHG threshold of significance. For non-stationary source projects (such as this project), if total GHG emissions do not exceed 1,100 MT of CO₂e per year, the project is considered less than significant. The combined construction and operational CO₂e emissions in the worst-case year from both air basins equal 397 metric tons per year. Thus, in the worst-case year (conservatively including construction related GHG emissions), the project does not exceed the Bay Area Air Quality Management District's brightline GHG threshold.

Given that operational GHG emissions would be less than significant, the project would not conflict with the state's AB 32 and SB 32 goals and associated Scoping Plan estimates of reducing GHG emissions to 1990 levels by 2020, or with the SFPUC Climate Action Plan's goal of reducing GHG emissions by 25 percent below 1990 levels by 2017 and up to 80 percent below 1990 levels by 2050.

E.9.WIND AND SHADOW

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
WIND AND SHADOW—Would the project:					
a) Alter wind in a manner that substantially affects public areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The proposed project activities would occur within property owned by the City. There are no public areas within the project corridor's right of way. The vegetation management program and culvert replacements would not result in new above-ground structures. The proposed 25-foot-tall sand shed would be a new structure at the site but located entirely within the SFPUC property. The proposed sand shed would result in new shadow at the site but would not be at a height or width substantial enough to change wind. In addition, the proposed sand shed area is not accessible to the public or in a recreation facility area. For these reasons, the proposed project would have no impact related to wind and shadow.

E.10. RECREATION

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
RECREATION—Would the project:					
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Physically degrade existing recreational resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The project involves the replacement of culverts, the construction of a sand shed, and ongoing vegetation management activities mostly within an existing utility right of way; it would not have the potential to increase the use of neighborhood parks, regional parks, or other recreational facilities. Additionally, the project does not propose the construction of new recreational facilities or require the expansion of existing recreational facilities. Therefore, criteria 10(a) and 10(b) are not applicable to this project and are not discussed further.

Impact RE-1: The proposed project would not physically degrade existing recreational resources. (Less Than Significant)

Vegetation management, culvert replacements, and sand shed construction would occur on, and potentially immediately adjacent, to the existing transmission right of way and associated access roads. No Stanislaus County parks or recreational facilities are in the project vicinity.¹¹⁶ Furthermore, there are no roads with designated bicycle lanes in the project vicinity in Stanislaus County.

Approximately 15 miles of the transmission corridor passes through Stanislaus National Forest. The primary recreational facilities near the project corridor are hiking trails and campgrounds within Stanislaus National Forest. Trails and campgrounds themselves would not be impacted by project activities because construction and maintenance would occur within the right of way (and possibly just outside the right of way for potential strike tree removals). There are no designated bicycling trails in the portions of Stanislaus National Forest surrounding the project corridor.¹¹⁷ Bicycling may occur on any road where it is legal, whether in Tuolumne County or in the National Forest, including along SR 120 (which crosses the project corridor at multiple locations).

¹¹⁶ Stanislaus County, County Parks & Facilities, Available at www.stancounty.com/parks/facilities.shtm, accessed on January 24, 2017.

¹¹⁷ U.S. Forest Service, *Bicycling*, n.d., Available at <https://www.fs.usda.gov/activity/stanislaus/recreation/bicycling>, accessed on February 15, 2017.

Approximately 9 miles along the transmission right of way into Tuolumne County, the project corridor crosses Don Pedro Reservoir. The Don Pedro Recreation Agency maintains campgrounds, marinas, boat launch facilities, hiking trails, and a visitor center at the lake. Of these facilities, the nearest to the project corridor are the dispersed camping areas known as Wreck Bay Boat-in Camp Area and Gardiner Falls.¹¹⁸ Dispersed camping, camping in undeveloped or undesignated sites, is prohibited near the transmission lines.¹¹⁹

Vegetation management, culvert construction, and sand shed construction are all temporary and/or intermittent activities and would not themselves degrade existing recreational resources. Vegetation management activities may occur along or near publicly accessible areas, such as trails, particularly in the eastern part of the project corridor that passes through the Stanislaus National Forest. However, vegetation management has been occurring on the alignment for decades on an as-needed basis. For these reasons, the proposed project would not dramatically change the physical appearance of the project corridor or impact the ability to use existing trails or other recreation facilities. Construction activities could require closures of access roads due to culvert replacement, typically for no longer than one day per site. If work would take more than one day, a steel plate would be placed over any open excavation in the road (applicable to public roads only) to provide access during non-work hours (see Section B.2.2 Culvert Maintenance, Repair, and Replacements). The sand shed would be in an area that is publicly accessible but does not contain public facilities or recreational resources. Thus, the proposed project would have less than significant impacts with respect to the degradation of existing recreational resources.

¹¹⁸ Don Pedro Recreation Agency, Don Pedro Recreation Area Dispersed Area Camping and Navigation Map, n.d. Available at <http://www.donpedrolake.com/sites/default/files/docs/dpra-boat-navmap.pdf>, accessed on January 29, 2017.

¹¹⁹ Ibid.

E.11. UTILITIES AND SERVICE SYSTEMS

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
UTILITIES AND SERVICE SYSTEMS— Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supply available to serve the project from existing entitlements and resources, or require new or expanded water supply resources or entitlements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The proposed project consists of long-term vegetation activities within the existing transmission right of way, culvert construction, and construction of a sand storage shed. The proposed project would not create new demands for water or generate wastewater requiring treatment, would not require construction of new water or wastewater treatment facilities, and would not require the use of potable water. Therefore, significance criteria E.11(a), E.11(b), E.11(d), and E.11(e) are not applicable and not discussed further.

Impact UT-1: The proposed project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (No Impact)

The proposed project would replace existing culverts but would not require the construction of new drainage or stormwater facilities outside the project area. Therefore, the proposed project would not require the expansion of existing stormwater facilities, beyond those that would be improved by the project, and there would be no impact.

Impact UT-2: The proposed project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. (Less than Significant)

The California Integrated Waste Management Act of 1989 set standards for diversion of waste and required counties to prepare integrated waste management plans. The Act also expanded recycling requirements. Subsequent laws (AB 75 and AB 341) further increased the proportion of solid waste that must be diverted from the waste stream. Under AB 341, by 2020 at least 75 percent of solid waste should be recycled, composted, or reduced at the source.¹²⁰ The proposed project activities would be consistent with these statutes, because vegetation would continue to be chipped on site, burned, or removed for collection or firewood sales, and would not contribute to the solid waste streams of Stanislaus or Tuolumne Counties. Furthermore, the magnitude of these activities is expected to be commensurate with existing on-going vegetation management activities. The quantities of waste from culvert replacement would be relatively small, because culverts are expected to be replaced at a rate of approximately twelve per year. Soil would be spread on site and would not require disposal.

The most likely landfill to serve the project for waste generated during construction of the sand shed and culvert replacement is the Fink Road Sanitary Landfill, in Stanislaus County. The facility accepts solid nonhazardous municipal waste and serves the entire county.¹²¹ Waste from culvert replacements would generally consist of concrete and corrugated metal. Solid waste from culvert replacement would likely be transported to the Fink Road Sanitary Landfill, which has a remaining capacity of approximately 5.3 million cubic yards as of April 2015¹²² and is permitted through 2023. This would be sufficient capacity to accommodate the project's solid waste. Therefore, the project's impacts regarding solid waste would be less than significant.

Impact UT-3: The proposed project would comply with federal, state, and local statutes and regulations related to solid waste. (No Impact)

Solid waste from culvert replacements and sand shed construction would consist of concrete, rocks, and corrugated metal. This waste would be disposed of in accordance with all federal, state, and local regulations regarding solid waste and no impact would occur.

Impact C-UT: The proposed project, in combination with other past, present, and reasonably foreseeable projects, would not contribute to cumulative impacts related to utilities and service systems. (Less than Significant)

The project would not create demand for water, wastewater or storm drainage facilities; the geographic scope of potential cumulative impacts on utilities and service systems is thus limited to solid waste landfills in the project region.

¹²⁰ Assembly Bill 341, 2011-2012, Reg. Sess., ch. 476, 2012 Cal Stat. Available at http://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201120120AB341, accessed on January 29, 2017.

¹²¹ ICF International, Draft Stanislaus County General Plan and Airport Land Use Compatibility Plan Update Draft Program Environmental Impact Report, April 2016.

¹²² Ibid.

The proposed project, and all cumulative projects listed in **Table 2**, would generate waste during construction and ongoing maintenance activities. However, the proposed project and all potential cumulative projects would be required to divert 65 percent of this waste from landfills, in accordance with Assembly Bill 939. Culverts replaced after 2020 could be subject to 75 percent waste diversion requirements. All projects in the area would likely be served by the Fink Road Sanitary Landfill, which has a remaining capacity of approximately 5.3 million cubic yards as of April 2015 and is permitted through 2023. Landfill capacity is expected to be sufficient to accept construction waste from projects in the area, thus the cumulative impact would be less than significant.

E.12. PUBLIC SERVICES

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
PUBLIC SERVICES— Would the project:					
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact PS-1: The proposed project would not result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services. (No Impact).

The proposed project area is located within unincorporated areas of Stanislaus and Tuolumne Counties. Fire protection services in the area are provided by Tuolumne County Fire Department, in conjunction with CalFire and Stanislaus Consolidated Fire. The U.S. Forest Service also provides fire services. Law enforcement services are provided by the sheriff's departments of Tuolumne and Stanislaus Counties. A portion of the proposed project area is located within to Stanislaus National Forest, which is managed by U.S. Forest Service.

The proposed project would not affect service ratios, response times, or other performance objectives for public services because it would not directly or indirectly induce population or job growth, nor would it close major roadways, or otherwise result in impacts to public services. The operations and maintenance of the project would not require the addition of new staff and would not result in an increase in demand for public services. As a result, there would be no need to construct new or expanded public services in the project vicinity, the construction of which could cause significant environmental impacts (No Impact).

E.13. BIOLOGICAL RESOURCES

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
BIOLOGICAL RESOURCES— Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status plant species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impeded the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plan occurring within Tuolumne, Stanislaus, or Mariposa counties with which the proposed project would conflict.¹²³ Therefore, E.13(f) is not applicable and is not discussed further.

E.13.1. Approach to Analysis

This analysis summarizes the existing biological resources in the proposed project area. Biological resources were analyzed via a review of available resources and literature (including U.S. Fish &

¹²³ CDFW California Regional Conservation Plans, July 2017, <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=68626&inline>, accessed July 5, 2017.

Wildlife Services and the California Department of Fish and Wildlife lists of special-status species or rare, threatened, or endangered species) and field investigations of the project area by qualified biologists.

Surveys

The project area is divided into two sections for this analysis. The western portion, referred to as the “valley area,” includes the project area from the Warnerville switchyard to Merrell Road, near the community of Groveland. The eastern portion, referred to as the “upcountry area,” extends from the Holm and Kirkwood powerhouses to Merrell Road. **Figure 4** in the project description depicts the valley and upcountry study areas, as well as the 13 Vegetation Management Units as defined by the *transmission vegetation management program*. Surveys were conducted in phases within the project area between 2013 and 2017, with surveys in the valley area occurring in 2016 and 2017, and surveys in the upcountry area occurring in 2013-2015 and 2017.

Reconnaissance survey efforts included searching for plants and animals while walking throughout the project area and making observations from stationary observation points. Protocol-level surveys for special-status animals were not conducted as part of this assessment. All wildlife species observed or recognized by diagnostic sign (e.g., an audible call, tracks, scat, carcasses, or burrows) were identified and recorded (including location information). Protocol-level rare plant surveys were conducted by Nomad Ecology staff on various dates between 2013 and 2017 to cover upcountry and valley areas during the appropriate blooming period of listed plant species with potential to occur in the area.¹²⁴

Special Status Species

Special-status species are defined as:

- Species listed under the Federal Endangered Species Act, Marine Mammal Protection Act, California Endangered Species Act, California Fish and Game Code, and the Native Plant Protection Act as endangered or threatened species, or that are candidates or proposed for listing; or species that are designated as rare or fully protected.
- Locally rare species defined by CEQA Guidelines section 15125(c) and 15380, which may include species that are designated as sensitive, declining, rare, locally endemic, or as having limited or restricted distribution by various federal, state, and local agencies, organizations, and watch lists. This includes species identified by the California Native Plant Society as rare plants defined as ranks 1A, 1B, and 2. For the purpose of this project, two rank 4 species that appear likely to be elevated to rank 1B over the life of the project are also included in the special status species analysis. Species designated as Species of Special Concern by California Department of Fish and Wildlife (CDFW) are also included in this category.

A list of special status species with the potential to occur in the project area was developed from the following resources:

¹²⁴ Nomad Ecology, *Biological Resources Assessment, SFPUC Reliable Power Project*, 2018.

U.S. Fish and Wildlife Service:

- Federal endangered and threatened species that occur in or may be affected by projects in Stanislaus County¹²⁵
- Federal endangered and threatened species that occur in or may be affected by projects in Tuolumne County¹²⁶
- National wetland inventory for the project area¹²⁷

California Department of Fish and Wildlife:

- List of California vegetation alliances and associations. The Vegetation Classification and Mapping Program¹²⁸
- California Natural Diversity Database query for the Ackerson Mountain, Ascension Mountain, Bachelor Valley, Buckhorn Peak, Cherry Lake North, Cherry Lake South, Chinese Camp, Cooperstown, Copperopolis, Coulterville, Duckwall Mountain, El Portal, Escalon, Farmington, Groveland, Hull Creek, Jawbone Ridge, Keystone, Kibbie Lake, Kinsley, Knights Ferry, La Grange, Lake Eleanor, Moccasin, New Melones Dam, Oakdale, Paulsell, Penon Blanco Peak, Riverbank, Sonora, Standard, Tuolumne, and Waterford U.S. Geological Survey 7.5-minute topographic quadrangles¹²⁹
- State and federally listed endangered, threatened and rare plants of California¹³⁰
- State and federally listed endangered and threatened animals of California¹³¹

¹²⁵ USFWS, Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in Stanislaus and Tuolumne Counties, 2016, http://www.fws.gov/sacramento/es/spp_lists/auto_list.cfm.

¹²⁶ Ibid.

¹²⁷ USFWS, National Wetland Inventory for Tuolumne and Stanislaus Counties, 2016, <https://www.fws.gov/wetlands/nwi/Overview.html>.

¹²⁸ CDFG, Wildlife and Habitat Data Analysis Branch, The Vegetation Classification and Mapping Program, Vegetation Classification and Mapping Program List of California Vegetation Alliances, September 2010. <https://www.wildlife.ca.gov/Data/VegCAMP/Reports-and-Maps>

¹²⁹ CDFW, Wildlife and Habitat Data Analysis Branch. *California Natural Diversity Database (CNDDDB), Version 3.1.0*. Database Query for the Ackerson Mountain, Ascension Mountain, Bachelor Valley, Buckhorn Peak, Cherry Lake North, Cherry Lake South, Chinese Camp, Cooperstown, Copperopolis, Coulterville, Duckwall Mountain, El Portal, Escalon, Farmington, Groveland, Hull Creek, Jawbone Ridge, Keystone, Kibbie Lake, Kinsley, Knights Ferry, La Grange, Lake Eleanor, Moccasin, New Melones, Dam, Oakdale, Paulsell, Penon Blanco Peak, Riverbank, Sonora, Standard, Tuolumne, and Waterford U.S. Geological Survey 7-½ minute topographic quadrangles. 2016. <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>

¹³⁰ CDFW, Wildlife and Habitat Data Analysis Branch, California Natural Diversity Database, *State and Federally Listed Endangered, Threatened and Rare Plants of California*, March 2016. <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>

- Special vascular plants, bryophytes, and lichens list¹³²
- Special animals list¹³³

Species Identified in Study Area

On behalf of the San Francisco Planning Department, Nomad Ecology reviewed available databases and literature, performed field investigations, and used familiarity with local flora and fauna to identify habitat requirements and distribution of each species. Based on the availability of suitable habitat, local extirpations, connectivity requirements between areas of suitable and occupied habitat, land use, and habitat degradation, Nomad Ecology evaluated the potential for special-status species to occur in the project area.¹³⁴ Based on review of relevant data described in Section E.13.1, Approach to Analysis, 53 special-status plant species were initially assessed as having the potential to occur in the project area. Thirteen of these species were found to be present in the project area during surveys, and one additional species was determined to have potential to occur as it was found adjacent to the project area. The other 39 plant species analyzed were dismissed from further consideration because they are unlikely to occur in the project area. Known occurrences of special-status plants within a 10-mile radius of the project area are presented in **Figures 9 and 10**. Only species determined to be present or likely to occur are discussed further in this analysis.

In addition, federally proposed or designated critical habitat in the project area was reviewed to determine whether any critical habitat is present within the project area. The project is not located within any critical habitat designated by the U.S. Fish and Wildlife Service.

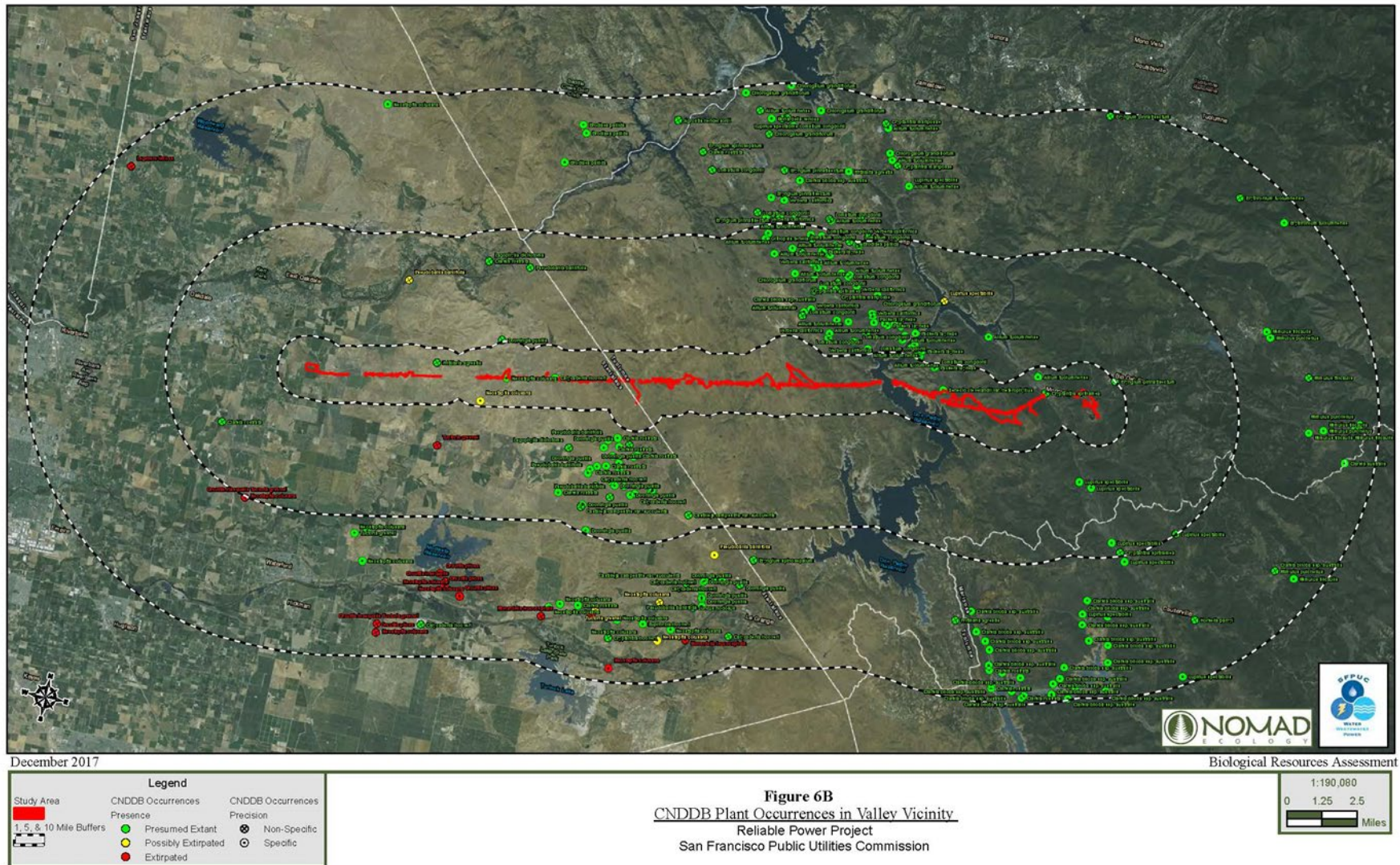
¹³¹ CDFW, Biogeographic Data Branch, California Natural Diversity Database, *State and Federally Listed Endangered and Threatened Animals of California*, March 2016. <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>

¹³² CDFW, Wildlife and Habitat Data Analysis Branch, California Natural Diversity Database, April 2016.

¹³³ CDFW, Biogeographic Data Branch, California Natural Diversity Database, *Special Animals*, March 2016. <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>

¹³⁴ Nomad Ecology, Biological Resources Assessment, SFPUC Reliable Power Project, 2018.

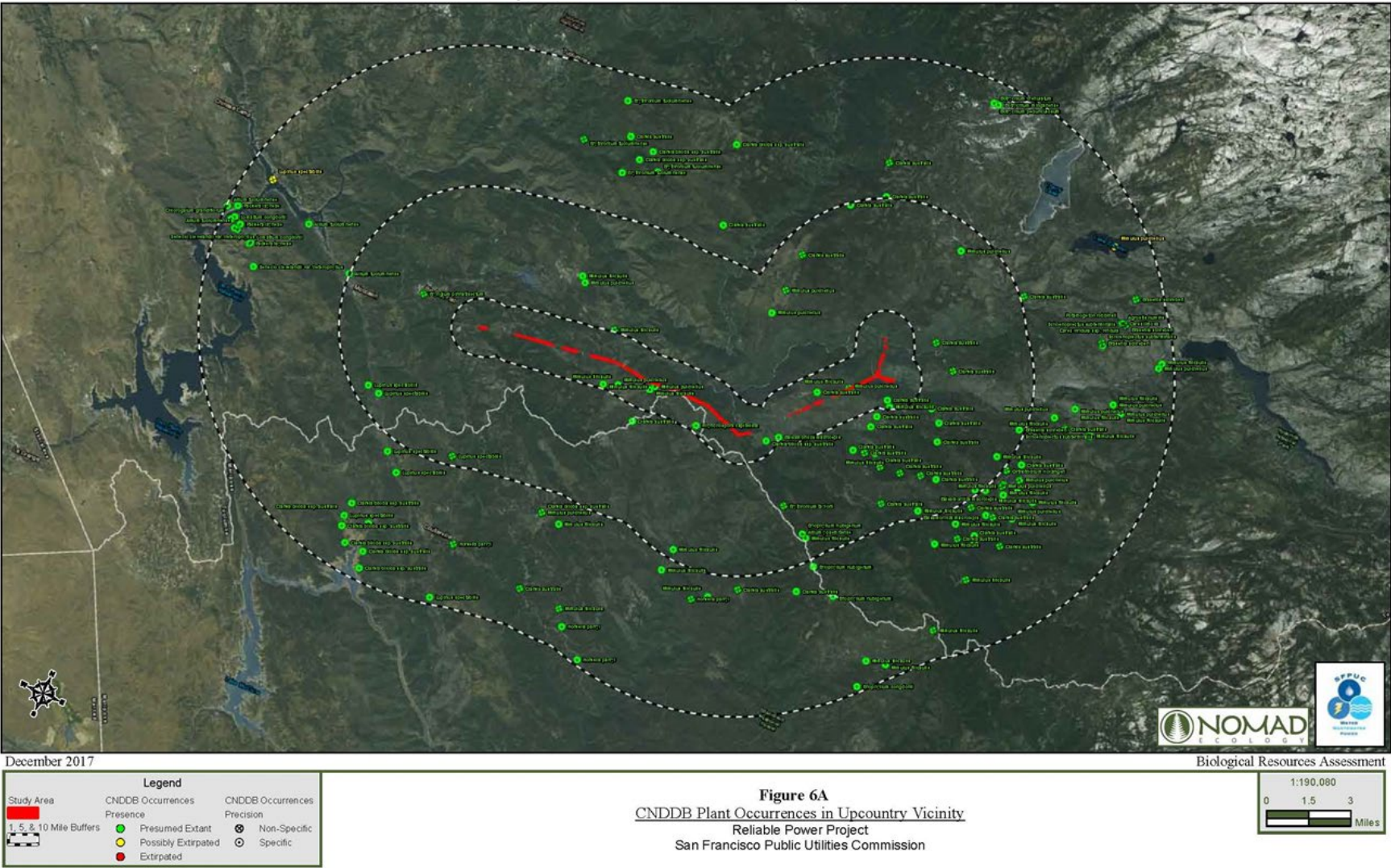
Figure 9. CNDDDB Valley Plants



Sources: ESRI; California Spatial Information Library; Bay Area Open Space Council; California Department of Fish and Game; Projection: NAD 83 UTM 18 North

Stanislaus and Tuolumne Counties, California

Figure 10. CNDDB Upcountry Plants



Sources: ESRI, California Spatial Information Library, Bay Area Open Space Council, California Department of Fish and Game, Projection: NAD 83 UTM 10 North.

Tuolumne County, California

E.13.2. Setting

Upcountry Area

The upcountry area primarily follows SR 120 and Cherry Lake Road (Forest Route 1N07) east of Groveland. Generally, the project area is on the south side of the Tuolumne River canyon in an east-west direction until turning northeast near the Rim of the World Vista and dropping down into the canyon. The entire upcountry area within the transmission line corridor is characterized as either managed shrubland or forest.

The upcountry area is located within the High Sierra Nevada (central district) and Sierra Nevada Foothills (central district) subregions of the California Floristic Province. It traverses the Cobbs Creek, Pine Mountain Lake, Hells Hollow Creek, Corral Creek, Gold Queen Mine, Plum Flat, Sweetwater Canyon, and Big Creek Planning Watersheds, which are components of the Tuolumne River Hydrologic Unit.¹³⁵ A small portion of the upcountry area also drains into Deer Lick Creek Planning Watershed, which is associated with the Merced River Hydrologic Unit.¹³⁶ The upcountry area includes the following vegetation management units from the *transmission vegetation management program*: Holm Powerhouse, Kirkwood Powerhouse, Cherry Road, Intake Hill, South Fork, Rim of the World, Ferretti Road, Merrell Road, and Moccasin.

Valley Area

The valley area is in the foothills on the western flank of the Sierra Nevada Range, south of SR 120, and generally parallel to the highway in a northeast to southwest angle. For description purposes, the area is split into sections based on the *transmission vegetation management program* vegetation management units. There are few landmarks or place names along the project area that can be used to describe specific places other than management units and tower numbers.

The first unit is the Grassland Unit which begins at Warnerville switchyard and extends east approximately 10 miles to Willms Road. The Grassland Unit is comprised of almond orchards and irrigated cropland in the west, and rolling hills and terraces of grassland in the east. The Ranch Unit extends approximately 8.5 miles from Willms Road to La Grange Road to the east. This unit crosses the Sierra Railway line and Rock River Drive and is characterized by rolling hills with a mix of savannah structure woodland and grassland. The Lake Don Pedro West Unit extends approximately 3.25 miles from La Grange Road to the west shore of Don Pedro Reservoir and crosses Old Don Pedro Road. This unit is similar in character to the Ranch Unit, with slightly denser woodland. The Red Mountain Bar East Unit extends approximately 4.75 miles from the east shore of Don Pedro Reservoir to the Moccasin Powerhouse (approximately 3.25 miles).

In general, topography of the valley area is (from east to west) dropping from the Sierra foothills to the broad flat plain of the Central Valley. East of Willms Road the area is characterized as undulating hills with gentle to moderately steep slopes. West of Willms Road (in the Grassland

¹³⁵ California Interagency Watershed Mapping Committee (CIWMC), *California Interagency Watershed Map of 1999, 2004*.

¹³⁶ Ibid.

Unit) are terraces with vertical sides and flat tops. In this portion of the project area there are also depressional aquatic features such as seasonal wetlands and vernal pools.

Fires that Have Affected the Project Area

Since 1878, Cal Fire¹³⁷ has been recording fire perimeter data for fires greater than 10 acres, the size threshold for mapping. To provide context on the biological setting that has been affected by fire in the project area, the following summarizes fires documented in the upcountry and valley areas.

Upcountry Area

A total of 18 fires have occurred within the upcountry area since 1878. Fourteen of these fires occurred between 1911 to 1949 and are unnamed. The five most recent fires were the Hamm complex in 1987 (333,144 total acres), Pilot Fire in 1999 (3,995 total acres), Early Fire in 2004 (1,725 total acres), Tuolumne Fire in 2004 (721 total acres),¹³⁸ and the 2013 Rim Fire (257,314 acres¹³⁹).

On August 17, 2013, the Rim Fire started in a remote area of the Stanislaus National Forest, near the confluence of the Clavey and Tuolumne Rivers, about 20 miles east of Sonora.¹⁴⁰ This fast-moving fire burned with mixed severity, but also exhibited high to extreme fire behavior through much of the perimeter.¹⁴¹ Ultimately, the fire burned 257,314 acres (400 square miles) within lands of the National Forest System, Yosemite National Park, Sierra Pacific Industries private timberland, Bureau of Land Management holdings, and other private land.¹⁴² In the eastern portion of the upcountry area, the Rim Fire was a “stand replacement event”, which reflects a high intensity burn with close to 100 percent mortality of trees within the fire perimeter. Outside of the fire perimeter, vegetation was also reduced around structures on the south side of the upcountry area where firefighter crews removed vegetation to create defensible space. Firefighters stopped the fire from spreading west of Ferretti and Tuolumne roads (**Figure 11**). As a result, vegetation in the western portion of the upcountry area (i.e., west of Ferretti Road, the Merrill Road Unit) was not affected by the fire, whereas almost all the vegetation in the eastern portion of the upcountry area was affected by the fire.¹⁴³

¹³⁷ CalFire, California Department of Forestry and Fire Protection, Fire Perimeter Data to 2011, 2012.

¹³⁸ CalFire, Fire Resource and Assessment Program Mapping, 2017, http://frap.fire.ca.gov/data/frapgisdata-sw-fireperimeters_download.

¹³⁹ CalFire, 2013, Rim Fire Incident Information, http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=905.

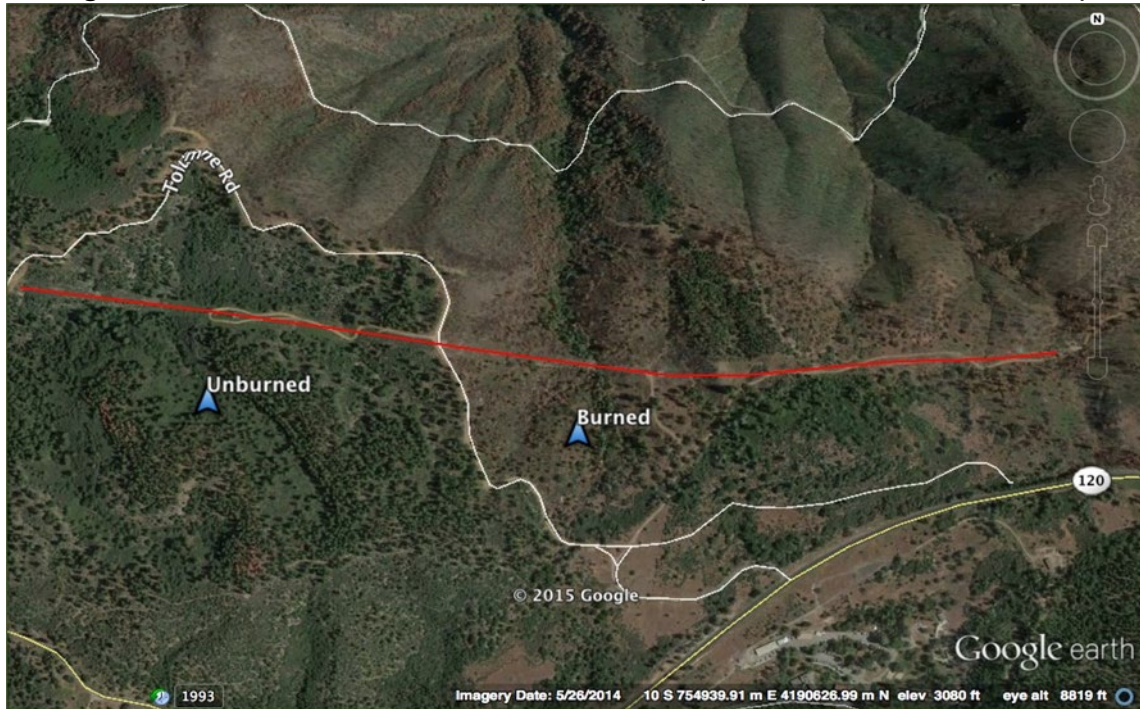
¹⁴⁰ U.S. Department of Agriculture (USDA), Final Terrestrial Biological Assessment, Evaluation, and Wildlife Report: Rim Fire Recovery, 2014.

¹⁴¹ Ibid.

¹⁴² Ibid.

¹⁴³ The fire burned completely through six vegetation management units (Holm Powerhouse, Kirkwood Powerhouse, Cherry Road, Intake Hill, South Fork, and Rim of the World) and 90% of a seventh (Ferretti Road).

Figure 11. Rim Fire Perimeter at Buck Meadows (transmission corridor in red).



Based on an evaluation of burned area reflectance classification data,¹⁴⁴ which models burn severity, approximately 63 percent of the terrestrial wildlife habitat mapped (153 of 242 acres) in the upcountry area was burned by the Rim Fire (**Table 11**). A total of 31.14 acres was low to moderate severity, approximately 20 percent of the burned areas. A total of 122 acres was high severity or approximately 80 percent of the burned areas. This demonstrates that a significant amount of the terrestrial habitat of the upcountry area burned in the Rim Fire. These data also indicate that the western portion of the upcountry area, approximately from Garrotte Basin to Kassabaum Meadow (Merrill Road Unit), did not burn. Within the areas that did burn, the only portion of the upcountry area that was not dominated by high severity was the Rim of the World area and northeast towards Drew Meadow (portions of the Rim of the World Unit and South Fork Unit).

¹⁴⁴ USDA, Wildlife Species and Habitat Affected by the Rim Fire, 2014, <http://www.fs.usda.gov/detail/stanislaus/home/?cid=stelprd3796984>, accessed October 17, 2014.

**Table 11. Effects of the Rim Fire on Vegetation in the Project Area,
by Vegetation Type and Burn Severity**

CalVeg Community (CWHR Type) ^a	Acres	Burn Severity	Burned Acres	Total Burned Acres	Percent Burned
Annual Grasses and Forbs (<i>Annual Grassland</i>)	19.8	Low	0.02	15.7	79.0
		Moderate	2.0		
		High	13.6		
Black Oak Alliance (<i>Montane Hardwood</i>)	6.3	Low	0	3.8	60.6
		Moderate	0.8		
		High	3.1		
Canyon Live Oak Alliance (<i>Montane Hardwood</i>)	12.9	Low	1.2	12.3	95.1
		Moderate	4.0		
		High	7.1		
Chamise (<i>Chamise–Redshank Chaparral</i>)	0.002	Low	0	0	0
		Moderate	0		
		High	0		
Douglas-fir –Pine Alliance (<i>Sierran Mixed Conifer</i>)	7.1	Low	0.01	7.1	100
		Moderate	0.6		
		High	6.5		
Gray Pine Alliance (<i>Blue Oak–Foothill Pine</i>)	0.8	Low	0	0.8	100
		Moderate	0		
		High	0.8		
Interior Live Oak Alliance (<i>Montane Hardwood</i>)	0.3	Low	0	0.3	100
		Moderate	0.3		
		High	0		
Lodgepole Pine Alliance (<i>Lodgepole Pine</i>)	0.7	Low	0	0.7	100
		Moderate	0		
		High	0.7		
Lower Montane Mixed Chaparral Alliance (<i>Montane Chaparral</i>)	50.7	Low	0.3	27.2	53.6
		Moderate	5.3		
		High	21.6		
Mixed Conifer – Pine Alliance (<i>Sierran Mixed Conifer</i>)	29.6	Low	0	29.3	99.0
		Moderate	5.5		
		High	23.8		
Ponderosa Pine Alliance (<i>Ponderosa Pine</i>)	112.9	Low	1.5	55.2	48.9
		Moderate	9.4		
		High	44.4		
Urban/Development (<i>Urban</i>)	1.0	Low	0.02	0.6	56
		Moderate	0.3		
		High	0.4		
Total:	242.2			153.0	63.2

Valley Area

Three wildfires have been documented in the valley area since 1878.¹⁴⁵ The Red Mountain Fire in 1957 burned 558 acres of mostly blue oak woodland on the west side of the Don Pedro Reservoir (Lake Don Pedro West Unit). The J59#2 fire in 2001 burned 97 acres adjacent to and directly west of La Grange Road, in the Ranch Unit. The Cooperstown Fire in 2003 burned approximately 2,010

¹⁴⁵ CalFire, California Department of Forestry and Fire Protection, *Fire Perimeter Data to 2012*, 2015

acres 2.1 miles east of Willms Road, also in the Ranch Unit. No evidence of fire was observed within the valley area of the project during the surveys.

Tree Mortality Affecting the Project Area

To provide context on the biological setting that has been affected by tree mortality in the project area, the following summarizes tree mortality since 2014. Climate change has led to an overall increase in global temperature, which causes more severe weather events in western North America, such as drought.¹⁴⁶ Bark beetles are more likely to successfully infest conifers that are stressed from drought.¹⁴⁷ The U.S. Forest Service conducts annual aerial surveys on tree mortality to monitor forest health in California national forests. The overall trends indicate that tree mortality increased as the recent California drought progressed (**Table 12**).^{148,149}

Table 12 shows an estimated 1,664,682 trees in the Stanislaus National Forest have been killed by insects or drought stress. **Figure 12** shows geospatial data used to generate these reports indicating increased tree mortality near the upcountry area linked to bark beetle and other factors.

Table 12. Tree Mortality Impacts in Stanislaus National Forest (2014-2015)

Year	Impacts from Bark Beetle, Wood Borers and Drought	
	Tree Mortality	Acres Affected
2014¹	413,682	109,461
2015²	1,251,000	176,000
Totals	1,664,682 trees	285,461 acres
Notes: ¹ USDA, 2015. 2014 Aerial Survey Results: California. Forest Health Monitoring Program. Davis, California. March. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3841372.pdf ² USDA, 2016. 2015 Aerial Survey Results: California. Forest Health Monitoring Program. Davis, California. March. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd526930.pdf		

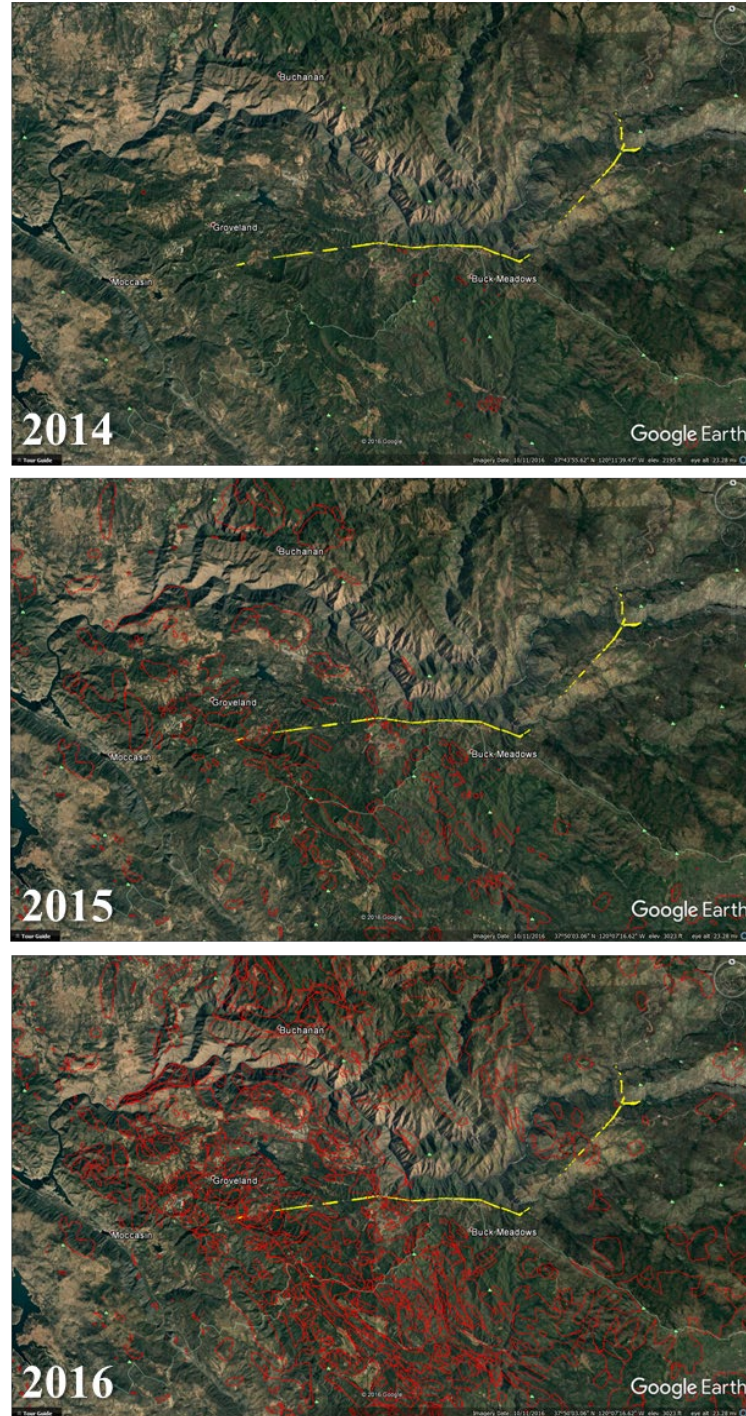
¹⁴⁶ Seager R, et al., Model Projections of an Imminent Transition to a More Arid Climate in Southwestern North America, 2007, Science 316: 1181–1184.

¹⁴⁷ Bentz, B.J., J. Régnière, C.J. Fettig, E.M. Hansen, J.L. Hayes, J.A. Hicke, R.G. Kelsey, J.F. Negrón, S.J. Seybold, *Climate Change and Bark Beetles of the Western United States and Canada: Direct and Indirect Effects*, BioScience, 2010.

¹⁴⁸ USDA, 2014 Aerial Survey Results: California. Forest Health Monitoring Program. March 2015, https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3841372.pdf.

¹⁴⁹ USDA, 2015 Aerial Survey Results: California. Forest Health Monitoring Program. March 2016, https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd526930.pdf.

Figure 12. Project Area Impacted by Tree Mortality from U.S. Forest Service Annual Aerial Surveys (2014-2016).^a
(Upcountry Area in yellow; Tree mortality in red)



a. USDA. 2017. Aerial Detection Monitoring. Data available online:
https://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsbdev3_046696

Impact BI-1: The proposed project may have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status plant species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Less than Significant with Mitigation)

All Project Activities

All project activities have the potential to significantly affect rare and special-status plant species and their habitat in the project area. Potential impacts to sensitive plants from removal of individuals, seed banks, or habitat are listed in **Table 13**; check marks indicate that the specific activity would occur at a location that contains existing populations of a sensitive species, with potential mortality to plants. Small's southern clarkia, Mariposa clarkia, San Benito poppy, serpentine bluecup, slender-stemmed monkeyflower and yellow-lip pansy monkeyflower are present in areas that could be directly affected by either vegetation management, culvert replacement and/or sand shed construction. No impacts to other species in the table are expected based on currently planned activities and currently identified locations of those species, but potential presence of these species would be periodically reevaluated as part of ongoing planning. Specific mitigation to avoid or minimize effects is presented below.

Table 13. Special-Status and Locally Rare Plant Species in Project Area

Special-Status Plant Species	Project Activity Affecting Species		
	Vegetation Management	Culvert Replacement	Sand Shed Construction
<i>Neostapfia colusana</i> ; Colusa grass			
<i>Calycadenia hooveri</i> ; Hoover's calycadenia			
<i>Clarkia australis</i> ; Small's southern clarkia	✓	✓	✓
<i>Clarkia biloba</i> subsp. <i>australis</i> ; Mariposa clarkia	✓	✓	✓
<i>Delphinium hansenii</i> subsp. <i>ewanianum</i> ; Ewan's larkspur			
<i>Erythranthe marmorata</i> ; Stanislaus monkeyflower			
<i>Eschscholzia hypocoides</i> ; San Benito poppy	✓		
<i>Githopsis pulchella</i> subsp. <i>serpenticola</i> ; serpentine bluecup		✓	
<i>Hesperexax caulescens</i> ; Hogwallow starfish			
<i>Jepsonia heterandra</i> ; foothill jepsonia			
<i>Erythranthe filicaulis</i> ; slender-stemmed monkeyflower	✓	✓	
<i>Diplacus pulchellus</i> ; yellow-lip pansy monkeyflower		✓	
<i>Navarretia paradoxiclara</i> ; Patterson's navarretia		✓	
<i>Trichostema rubisepalum</i> ; Hernandez blue curls			

As described in Section B.3 of the project description, the SFPUC would implement best management practices to avoid impacts to biological resources; including best management practices that reduce erosion and sedimentation, avoid impacts from hazardous materials, and prevent the spread of noxious weeds and invasive species. Project activities involving ground disturbance, including vegetation management and culvert maintenance, repair, and replacement, could result in loss of special-status plants identified in **Table 13**, which would be a

significant impact. Mitigation Measure **M-BI-1a**, described below, is a general measure that would apply to all project activities that could affect special-status species. **Mitigation Measure M-BI-1a** would ensure that workers are trained to conduct work in a way that avoids harm to the special-status species listed in **Table 13**.

This measure would reduce impacts on special-status plants listed in **Table 13** and would be combined with additional species-specific mitigation measures that are described below under specific project activities to reduce impacts to less-than-significant levels with mitigation by ensuring that workers are trained to minimize impacts on sensitive resources and construction waste is handled appropriately.

Mitigation Measure M-BI-1a: Worker Environmental Awareness Training

The SFPUC's Natural Resources and Lands Management Division staff shall oversee the preparation and implementation of an annual Worker Environmental Awareness Training, which shall be conducted for all work crews prior to starting work on the project, and for any new SFPUC worker or contractor prior to their participation in work associated with vegetation management or culvert replacement activities. Training materials shall be updated annually to ensure that the list of special-status species is current. The training shall include a brief review of locations of sensitive areas, photographs of special-status species and their descriptions of their habitat, possible fines for violations, avoidance recommendations, and requisite actions should sensitive species be encountered. The program shall cover the mitigation requirements, environmental permits, and regulatory compliance requirements. Additional training shall be conducted as needed including potential morning "tailgate" sessions to update crews as they advance into sensitive areas. A record of all personnel trained during the project shall be maintained for compliance verification by the SFPUC's Natural Resources and Lands Management Division staff. Training may be provided via video recording, with recordings to be evaluated annually to determine if updates are required.

Transmission Vegetation Management Program

As described in Section B.2.1 (Transmission Vegetation Management Program), proposed vegetation management control methods could be implemented at any location along the transmission right of way over the next several decades. However, the proposed vegetation management methodology would be site-specific and targeted, such that certain control activities may never be used in some locations (e.g., mastication and tree felling would not occur in grassland areas). Additionally, although some work may be conducted year-round, most vegetation management activities would occur during the dry season (generally April 15-November 15) when the transmission alignment is accessible by vehicle and the various vegetation control methods would be more easily implemented. Therefore, even though overall only limited portions of the project area would be affected at any given time, it is assumed that any special-status plants that have the potential to occur in the project area could be disturbed at some point during the lifetime of the program. Impacts that could result from the construction of the proposed sand shed and from culvert replacement activities are described separately, below.

Based on the results of protocol-level special-status plant surveys, 14 special-status plant species occur within the project area.¹⁵⁰ It is also possible that additional special-status plant species may colonize the project area during the lifetime of the project. Potential impacts to these species from the proposed vegetation management program could include temporary disturbance to occupied habitat, mortality of plants, and loss of seedbank. Unless mapped populations can be avoided completely, impacts to all identified special-status plant species could be significant.

Table 13 identifies special-status plants that are present in areas that could be disturbed by vegetation management; individual plants and/or populations could be damaged by tree removals or mechanical, manual, chemical, or biological control. Vegetation management could have significant effects on Small's southern clarkia, Mariposa clarkia, San Benito poppy, and slender-stemmed monkeyflower. **Mitigation Measures M-BI-1b through M-BI-1g** would reduce impacts to special-status plant species to less-than-significant levels by requiring avoidance of occupied habitats for sensitive species, timing work in areas with sensitive plants to avoid the growing season when possible, protecting plants adjacent to work areas, restoring any special status plant populations that are affected by project activities, and using weed-free materials. Mitigation is designed to be implemented in a stepwise fashion: 1) whenever possible, avoid work in sensitive natural communities, aquatic features, or special-status plant habitat; 2) if work must be conducted in these habitats, schedule the work so that it is outside the sensitive time period for a given special-status species, if feasible; 3) if work must be conducted during sensitive time periods, flag plants for avoidance and establish buffers as needed; and 4) if work must be conducted within an area with special-status plants or sensitive natural communities within their growing season, develop and implement plan for restoration under the direction of a qualified biologist. In many cases either spatial or temporal avoidance is expected to be feasible and steps 3 and 4 would not be needed. To ensure that mitigation is planned to avoid special-status plant locations, rare plant surveys shall be conducted by a qualified biologist during the appropriate seasonal window for areas where potential impacts from the annual work plan activities could occur. Surveys shall be conducted in advance of project activities for areas where previous surveys are more than five years old.

Mitigation Measure M-BI-1b: Annual Vegetation Management and Culvert Work Planning

SFPUC operations staff shall submit an annual plan at the end of each year to the SFPUC Natural Resources and Lands Management Division summarizing all proposed vegetation management and culvert replacement activities for the upcoming year.

Before project activities are conducted within a given work area, a qualified biologist shall conduct a biological resources evaluation of the habitat(s) and habitat elements within, and adjacent to, the work area (including whether additional preconstruction surveys or species-specific surveys are needed) to confirm whether special-status species could be adversely affected by project activities. If the biologist confirms that a special-status species could be adversely affected by a project activity, the environmental planner in consultation with the

¹⁵⁰ Nomad Ecology, *Biological Resources Assessment, SFPUC Reliable Power Project*, 2018.

biologist shall identify which specific adjustments to planned activities listed below, including but not limited to, would be required, including altering: (a) the timing of project activities (e.g., limiting activities to the non-breeding season); (b) the vegetation control method; and (c) other specific project elements (e.g., the location of the equipment staging area). In consultation with the biologist, the environmental planner shall condition the project activity work plan with avoidance measures and best management practices that shall be required.

In confirming the requisite mitigation measures for a given work plan, the environmental planner, following consultation with a qualified biologist, shall consider: (a) the specific project location; (b) the type, duration, and intensity of the activity; (c) habitat types present in and adjacent to the work area; (d) special-status species that could be affected by the activity; and (e) the time of year the activity would occur (e.g., breeding versus non-breeding season). If the biologist confirms species-specific surveys are needed, the surveys shall adhere to the methods outlined in the relevant mitigation measure(s) for that species. After completing the surveys, the biologist shall coordinate with the environmental planner to confirm whether additional measures shall be implemented prior to the commencement of project activities to avoid significant adverse effects to special-status species, as outlined in the specific mitigation measures. These measures may include establishing a buffer zone or changing the work schedule to avoid adverse effects to special-status species.

Mitigation Measure M-BI-1c: Special-Status Plant Avoidance Measures

Work activities within or adjacent to special-status plant populations shall be limited to occur outside of the growing season for that species to the extent feasible to allow for germination, maximum seed set and therefore avoidance of direct mortality.

If work is to occur within or adjacent to special-status plant populations during the growing season (i.e., from December 31-July 31, depending on species), individuals or colonies of plants shall be flagged for avoidance. Timing of flagging efforts shall correspond with the blooming period when the species is most conspicuous and easily recognizable, during the blooming period prior to work activities. Therefore, pre-construction surveys for these annual plant species shall be conducted in advance of work beginning, depending on the species:

- April 1-June 1 for yellow-lip pansy monkeyflower
- April 15-May 15 for Ewan's larkspur, hogwallow starfish and San Benito poppy
- April 15-June 30 for slender-stemmed monkeyflower and Stanislaus monkeyflower
- May 15-July 15 for Serpentine bluecup, Mariposa clarkia and Small's southern clarkia
- June 1-July 31 for Colusa grass, Hernandez bluecurls, Hoover's Cryptantha, and Patterson's navarretia.

- In limited areas of the Ranch vegetation management unit where foothill Jepsonia exists, flagging shall occur between October 1-October 31 of the year preceding work activities.

Mitigation Measure M-BI-1d: Minimize the Duration of Special-status Plant Disturbance

The duration of disturbance, especially for *Clarkia* species, shall be minimized to less than one year (i.e., one germination and seed set event) to avoid potential extirpation of a population.

Mitigation Measure M- BI-1e: Special-Status Plant Protection

For Manual Control:

- Manual clearing of vegetation shall be buffered from special-status plant populations by 10 feet to prevent damage to live plants, covering of soil seed bank from piling of biomass materials or soil, or plant damage from trampling. If manual clearing of vegetation is required within special-status plant habitat, it shall be conducted during the non-growing or seed set season (generally August 1-December 30, depending on species) and not during the germination and seed set season (generally December 31-July 31, depending on species). Prior to manual vegetation clearing in special-status plant habitat, populations shall be flagged by a qualified botanist to clearly delineate population boundaries during the appropriate blooming season. If manual control affects a special-status plant population during the germination and seed set window, then **Mitigation Measure M-BI-1f** below applies.

For Mechanical Control:

- Mechanical clearing of vegetation shall be prohibited within 50 feet of special-status plant populations to ensure masticated material is not distributed onto live plants or the soil seed bank. If mechanical clearing of vegetation is required within special-status plant populations, it shall be conducted during the non-growing season after seed has set (generally August 1-December 30, depending on species) and not during the germination and seed set window (generally December 31-July 31, depending on species). Prior to mechanical vegetation clearing, populations shall be flagged by a qualified botanist to clearly delineate population boundaries during the appropriate blooming season. If mechanical control cannot avoid special-status plant populations during the germination and seed set window, then **Mitigation Measure M-BI-1f** shall apply.

For Chemical Control:

- Herbicide application for spot treatment and selective elimination of target species shall be performed by a qualified applicator in compliance with the recommendations of the pest control advisor. The pest control recommendation from the pest control advisor will include specifications regarding wind speed, direction, and precipitation conditions and shall ensure protection of sensitive plant species populations.

Mitigation Measure M-BI-1f: Restoration of Special-status Plants

If work is to occur during the growing season (generally December 31-July 31, depending on species), and sensitive plant populations within work areas have the potential to be significantly impacted (i.e., cannot be avoided), a qualified botanist shall:

1. Identify the estimated number of each sensitive plant species present within the boundaries (in square feet or acres) of the population.
2. If appropriate, seed from the plants to be impacted or appropriate reference sites shall be collected, properly stored, and replanted. Perennial individuals that are likely to be impacted may be translocated by digging up plants and replanting in suitable habitat under the supervision of a qualified botanist.
 - a. Soils removed from special-status plant habitat shall be clearly labeled and stockpiled separately. The stockpiles shall be protected from non-native plant propagules, with care taken to ensure the soil does not overheat, killing the native plant propagules in the soil. This shall include placing the stored topsoil where it is not in contact with non-native grassland soil and protecting it with weed-free straw mulch, jute netting, or other suitable cover.
3. The restoration of special-status plants shall be considered successful upon achieving the following after three years:
 - a. By year three, the number of individual special-status plants will be at least 75 percent of the population documented as the baseline present prior to initiation of work activities, as determined by the baseline condition assessment or appropriate reference site.
4. The qualified botanist shall monitor progress of restored special-status plants annually, document progress, and report to the SFPUC Natural Resources and Lands Management Division until 75 percent replacement is achieved. If sufficient replacement is not achieved by year three, remedial action (such as weeding and supplemental seeding) and continued monitoring, shall be taken for as long as necessary to meet the performance criteria.

Mitigation Measure M-BI-1g: Special-status Plants Protocol-level Surveys

Starting in the year 2022, protocol-level rare plant surveys shall be conducted by a qualified botanist in areas where potential habitat for rare plants exists and work is anticipated for the following year by the annual work plan. Surveys shall be done during the appropriate seasonal window for areas where potential impacts could occur. Surveys shall be conducted where previous surveys are more than five years old.

Culvert Replacement

Culvert repair and replacement work would be conducted between late spring/early summer and early fall (generally April 15-November 15, depending on precipitation patterns). Impacts on

special-status plant species resulting from culvert repair or replacement would be like those described for the *transmission vegetation management program*, and would also be potentially significant. However, impacts to some species would be less than those described above due to smaller potential overall work areas compared to the *transmission vegetation management program*, or due to the absence of suitable habitat at the potential locations of culvert replacements. As noted in **Table 13**, culvert replacement could result in plant mortality, loss of seedbank, or disturbance of habitat occupied by the following special-status plants: Small's southern clarkia, Mariposa clarkia, slender-stemmed monkeyflower, yellow-lip pansy monkeyflower, serpentine bluecup, and Patterson's navarretia. **Mitigation Measures M-BI-1b, M-BI-1c, M-BI-1f and M-BI-1g** would reduce impacts to special-status plant species to less-than-significant levels by requiring avoidance of locations with populations of sensitive plant species where possible, timing work that must occur in areas with sensitive plants to avoid the growing season when possible, protecting plants adjacent to culvert construction areas, and restoring any special status plant populations that are affected by culvert construction.

Sand Shed Construction

There are two special-status plant species occurring near the Sand Shed Construction site: Small's southern clarkia and Mariposa clarkia. Potential impacts from sand shed construction activities would include temporary disturbance to occupied habitat, mortality of plants, and loss of seedbank. However, the area of potential impact associated with sand shed construction is very small, and due to the local abundance of this species, any disruption during construction would not result in a substantial effect on this species. Impacts from sand shed construction would thus be less than significant.

Summary of Impact BI-1

Potential project-related impacts on special-status plant species and their habitats are summarized in **Table 14**, which also identifies locations of sensitive plant species in the project area and lists the applicable mitigation measures as described above. Impacts associated with all project activities can be reduced to less than significant with mitigation incorporated.

Table 14. Summary of Potential Impacts to Rare and Special-Status Plants and Sensitive Natural Communities

Species Name & Status	Common Name	Summary of Potential Impacts*	Location in The Study Area	Habitat Type	Blooming Period	Mitigation Measures
Federal/State Listed Species						
<i>Neostapfia colusana</i> FT, SE CNPS Rank 1B.1	Colusa grass	NI: Project activities would avoid vernal pools.	Valley: <u>Grassland Unit</u> - 1.54 miles west of Willms Rd - bank of stock pond 0.8 mile west of above population, within 150 feet of tower access road	Vernal Pool Habitat	June 1 – July 15	None needed
California Native Plant Society Listed Species						
<i>Calycadenia hooveri</i> CNPS Rank 1B.3	Hoover's calycadenia	NI: Project activities would not occur in habitat for this species.	Valley: <u>Ranch Unit</u> - 400 feet east of Willms Rd under transmission tower	Rocky sites in cismontane woodland and valley/ foothill grassland	June 1 – July 15	None needed
<i>Clarkia australis</i> CNPS Rank 1B.2	Small's southern clarkia	LSM: Potential impacts include temporary disturbance to occupied habitat, mortality of plants, loss of seedbank, consecutive disturbance in multiple years	Upcountry: <u>Holm Powerhouse Unit</u>	Cismontane woodlands and lower montane coniferous forest	May 15 – July 15	M-BI-1b through M-BI-g
<i>Clarkia biloba</i> subsp. <i>australis</i> CNPS Rank 1B.2	Mariposa clarkia	LSM: Potential impacts include temporary disturbance to occupied habitat, mortality of plants, loss of seedbank, consecutive disturbance in multiple years	Upcountry: <u>Holm Powerhouse Unit</u> - S of Holm Powerhouse. 100' S of 01W. - W of Kelly Flat. 30' W of 04W - SW of Kelly Flat. 420' N of 07W <u>Cherry Road Unit</u> - N of substation. 100' S of 13W. - N of substation. 895' S of 13W. <u>Kirkwood Powerhouse Unit</u> - W of Kirkwood Powerhouse. 295' S & 490' S of 03E - W of Kirkwood Powerhouse. 715' SW of 01E. <u>Intake Hill Unit</u> - SW of substation. 130' SW of Term2. - SW of substation. 160' SW of 04S. <u>South Fork Unit</u> - NE of Jones Meadow. 1,050' SW of 07S. - SE of Drew Meadow. 130' NE of 24S. <u>Rim of the World Unit</u> - N of Colfax Spring. 255' SW of 48S.	Chaparral and cismontane woodlands	May 15 – July 15	M-BI-1b through M-BI-g

Species Name & Status	Common Name	Summary of Potential Impacts*	Location in The Study Area	Habitat Type	Blooming Period	Mitigation Measures
			<ul style="list-style-type: none"> - W of Colfax Spring. <u>Ferretti Road Unit</u> - N of Buck Meadows. 275' E of 71S. - NW of Buck Meadows. 600' W of 76S. - N of Groveland Ranger Station. 40' S of 90S. <u>Merrell Road Unit</u> - N of Kassabaum Meadow. 1,120' W of 104S. - E of Sprague Rd West. 430' W of 122S. - W of Second Garrotte Basin. 340' W of 151S. - Culverts 436, 437, 566, 567, 568, 569, 596, 598, 599, 604, 605, 609, 618 			
<i>Delphinium hansenii</i> subsp. <i>ewanianum</i> CNPS Rank 4.2	Ewan's larkspur	NI: Project activities would not occur in habitat for this species.	Valley: <u>Ranch Unit</u> <ul style="list-style-type: none"> - 1.2 miles E of Rock River Rd. - 1.3 miles W of La Grange Rd. adjacent to Sierra Railway line. - 1.7 miles W of La Grange Rd 	Rocky sites in Cismontane woodland and valley/foothill grasslands	April 15 – May 15	None needed
<i>Erythranthe marmorata</i> CNPS Rank 1B.1	Stanislaus monkeyflower	NI: Project activities would not occur in habitat for this species.	Valley: <u>Ranch Unit</u> <ul style="list-style-type: none"> - 1.3 miles E of Rock River Rd. 	Rocky seeps in Cismontane woodland and lower montane coniferous forest	Mar 1 - May 31	None needed
<i>Eschscholzia hypocoides</i> CNPS Rank 4.3	San Benito poppy	LSM: Potential impacts include temporary disturbance to occupied habitat, mortality of plants, loss of seedbank	Upcountry: <u>Kirkwood Powerhouse Unit</u> W of Kirkwood Powerhouse. 100' NE of 03E <u>Holm Powerhouse Unit</u> S of Holm Powerhouse. 590' SE of 02W <u>South Fork Unit</u> W of Joe's Point. 51' SE of 09W	Grassy areas in woodland and chaparral	Mar 1 - June 30	M-BI-1b, M-BI-1c, M-BI-1e, M-BI-1f, M-BI-1g
<i>Githopsis pulchella</i> subsp. <i>serpenticola</i> CNPS Rank 4.3	Serpentine bluecup	LSM: Potential impacts include temporary disturbance to occupied habitat, mortality of plants, loss of seedbank	Valley: <u>Red Mountain Bar East Unit</u> <ul style="list-style-type: none"> - 1.5 miles E of Don Pedro Reservoir 	Cismontane woodland	May 1 - June 30	M-BI-1b, M-BI-1c, M-BI-1f, M-BI-1g
<i>Hesperervax caulescens</i> CNPS Rank 4.2	Hogwallow starfish	NI: Project activities would not occur in habitat for this species.	Valley: <u>Ranch Unit</u> <ul style="list-style-type: none"> - 0.4 miles E of Willms Rd under transmission line <u>Grassland Unit</u> <ul style="list-style-type: none"> - 0.5 miles W of Willms Rd - 0.8 miles W of Willms Rd near stock pond 	Shallow vernal pools	Mar 1 - June 30	None needed
<i>Jepsonia</i>	foothill jepsonia	NI: Project activities would not	Valley:	Rocky sites in	Oct 1 –	None

Species Name & Status	Common Name	Summary of Potential Impacts*	Location in The Study Area	Habitat Type	Blooming Period	Mitigation Measures
<i>heterandra</i> CNPS Rank 4.3		occur in habitat for this species.	<u>Ranch Unit</u> - 0.5 miles E of Rock River Rd adjacent to transmission tower - E of Willms Rd about 0.3 miles from Rock River Rd	cismontane woodland and lower montane coniferous forest	Oct 31	needed
<i>Erythranthe filicaulis</i> CNPS Rank 1B.2	slender-stemmed monkeyflower (also known as Hetchy-Hetchy monkeyflower)	LSM: Potential impacts include temporary disturbance to occupied habitat, mortality of plants, loss of seedbank	Upcountry: <u>South Fork Unit</u> - 575' NE of 10S. Jones Meadow - 710' SW of 12S. Between Jones & Drew Meadows - 400' SW of 21S. E of Drew Meadow. <u>Merrell Road Unit</u> - 400' W of 101S. N of Kassabaum Meadow - 575' E of 107S. N of Kassabaum Meadow.	Cismontane woodland, lower and upper montane coniferous forest, meadows and seeps	April 15 – June 30	M-BI-1b, M-BI-1c, M-BI-1e, M-BI-1f, M-BI-1g
<i>Diplacus pulchellus</i> CNPS Rank 1B.2	Yellow-lip pansy monkeyflower	LSM: Potential impacts include temporary disturbance to occupied habitat, mortality of plants, loss of seedbank	Upcountry: <u>South Fork Unit</u> - 350' SW of 10S. E of Jones Meadow. - 300' SW of 21S. <u>Ferretti Road Unit</u> - 10' E of 88S. N of Groveland Ranger Station.	Vernally wet depressions and seepage areas in lower montane coniferous forest.	April 1 – June 1	M-BI-1b, M-BI-1c, M-BI-1f, M-BI-1g
<i>Navarretia paradoxiclara</i> CNPS Rank 1B.3	Patterson's navarretia	LSM: Potential impacts include temporary disturbance to occupied habitat, mortality of plants, loss of seedbank	Valley: <u>Ranch Unit</u> - N fork of Dry Creek, 0.3 miles E of Rock River Rd adjacent to where access road crosses creek	Serpentine sites in vernal mesic openings; drainages in meadows/ seeps	June 1 – July 15	M-BI-1b, M-BI-1c, M-BI-1f, M-BI-1g
<i>Trichostema rubisepalum</i> CNPS Rank 4.3	Hernandez blue curls	NI: Project activities would not occur in habitat for this species.	Valley: <u>Red Mountain Bar East Unit</u> - north shore of Don Pedro Reservoir	Serpentine sites in broadleaf upland forests, chaparral, cismontane woodland, lower montane forests, and vernal pools		None needed
Sensitive Natural Communities						
<i>Eryngium vaseyi/castrense</i> Herbaceous Association	Great Valley Button Celery Vernal Pool (subset of Northern Hardpan Vernal Pool)	NI: Project activities would avoid vernal pools.	Valley: - throughout the Ranch and Grassland vegetation management units, west of Old Don Pedro Road	Palustrine Non-persistent Emergent Wetland	--	None needed
--	Northern Hardpan Vernal Pool	NI: Project activities would avoid vernal pools.	Valley: - throughout the Ranch and Grassland vegetation management units, west of Old Don Pedro Road	Palustrine Non-persistent Emergent Wetland	--	None needed

Species Name & Status	Common Name	Summary of Potential Impacts*	Location in The Study Area	Habitat Type	Blooming Period	Mitigation Measures
	Wet meadow alliance	LSM: Vegetation management activities would avoid wet meadows. Culvert improvements would be designed to minimize impacts to the extent feasible, but some culvert improvements may affect wet meadows. .	<p>Upcountry: <u>Kirkwood Powerhouse Unit</u></p> <p>-NSA 5</p> <p><u>South Fork Unit</u></p> <p>-NSA7 -NSA 9</p> <p><u>Ferretti Unit</u></p> <p>-NSA 19 -NSA 21 -NSA 22 -NSA 24</p>	Palustrine Non-persistent Emergent Wetland	--	M-BI-4b
	Serpentine chaparral	LSM: Project activities could affect a negligible amount of habitat (less than ½ acre)	<p>Valley: -Red Mountain Bar East Unit</p>	Upland serpentine	--	M-BI-3b

***Explanation of Potential Impact Codes**

LSM Less than Significant with Mitigation
LS Less than Significant
NI No Impact

***Explanation of State and Federal Listing Codes**

Federal Codes
FE Federally Endangered
FT Federally Threatened
SE State of California Endangered
ST State of California Threatened

California Native Plant Society codes:

1A Presumed Extirpated in California and either Rare or Extinct elsewhere
1B Rare or Endangered in California and elsewhere
2B Rare or Endangered in California but more common elsewhere
4 Plants of limited distribution - Watch list
California Native Plant Society Threat Codes:
1 Seriously threatened in California (over 80% of occurrences Threatened / high degree and immediacy of threat)
2 Moderately threatened in California (20-80% occurrences Threatened)
3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Impact BI-2: The proposed project may have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status wildlife species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Less than Significant with Mitigation)

There are 25 special-status wildlife species that are known or have the potential to occur in the project area. Special-status wildlife species include eleven birds, five mammals, one reptile, two fish, three amphibians, and three invertebrates based on available habitat and known occurrences. Known occurrences of special-status wildlife within 10 miles of the project area are presented in **Figures 13** and **14**. Project activities involving ground disturbance, including vegetation management and culvert maintenance, repair, and replacement, could result in loss of special-status wildlife, which would be significant impacts. **Table 15** lists special-status wildlife species and project activities that could affect them. Because the project description includes avoidance of vernal pools, none of the project activities would affect vernal pool fairy shrimp or vernal pool tadpole shrimp.

Table 15. Special-Status Wildlife Species Affected by Project

Special-Status Wildlife Species	Project Activity Affecting Species		
	Vegetation Management	Culvert Replacement	Sand Shed Construction
<i>Branchinecta lynchi</i> ; vernal pool fairy shrimp			
<i>Desmocerus californicus dimorphus</i> ; Valley elderberry longhorn beetle	✓	✓	
<i>Lepidurus packardii</i> ; vernal pool tadpole shrimp			
<i>Lavinia symmetricus</i> ssp. 1; San Joaquin Roach		✓	
<i>Mylopharodon conocephalus</i> ; hardhead		✓	
<i>Ambystoma californiense</i> ; California tiger salamander	✓	✓	
<i>Rana boylei</i> ; Foothill yellow-legged frog		✓	
<i>Spea hammondi</i> ; western spadefoot	✓	✓	
<i>Emys marmorata</i> ; western pond turtle	✓	✓	
<i>Accipiter gentilis</i> ; northern goshawk	✓	✓	
<i>Agelaius tricolor</i> ; tricolored blackbird	✓	✓	
<i>Aquila chrysaetos</i> ; golden eagle	✓	✓	
<i>Athene cunicularia</i> ; burrowing owl	✓	✓	
<i>Buteo swainsonii</i> ; Swainson's hawk	✓	✓	
<i>Contopus cooperi</i> ; olive-sided flycatcher	✓	✓	
<i>Dendroica petechia brewsteri</i> ; yellow warbler	✓	✓	
<i>Falco peregrinus anatum</i> ; American peregrine falcon	✓	✓	
<i>Haliaeetus leucocephalus</i> ; bald eagle	✓	✓	
<i>Strix nebulosa</i> ; great gray owl	✓	✓	
<i>Strix occidentalis</i> ; California spotted owl	✓	✓	
<i>Antrozous pallidus</i> ; pallid bat	✓	✓	
<i>Corynorhinus townsendii</i> ; Townsend's western big-eared bat	✓	✓	
<i>Euderma maculatum</i> ; spotted bat	✓	✓	
<i>Eumops perotis californicus</i> ; western mastiff bat	✓	✓	
<i>Lasiurus blossevillii</i> ; western red bat	✓	✓	

Figure 13. CNDDB Valley Wildlife

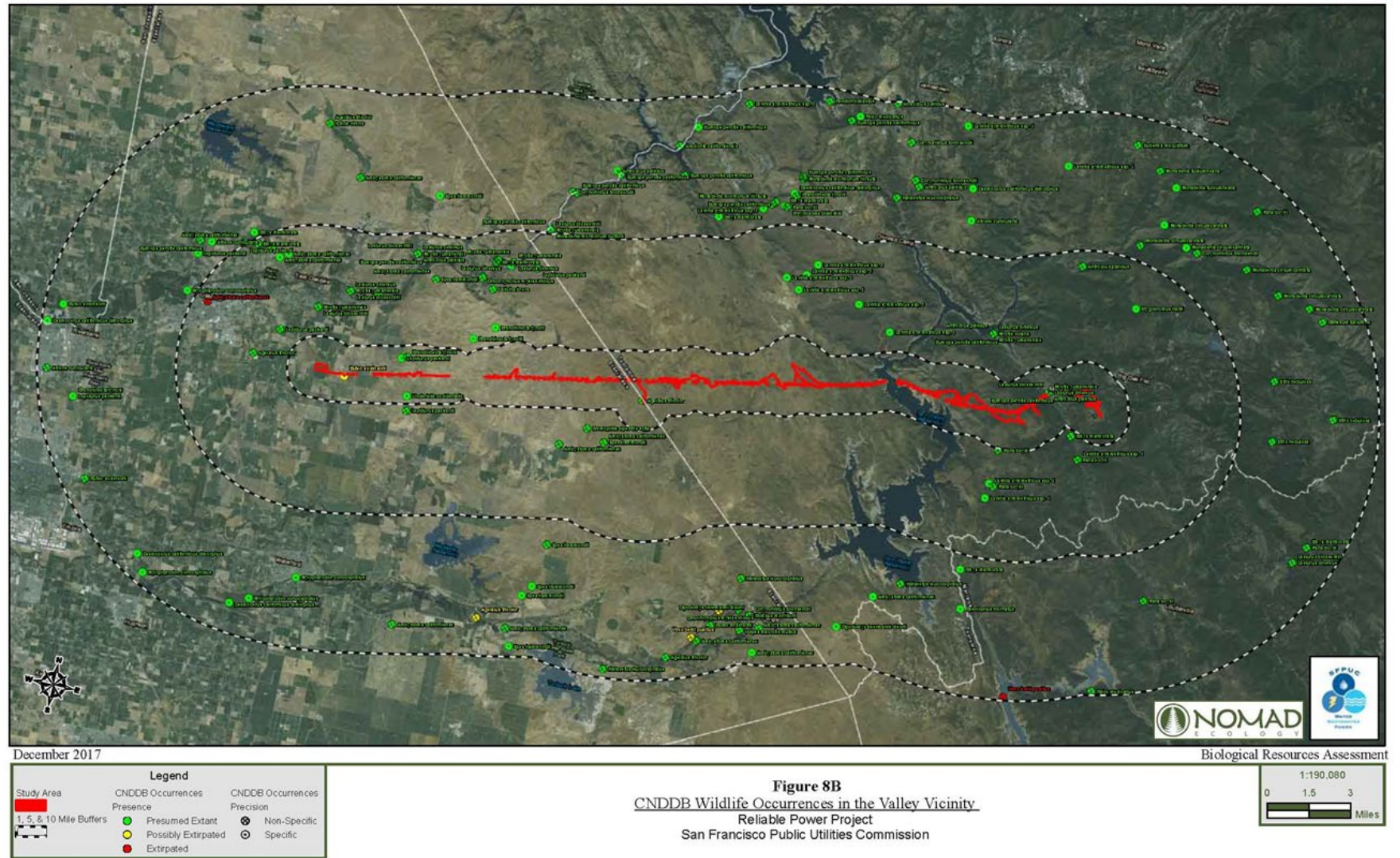
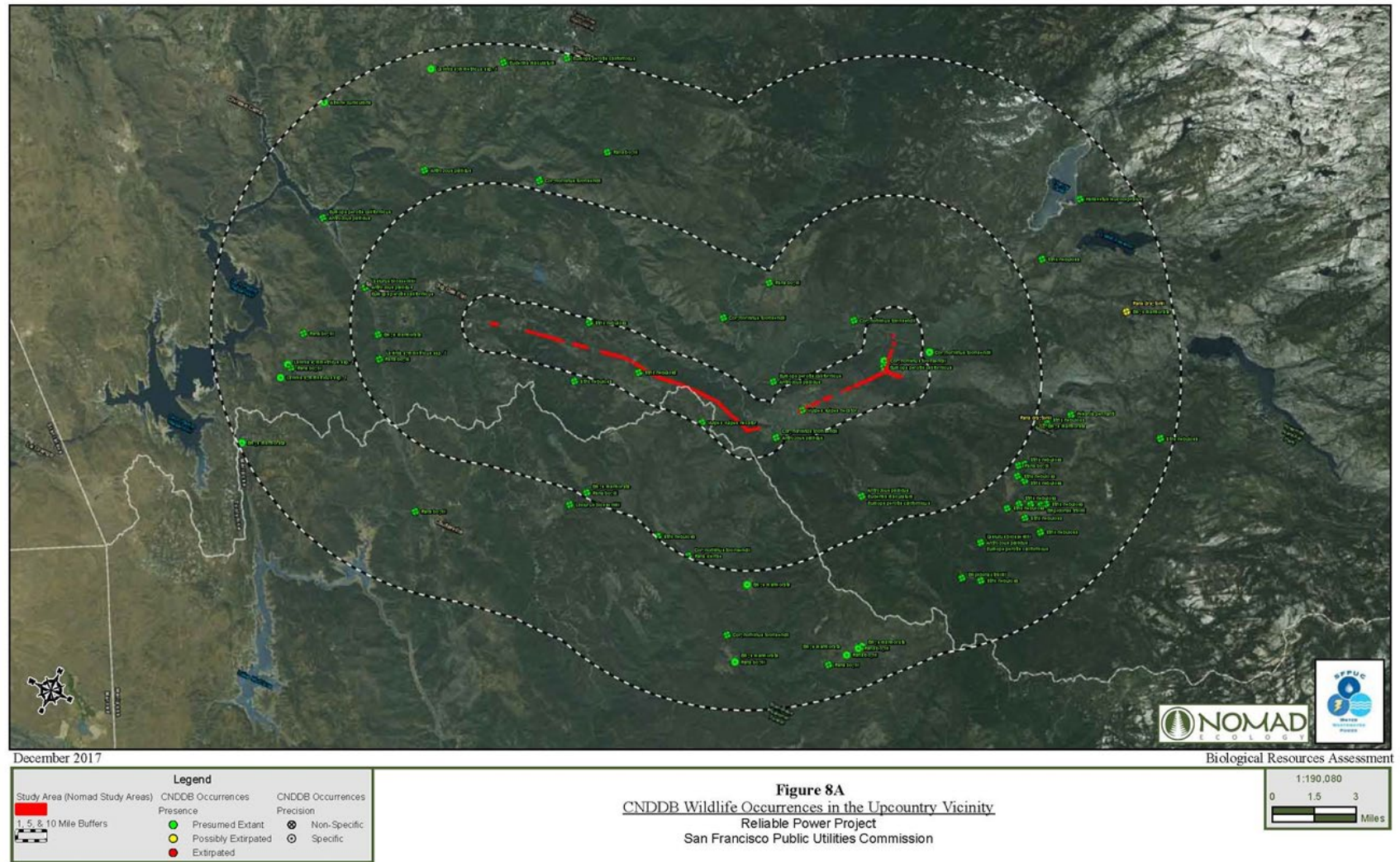


Figure 14. CNDDDB Upcountry Wildlife



Sources: ESRI; California Spatial Information Library; Bay Area Open Space Council; California Department of Fish and Game; Proposition RAD 53 UTM 10North.

Tuolumne County, California

Both vegetation management and culvert replacement could injure or kill reptiles and amphibians if vehicles and equipment are driven through occupied habitat. Birds and bats could be affected by noise and disruption from vehicles and equipment, which could hinder normal breeding, foraging and sheltering activities. Specific impacts of each type of project activity are described below.

Transmission Vegetation Management Program

Generally, the project seeks to avoid causing impacts to special-status wildlife species to the extent feasible (as described in the project description, Section B.3.6, SFPUC Standard Construction Measures, and Section B.3.5, Annual Implementation Planning), and to acquire any necessary permits from the regulatory agencies (as identified in Section B.4 of the project description). However, as described above in **Mitigation Measure M-BI-1b**, to ensure the avoidance of impacts to special-status wildlife species, a biologist would identify each special-status species that has potential to be impacted at the time and location a vegetation management activity would occur. Special-status wildlife species that could be affected by vegetation management activities would depend on: (a) the season, (b) location, and (c) the type, duration, and intensity of the activity. The biologist would then conduct the surveys (preconstruction or protocol-level) necessary to prevent any impacts to special-status wildlife species with the potential to occur in each work area. Specific impacts and mitigation for different types of special status wildlife are presented below.

Migratory Birds

Migratory birds are present throughout the project area and removal of trees as part of the vegetation management program could result in nest abandonment, destruction, injury or mortality of nestlings. The project would be subject to the requirements of **Mitigation Measure M-BI-2a**, which would protect nesting migratory birds. The SFPUC's compliance with this measure would ensure that tree removal and other ground disturbing activities would either occur when birds are not nesting or surveys would be conducted to ensure that birds are not nesting in areas that would be affected by activities during nesting season. If needed, **Mitigation Measure M-BI-2a** requires that "no disturbance" buffers would be used to prevent disruption of nesting. These required measures would ensure that the project does not impact migratory birds.

Special-Status Birds

One special-status bird species (tricolored blackbird) has been detected within the project area. There are ten other special-status bird species that have the potential to occur in the project area. Vegetation management activities could result in temporary disturbances and nest destruction of all 11 special-status bird species listed in **Table 15**. Ground-disturbing activities associated with vegetation management (e.g., use of mowing and tree skidding) and off-road vehicle access could result in mortality or injury to burrowing owls for work in areas west of Don Pedro Reservoir (burrowing owls do not occur east of Don Pedro Reservoir¹⁵¹). Noise and visual disturbance

¹⁵¹ California Department of Fish and Wildlife. Petition to the State of California Fish and Game Commission and supporting information for listing the California population of the Western Burrowing Owl (*Athene cunicularia hypugaea*) as an endangered or threatened species under the California Endangered Species Act. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=10405>, accessed October 12, 2018

from vegetation management activities that would occur during the bird breeding season (generally February-August) could result in the disruption of breeding or nesting activities and cause the mortality of eggs and hatchlings (e.g., nest failure). All these impacts would be potentially significant. Although vegetation management could adversely affect individual special-status bird species, overall loss of habitat for these species would be less than significant due to the abundance of suitable habitat in the surrounding landscape.

The following mitigation measures would reduce impacts to nesting birds, including migratory and special-status bird species to less-than-significant levels by ensuring that activities with the potential to adversely affect birds are either conducted outside the breeding season for that species, or if that is not possible, by conducting surveys using appropriate protocols¹⁵² and establishing protective buffers if nest sites are present. With implementation of these measures impacts to nesting birds would be avoided and the impact would be less than significant.

Mitigation Measure M-BI-2a: Nesting Birds

To avoid impacts to nesting birds, activities that could impact active nests (including shredding with a masticator and tree removal) shall be conducted outside of the bird breeding season (i.e., September 1-January 31), when feasible.

If project activities must occur during the bird breeding season (approximately February 1-August 31, depending on elevation and species), a qualified biologist shall conduct pre-work surveys for nesting birds within the project footprint and a 500- or 100-foot buffer (for raptors/owls and passerines, respectively), as access allows. The surveys shall be conducted by a qualified biologist no more than 14 days prior to the initiation of work activities within each work area. Surveys may include a variety of survey methods; including walking through the search area to observe incidental flushing of an adult from the nest, watching parental behavior (e.g., carrying nest material or food), systematically searching nesting substrates, and the use of call-broadcasts.

- i. If no active nests are found during the surveys, work activities may be cleared to proceed.

¹⁵² Specific protocols for surveys are as follows:

General protocol for locating nests: Martin T.E., and G.R. Geupel. 1993. Nesting-Monitoring Plots: Methods for Locating Nests and Monitoring Success. *Journal of Field Ornithology* 64(4):507-519.

Swainson's hawk: Swainson's Hawk Technical Advisory Committee. 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. May 31.

Great gray owl: Beck, T.W. and J. Winter. 2000. Survey protocol for the great gray owl in the Sierra Nevada of California. Prepared for USDA Forest Service Pacific Southwest Region.

Northern Spotted Owl: USFWS. 1992. Protocol for Surveying Proposed Management Activities that may Impact Northern Spotted Owls. March 17.

Northern goshawk: Woodbridge, B. and Hargis C.D. 2006. Northern goshawk inventory and monitoring technical guide. Gen. Tech. Rep. WO-71. Washington, DC: U.S. Department of Agriculture, Forest Service. 80 p.

Bald eagle: Jackman, R.E. and M.M. Jenkins. 2004. Protocol for evaluating bald eagle habitat and populations in California. Prepared for U.S. Fish and Wildlife Service.

Golden eagle: Pagel, J.D., D.M. Whittington and G.T. Allen. 2010. Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations. Division of Migratory Birds, USFWS, Washington, DC.

Burrowing owl: CDFG (now CDFW). 2012. Staff Report on Burrowing Owl Mitigation.

- ii. If active nests (i.e., nests with eggs or young birds present) are found, or their presence is inferred, the biologist shall establish a no-disturbance buffer zone around each nest. The default size of the buffer zones shall be 500 feet for raptors and 100 feet for all other birds, unless the biologist determines otherwise based on site conditions and species to avoid nest disturbance. In select instances, the biologist may allow a reduced buffer zone if the default buffer size is not feasible, and if the biologist determines that a reduced buffer would not adversely affect the nest. No work shall occur within the non-disturbance buffers until the young have fledged, as determined by a qualified biologist.

Mitigation Measure M-BI-2b: Avoidance and Minimization of Raptor and Owl Impacts

SFPUC shall avoid project activities that could affect raptor and owl nest sites during the breeding season as follows:

- Bald eagle and golden eagle: January 1-August 31
- California spotted owl and northern goshawk: February 15-September 15
- Great gray owl: March 1-August 15
- Swainson's hawk: March 15-September 15

If project activities must occur during the breeding season, and if those activities could adversely affect a raptor or owl nest site, as determined during the biological resources evaluation per **Mitigation Measure M-BI-1c**, the SFPUC shall solicit protocol-level survey data from the U.S. Forest Service. If the data are insufficient to ensure adverse impacts to raptor or owl nest sites are avoided, a qualified biologist shall conduct species-specific protocol-level surveys to establish whether raptors or owls are present within an appropriate buffer distance from the work area; standard buffer distances for specific species are listed below. Prior to conducting the surveys, the biologist shall coordinate with the U.S. Forest Service to avoid potential conflicts with any of their survey efforts. If protocol-level surveys reveal the presence of an active nest, or potential presence of an active nest (based on an individual displaying nesting behavior), an appropriate buffer shall be established, or if a qualified biologist determines that a smaller buffer would be acceptable, the environmental planner, in consultation with the biologist shall determine the appropriate buffer to ensure species protection.

- Swainson's hawk, bald eagle and golden eagle – ½ mile buffer
- Great gray owl, California spotted owl and northern goshawk – ¼ mile buffer

Mitigation Measure M-BI-2c: Avoidance and Minimization of Burrowing Owl Impacts

Before the SFPUC implements manual control, mechanical control or culvert replacement activities in the valley study area west of Don Pedro Reservoir, a qualified biologist shall conduct a burrowing owl habitat assessment as described in the California Department of Fish and Wildlife's Staff Report on Burrowing Owl Mitigation. The habitat assessment shall include the work area, and all potentially suitable habitat within 500 feet of the work area. If no potential habitat is present, project activities may proceed. If potential habitat is present, the biologist shall conduct the Detection Surveys and Take Avoidance Surveys described in the California Department of Fish and Wildlife's Staff Report.

If the biologist confirms the burrows are unoccupied, project activities that could impact the burrows may proceed. However, if any of the burrows are occupied by owls, the SFPUC shall implement one of the following measures:

- a. If the burrow is occupied during the breeding season (February 1-August 31), the biologist shall establish a no-disturbance buffer zone around the burrow, consistent with the recommendations provided in the California Department of Fish and Wildlife's Staff Report on Burrowing Owl Mitigation. Vehicles, heavy equipment, and project personnel shall be prohibited from entering the buffer zone for the entirety of the nest occupancy as determined by a qualified biologist. In select instances, and in consultation with California Department of Fish and Wildlife, the biologist may allow a reduced buffer zone if the default buffer size is not feasible, and if the biologist determines that a reduced buffer would not adversely affect the burrow. No work shall occur within the non-disturbance buffers until the young have fledged, as determined by a qualified biologist.
- b. If the burrow is occupied during the non-breeding season, the biologist shall establish a no-disturbance buffer zone around the burrow, consistent with the recommendations provided in California Department of Fish and Wildlife's Staff Report on Burrowing Owl Mitigation. Vehicles, heavy equipment, and project personnel shall be prohibited from entering the buffer zone until the biologist confirms the owl has permanently vacated the burrow. In select instances and in consultation with California Department of Fish and Wildlife, the biologist may allow a reduced buffer zone if the default buffer size is not feasible, and if the biologist determines that a reduced buffer would not adversely affect the burrow. No work shall occur within the non-disturbance buffers until the young have fledged, as determined by a qualified biologist.
- c. If the burrow is occupied during the non-breeding season, and if it is not possible to avoid impacts to the burrow, the environmental planner, in consultation with the biologist shall consult with the California Department of Fish and Wildlife to develop a mitigation plan consistent with methods described in the California Department of Fish and Wildlife's Staff Report on Burrowing Owl Mitigation. These may include burrow exclusion techniques. After the biologist confirms the owl has vacated the burrow, project activities that would impact the burrow may proceed.

Mitigation Measure M-BI-2d: Restrictions in Helicopter Use

If helicopters are required for the project, helicopter pilots shall not approach cliffs, shall provide deference to flying eagles (and other raptors) at all times, and shall adhere to all other aerial practices recommended by the U.S. Fish and Wildlife Service in the February 2010 Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance. During the raptor breeding season (January 1-August 31), helicopters shall not operate within 1,600 feet of a feature (i.e., cliff or large tree) that appears to serve as a breeding substrate for bald or golden eagles.

Mammals

Five special-status mammal species have the potential to occur in the project area, all of which are bat species (i.e., pallid bat, Townsend's big-eared bat, spotted bat, western mastiff bat, and western red bat). The project will have no impact on potential roosting habitat of Townsend's big-eared bat, spotted bat, or western mastiff bat because these species do not roost in trees or other vegetation that could be impacted by the project. In general, vegetation management activities could disturb potential roosting habitat for bat species that roost in trees (western red bat and pallid bat). Disturbance from removal of trees or large snags could result in significant direct impacts through the removal of a roost when occupied by a maternity or overwintering colony. Indirect impacts such as noise from chainsaws, masticators, and other heavy equipment near a roost are not significant due to the low noise levels and short duration of vegetation management activities. Removal of trees or large snags, if needed, could result in a marginal loss of potential roost habitat for pallid and western red bats, but this would not result in a significant loss of potential roost habitat due to the abundance of additional potential tree roosts surrounding the project area. **Mitigation Measure M-BI-2e** would reduce impacts to special-status bat species to less-than-significant levels by requiring surveys before any suitable habitat is disturbed, requiring a phased disturbance strategy during tree removal if there is potential for bat roosting, and avoidance of roost removal while occupied by maternal or overwintering colonies.

Mitigation Measure M-BI-2e: Avoidance/Protection of Special-Status Bat Species

If suitable bat habitat could be disturbed, the work area and a 100-foot buffer shall be surveyed by a qualified biologist to determine if special-status bats are using the site for roosting.

- a. The survey shall include a visual inspection of features within 100 feet of the work area for potential roosting features and sign of roosting bats no more than 2 weeks prior to disturbance of such features. If no sign of bats roosting is observed, the potential habitat features found during the survey shall be flagged or marked for avoidance. If signs of roosting bats are observed during the survey, and it is not feasible for the potential habitat features to be avoided, a phased disturbance strategy will be implemented during tree removal. If bats (individuals or colonies, not just roosting habitat) are detected during the survey or during work activities, the following additional measures shall be implemented to minimize impacts to special status bats and their roosts.
 - i. A qualified biologist shall conduct auditory surveys using ultrasound bat detectors to determine if special status bat species occur in the area.
 - ii. If special-status bats are documented and any occupied hibernation or maternal roosts identified during the surveys will be altered or disturbed by project activities (i.e., by conducting work within 100 feet of the roost), the work shall occur when the roost is no longer occupied. If exclusion of bats from roosting habitat is required for this to occur, the applicable regulatory agency shall be contacted for further instructions on how to proceed.

Reptiles

One special-status reptile species, the western pond turtle, has the potential to occur in the project area. In general, project work activities, potentially including vegetation management, occurring in or near appropriate aquatic features could result in mortality or injury due to equipment crushing or trampling individuals and/or temporary or permanent loss of nest sites. All these impacts would be potentially significant. However, **Mitigation Measure M-BI-2f** would reduce impacts to western pond turtles to less-than-significant levels by requiring avoidance and minimization of work in aquatic habitats and installation of fencing to protect habitats and keep sensitive species out of work areas. **Mitigation Measure M-BI-2f** also requires restoration of aquatic habitats that would be affected by project activities.

Mitigation Measure M-BI-2f: Avoid Impacts to Special-Status Species in and Adjacent to Aquatic Features

To avoid adverse impacts to special-status species associated with aquatic habitats, including western pond turtle, San Joaquin roach, hardhead, California tiger salamander, western spadefoot, and foothill yellow-legged frog, the SFPUC shall avoid impacts to aquatic resources to the greatest extent feasible. If work must be completed in or adjacent to an aquatic feature, a qualified biologist shall evaluate the aquatic feature to determine the special-status species that could be affected by work activities. The biologist shall then conduct focused surveys for those species to determine if there are species present that would require adjustments to location or timing of activities. Surveys shall be conducted within one week of the onset of work activities. The surveys shall focus on the aquatic habitat and any adjacent riparian or upland habitat that would be disturbed (i.e., within 1,200 feet for sites with potential habitat for California tiger salamander and western spadefoot, and 1,640 feet for sites with potential habitat for western pond turtle). In addition, the SFPUC shall implement the following measures to avoid and minimize impacts to aquatic species and their habitats.

- a. Fences designed to exclude sensitive species from the work area shall be installed if ground-disturbing work will occur within 100 feet of aquatic resources.
- b. To the extent feasible, the SFPUC shall avoid use of vehicles and heavy equipment within 1,200 feet of suitable aquatic breeding habitat for the California tiger salamander and western spadefoot toad. If impacts to small mammal burrows suitable for California tiger salamander or western spadefoot must occur, each burrow shall be surveyed using appropriate survey protocols. If California tiger salamander or western spadefoot are observed, all work within 100 feet shall cease and the applicable regulatory agency shall be contacted for further instructions on how to proceed.
- c. Aquatic habitats affected by project activities shall be restored on site at the completion of maintenance or construction work.

Fish

Two special-status fish species have the potential to occur in the project area: San Joaquin roach and hardhead. In general, suitable habitat is present in the project area for both species. However,

predators, water depths, and the intermittent nature of streams decrease the probability of species presence in the project area. The water quality protection measures identified in the project description (see Section B.3.6, SFPUC Standard Construction Measures) would be applicable to vegetation management activities, which aren't expected to significantly impact special-status fish species in the project area because construction in areas adjacent to or within streams would employ erosion and sedimentation controls tailored to each project site. As a result, impacts from vegetation management would be less than significant (potentially significant impacts due to culvert replacement are discussed below).

Amphibians

Three special-status amphibian species are known to occur or have the potential to occur in the project area: California tiger salamander, foothill yellow-legged frog, and western spadefoot toad. In general, potential impacts from vegetation management activities could occur from activities in or within 1,200 feet of vernal pools, perennial streams, or other suitable aquatic habitat. Potential impacts to California tiger salamander, foothill yellow-legged frogs, and western spadefoot include mortality or injury from trampling or crushing with equipment or foot. All these impacts would be potentially significant. However, implementation of standard construction measures would ensure protection of water quality in aquatic habitats by requiring erosion and sediment control measures such as silt fences and straw wattles; and **Mitigation Measure M-BI-2f** would reduce impacts to special-status amphibian species to less-than-significant levels by requiring avoidance and minimization of work in aquatic habitats, installation of fencing to protect habitats and keep sensitive species out of work areas, and surveying of adjacent habitat to ensure that there are no California tiger salamander, western spadefoot toad, or Foothill yellow-legged frogs present in areas where ground disturbance would occur.

Invertebrates

Three special-status invertebrate species have the potential to occur in portions of the project area based on available habitat; vernal pool fairy shrimp, tadpole shrimp and valley elderberry longhorn beetle. Vernal pools and seasonal wetlands in the valley area provide potentially suitable habitat for vernal pool fairy shrimp and tadpole shrimp. In general, potential impacts from vegetation management activities could occur from activities within or immediately adjacent to these habitats. In addition, vegetation management activities in aquatic and upland habitats adjacent to occupied seasonal wetlands and vernal pools may impact these species and their habitat through erosion and sedimentation from vegetation management activities and accidental spills of hazardous materials. As described in Section B.3.6 of the project setting (SFPUC Standard Construction Measures), best management practices would be implemented to reduce erosion and sedimentation, avoid vernal pools and wet meadow alliances, and require restoration of the site after culvert construction activities are complete. With implementation of these practices impacts to vernal pool invertebrates would be less than significant.

Critical habitat for valley elderberry longhorn beetle is not present in the project area. A few blue elderberry bushes, the host plant of the federally threatened valley elderberry longhorn beetle, are present within the valley area near Don Pedro Reservoir. The beetle does not occur above 800 feet in elevation¹⁵³ and there is no habitat for the beetle east of the Don Pedro Reservoir.¹⁵⁴ Potential impacts to elderberry bushes due to vegetation management activities could cause mortality and habitat loss for the valley elderberry longhorn beetle. These impacts would be potentially significant. However, implementation of the **Mitigation Measure M-BI-2g** would reduce impacts to less-than-significant levels by requiring avoidance of work within 100 feet of any elderberry bushes in suitable habitat.

Mitigation Measure M-BI-2g: Valley Elderberry Longhorn Beetle

Prior to the start of work, blue elderberry plants growing at elevations below 800 feet in elevation with any stems one inch or greater in diameter shall be flagged by a qualified biologist for avoidance using a 100-foot buffer from individual plants.

Therefore, project-related impacts to special-status species and their habitats associated with vegetation management would be less than significant with mitigation incorporated.

Culvert Replacement

Culvert replacement could have significant impacts to the following special-status wildlife species: tricolored blackbird, golden eagle, Swainson's hawk, American peregrine falcon, bald eagle, great gray owl, northern goshawk, burrowing owl, olive-sided flycatcher, yellow warbler, California spotted owl, pallid bat, Townsend's big-eared bat, spotted bat, western mastiff bat, western red bat, western pond turtle, San Joaquin roach, hardhead, California tiger salamander, foothill yellow-legged frog, western spadefoot, and valley elderberry longhorn beetle. All these species could be disrupted by temporary disturbance during construction. Additionally, reptiles and amphibians could be injured or killed by construction equipment, fish habitat could be degraded if culvert construction results in sedimentation of streams, and valley elderberry longhorn beetle could be affected by mortality or habitat loss if elderberry bushes were removed. All these impacts would be potentially significant. **Mitigation Measures M-BI-2a through M-BI-2g** would reduce impacts of culvert construction on special-status wildlife to less-than-significant levels with mitigation by ensuring that activities that could disrupt special-status wildlife are either conducted outside the breeding or roosting season (if applicable) or outside sensitive habitats by conducting surveys and establishing buffers and exclusion areas if needed.

Unlike potential impacts for the *transmission vegetation management program*, which would not include work within streams that provide habitat for fish, impacts from culvert replacement

¹⁵³ U.S. Fish and Wildlife Service, Valley Elderberry Longhorn Beetle, <https://ecos.fws.gov/ecp0/profile/speciesProfile?slId=7850>, accessed July 5, 2018.

¹⁵⁴ U.S. Fish and Wildlife Service, *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)*, Sacramento, California, 2017.

activities on special-status fish species could be significant, because culvert construction could affect water quality of streams. However, standard construction measures would ensure protection of water quality and implementation of **Mitigation Measure M-BI-2f** would reduce impacts to special-status fish species to less-than-significant levels with mitigation by requiring protection of aquatic habits in areas of culvert construction, including post-construction restoration.

Sand Shed Construction

The sand shed construction activities would have less than significant impacts on special-status wildlife species including American peregrine falcon, northern goshawk, olive-sided flycatcher, California spotted owl, pallid bat, and western red bat. The sand shed project area is entirely within the transmission right of way in a previously disturbed area and construction activities would not require vegetation removal. Noise from construction activities could have limited impacts on special-status birds and bats by altering their behavior to avoid foraging or roosting near the work area during construction. This is a less than significant impact due to the abundance of foraging and roosting habitat surrounding the sand shed construction area.

Summary of Impact BI-2

Potential project-related impacts on special-status wildlife species and their habitats are summarized **Table 16**, which also identifies types of activities that could adversely impact sensitive wildlife species in the project area and lists the applicable mitigation measures as described above. Impacts associated with all project activities can be reduced to less than significant with mitigation incorporated.

Table 16. Summary of Potential Impacts to Special-Status Wildlife

Species Name & Listing Code	Common Name	Summary of Potential Impacts*	Species' Habitat	Season That Would Not Result in Significant Impacts	Activities that May Result in Impacts to Special –Status Wildlife Species	Specific Mitigation Measures to Reduce Impacts to Less Than Significant
Federal/State Listed, Proposed, Candidate and/or Fully Protected Species						
<i>Branchinecta lynchi</i> FT/SA	Vernal pool fairy shrimp	LS: Potential impacts avoided by prohibiting work in vernal pools and employing best management practices for noxious weed control	Valley: Vernal pools in grass or mud-bottomed swales	N/A	None; activities in vernal pools would be avoided	N/A
<i>Desmocerus californicus dimorphus</i> FT/SA	Valley elderberry longhorn beetle	LSM: Potential impacts may include direct removal of host plant, and/or effects to the species from activities conducted within 100 feet of host plants	Valley (west of Don Pedro Reservoir): Elderberry bushes	N/A	Manual, mechanical and chemical control or culvert replacement occurring within 100 feet of blue elderberry plants occurring between below 800 feet in elevation.	M-BI-2g: Valley Elderberry Longhorn Beetle
<i>Lepiduras packardii</i> FE/SA	Vernal pool tadpole shrimp	LS: Potential impacts avoided by prohibiting work in vernal pools and employing best management practices for noxious weed control	Valley: Vernal pools in grass or mud-bottomed swales	N/A	None, activities in vernal pools would be avoided	N/A
<i>Ambystoma californiense</i> FT/ST	California tiger salamander	LSM: Potential impacts may include temporary loss of habitat, permanent loss of habitat, temporary barriers to movement, and injury or mortality due to equipment use	Valley: Seasonal (sometimes permanent) water sources and adjacent grassland, oak woodland, and mixed woodland habitat	N/A	Mechanical, biological and chemical control or culvert replacement in aquatic features, and within 1,200 feet of suitable aquatic breeding habitat	M-BI-2f: Avoid Impacts to Special Status Species in and Adjacent to Aquatic Features

Species Name & Listing Code	Common Name	Summary of Potential Impacts*	Species' Habitat	Season That Would Not Result in Significant Impacts	Activities that May Result in Impacts to Special –Status Wildlife Species	Specific Mitigation Measures to Reduce Impacts to Less Than Significant
<i>Agelaius tricolor</i> SCE/SSC	Tricolored blackbird	LSM: Potential impacts may include temporary disturbances to breeding colonies LS: Losses of vegetation used as nesting substrate are not expected and breeding colonies are not likely to occur at culvert locations	Valley: Nests in freshwater marshes dominated by cattails and bulrushes	September 1 – January 31	Manual and chemical control activities occurring within 100 feet of known nests or breeding colonies	M-BI-2a: Nesting Birds
					Mechanical control activities involving masticators occurring within 100 feet of known nests or breeding colonies	
					Biological control activities that involve grazing within 100 feet of known nests or breeding colonies	
					Culvert repair or replacement activities occurring within 100 feet of known nests or breeding colonies	
<i>Aquila chrysaetos</i> FP	Golden Eagle	LSM: Potential impacts include temporary loss of nesting habitat, permanent loss of nesting habitat, and temporary noise disturbances	Valley: Nests on cliffs and in large trees; occasionally transmission towers	September 1 – December 31	Manual control activities that require the use of chainsaws or other loud equipment within ½ mile of suitable nesting habitat	M-BI-2b: Avoidance and Minimization of Raptor and Owl Impacts; M-BI-2d: Restrictions in Helicopter Use
					Mechanical control activities within ½ mile of suitable nesting habitat	
					Tree removal within ½ mile of suitable nesting habitat	
					Culvert replacement within ½ mile of suitable nesting habitat	
<i>Buteo swainsonii</i> ST	Swainson's Hawk	LSM: Potential impacts include temporary loss of nesting habitat, permanent loss of nesting habitat, and temporary noise disturbances	Valley: Nests in large trees	September 16 – March 14	Manual control activities that require the use of chainsaws or other loud equipment within 1/2 mile of suitable habitat	M-BI-2b: Avoidance and Minimization of Raptor and Owl Impacts M-BI-2d: Restrictions in Helicopter Use
					Mechanical control activities within ½ mile of suitable habitat	
					Tree removal within ½ mile of suitable habitat, except for removal of single trees that are not suitable for nesting	
					Culvert replacement within ½ mile of suitable nesting habitat	

Species Name & Listing Code	Common Name	Summary of Potential Impacts*	Species' Habitat	Season That Would Not Result in Significant Impacts	Activities that May Result in Impacts to Special –Status Wildlife Species	Specific Mitigation Measures to Reduce Impacts to Less Than Significant
<i>Falco peregrinus anatum</i> FP	American peregrine falcon	LSM: Potential impacts include temporary noise disturbance to active nest sites	Upcountry: Nests on cliffs and man-made structures such as bridges and buildings	September 1 – December 31	Manual control activities that require the use of chainsaws or other loud equipment within 500 feet of suitable habitat	M-BI-2a: Nesting Birds
					Mechanical control activities within 500 feet of suitable habitat	
					Culvert replacement within 500 feet of suitable habitat	
					Sand storage shed construction	
<i>Haliaeetus leucocephalus</i> SE/FP	Bald Eagle	LSM: Potential impacts include nesting site losses, and temporary noise disturbances	Valley: Nests in large trees or rocky outcrops near large bodies of water (area adjacent to Don Pedro Reservoir)	September 1 – December 31	Manual control activities that require the use of chainsaws or other loud equipment within 1/2 mile of suitable habitat	M-BI-2b: Avoidance and Minimization of Raptor and Owl Impacts M-BI-2d: Restrictions in Helicopter Use
					Mechanical control activities within 1/2 mile of suitable habitat	
					Tree removal within 1/2 mile of suitable habitat	
					Culvert replacement within 1/2 mile of suitable nesting habitat	
<i>Strix nebulosa</i> SE	Great Gray Owl	LSM: Potential impacts include temporary loss of suitable nesting habitat and temporary noise disturbances LS: The U.S. Forest Service and Bureau of Land Management concluded that the following activities are generally not expected to result in significant negative effects to great gray owls: forest road maintenance (including hazard tree removal), hand removal or biological control of noxious weeds, or occasional low-level aircraft flights within a 24-hour period	Upcountry: Nests in broken-top trees and cavities near meadows	August 16 – February 28	Manual control activities that require the use of chainsaws or other loud equipment within 1/4 mile of suitable habitat	M-BI-2b: Avoidance and Minimization of Raptor and Owl Impacts M-BI-2d: Restrictions in Helicopter Use
					Mechanical control activities within 1/4 mile of suitable habitat	
					Tree removal within 1/4 mile of suitable habitat	
					Culvert replacement within 1/4 mile of suitable habitat	

Species Name & Listing Code	Common Name	Summary of Potential Impacts*	Species' Habitat	Season That Would Not Result in Significant Impacts	Activities that May Result in Impacts to Special –Status Wildlife Species	Specific Mitigation Measures to Reduce Impacts to Less Than Significant
Sensitive and Locally Rare Species						
<i>Lavinia symmetricus</i> ssp. 1 SSC	San Joaquin Roach	LSM: Potential impacts include sedimentation from culvert repair or replacement in aquatic habitat <i>Note: the project area is within species known range, but predators and intermittent nature of streams decrease the probability of the species' presence in the project area</i>	Valley: Streams	N/A	Culvert repair or replacement	M-BI-2f: Avoid Impacts to Special Status Species in and Adjacent to Aquatic Features
<i>Mylopharodon conocephalus</i> SSC	Hardhead	LSM: Potential impacts include temporary loss of habitat <i>Note: the project area is within species known range, but stream depths, predators, and intermittent nature of streams decrease probability of the species' presence in the project area</i>	Valley and Upcountry: Slow-moving streams and lakes	N/A	Culvert repair or replacement	M-BI-2f: Avoid Impacts to Special Status Species in and Adjacent to Aquatic Features
<i>Rana boylei</i> SSC	Foothill yellow-legged frog	LSM: Potential impacts include mortality or injury from trampling or crushing, temporary loss of habitat, and permanent loss of habitat <i>Note: potential for foothill yellow-legged frogs to occur is extremely low due to minimal suitable habitat and research indicating species has been extirpated from historically occupied sites in project area</i>	Valley and Upcountry: Perennial streams in conifer, scrub, chaparral, and wet meadow communities	N/A	Culvert repair or replacement	M-BI-2f: Avoid Impacts to Special Status Species in and Adjacent to Aquatic Features
<i>Spea hammondi</i> SSC	Western spadefoot	LSM: Potential impacts include mortality or injury due to equipment crushing	Valley: Burrows in sandy or gravelly substrate; vernal pools, temporary rain pools, intermittent stream pools	N/A	Mechanical control or culvert replacement within 1,200 feet of suitable aquatic breeding habitat	M-BI-2f: Avoid Impacts to Special Status Species in and Adjacent to Aquatic Features

Species Name & Listing Code	Common Name	Summary of Potential Impacts*	Species' Habitat	Season That Would Not Result in Significant Impacts	Activities that May Result in Impacts to Special –Status Wildlife Species	Specific Mitigation Measures to Reduce Impacts to Less Than Significant
<i>Emys marmorata</i> SSC	Western pond turtle	LSM: Potential impacts include mortality or injury due to equipment crushing or trampling	Valley and Upcountry: Permanent bodies of water and slow-moving streams	N/A	Mechanical control activities occurring within 1,640 feet of suitable aquatic habitat Culvert repair or replacement occurring within 1,640 feet of suitable aquatic habitat	M-BI-2f: Avoid Impacts to Special Status Species in and Adjacent to Aquatic Features
<i>Accipiter gentilis</i> SSC	Northern Goshawk	LSM: Potential impacts include permanent loss of suitable nest sites and temporary noise disturbances	Upcountry: Nests in large trees and snags in forest	September 16 – February 14	Manual control activities that require use of chainsaws or other loud equipment within ¼ mile of suitable habitat Mechanical control activities within ¼ mile of suitable habitat Tree removal within ¼ mile of suitable habitat Culvert replacement activities within ¼ mile of suitable habitat Sand storage shed construction	M-BI-2b: Avoidance and Minimization of Raptor and Owl Impacts M-BI-2d: Restrictions in Helicopter Use
<i>Athene cunicularia</i> SSC	Burrowing Owl	LSM: Potential impacts include mortality or injury due to equipment crushing occupied burrows, temporary noise disturbances	Valley: Inhabits open, well drained terrain; short, sparse vegetation; and underground burrows in grasslands and agricultural areas	N/A	Manual control activities that require use of chainsaws or other loud equipment within 1,600 feet of potentially occupied burrows. Mechanical control activities within 1,600 feet of potentially occupied burrow. Culvert replacement within 1,600 feet of potentially occupied burrows.	M-BI-2c: Avoidance and Minimization of Burrowing Owl Impacts M-BI-2d: Restrictions in Helicopter Use
<i>Contopus cooperi</i> SSC	Olive-sided flycatcher	LSM: Potential impacts include temporary noise disturbances	Upcountry: Forest habitats adjacent to openings	September 1 – January 31	Manual control activities occurring within 100 feet of nests Mechanical control activities within 100 feet of nests Tree removal within 100 feet of nests Culvert repair or replacement activities within 100 feet of nests	M-BI-2a: Nesting Birds

Species Name & Listing Code	Common Name	Summary of Potential Impacts*	Species' Habitat	Season That Would Not Result in Significant Impacts	Activities that May Result in Impacts to Special –Status Wildlife Species	Specific Mitigation Measures to Reduce Impacts to Less Than Significant
<i>Dendroica petechia brewsteri</i> SSC	Yellow warbler	LSM: Potential impacts include temporary noise disturbances LS: Vegetation management activities are not expected to substantially reduce available nesting habitat	Upcountry and Valley: Riparian habitat and montane chaparral	September 1 – January 31	Manual control activities occurring within 100 feet from nests Mechanical control activities within 100 feet of nests Culvert repair or replacement activities within 100 feet of nests	M-BI-2a: Nesting Birds
<i>Strix occidentalis</i> SSC	California Spotted Owl	LSM: Potential impacts include mortality or injury to owls if trees felled while being used by nesting birds and temporary noise disturbances	Upcountry: Nests in large trees in forest	September 16 – February 14	Manual control activities that require the use of chainsaws or other loud equipment within ¼ mile of breeding habitat Mechanical control activities within ¼ mile of breeding habitat Tree removal within ¼ mile of breeding habitat Culvert replacement activities within ¼ mile of breeding habitat	M-BI-2b: Avoidance and Minimization of Raptor and Owl Impacts M-BI-2d: Restrictions in Helicopter Use
<i>Antrozous pallidus</i> SSC	Pallid bat	LSM: Potential impacts include permanent loss of suitable roosts habitat and temporary noise disturbances	Valley and Upcountry: Roost in caves, rock crevices, mines, hollow trees, buildings and bridges	N/A	Manual control activities that require use of chainsaws or other loud equipment within 100 feet of suitable habitat Mechanical control activities within 100 feet of suitable habitat Tree removal within 100 feet of suitable habitat Culvert replacement activities within 100 feet of suitable habitat	M-BI-2e: Avoidance/ Protection of Special-Status Bat Species
<i>Corynorhinus townsendii</i> SSC	Townsend's western big-eared bat	LSM: Potential impacts include temporary noise disturbances	Upcountry: Caves and cave-like structures (bridges, buildings)	N/A	Manual control activities that require use of chainsaws or other loud equipment within 100 feet of suitable habitat Mechanical control activities within 100 feet of suitable habitat Culvert replacement activities within 100 feet of suitable habitat	M-BI-2e: Avoidance/ Protection of Special-Status Bat Species

Species Name & Listing Code	Common Name	Summary of Potential Impacts*	Species' Habitat	Season That Would Not Result in Significant Impacts	Activities that May Result in Impacts to Special –Status Wildlife Species	Specific Mitigation Measures to Reduce Impacts to Less Than Significant
<i>Euderma maculatum</i> SSC	Spotted bat	LSM: Potential impacts include temporary noise disturbances	Upcountry: Roosts on cliffs and rock outcrops	N/A	Manual control activities that require use of chainsaws or other loud equipment within 100 feet of suitable habitat	M-BI-2e: Avoidance/ Protection of Special-Status Bat Species
					Mechanical control activities within 100 feet of suitable habitat	
					Culvert replacement activities within 100 feet of suitable habitat	
<i>Eumops perotis californicus</i> SSC	Western mastiff bat	LSM: Potential impacts include temporary noise disturbances	Upcountry: Roosts in rocky cliff crevices, but will also use similar openings in boulders and buildings	N/A	Manual control activities that require use of chainsaws or other loud equipment within 100 feet of suitable habitat	M-BI-2e: Avoidance/ Protection of Special-Status Bat Species
					Mechanical control activities within 100 feet of suitable habitat	
					Culvert replacement activities within 100 feet of suitable habitat	
<i>Lasiurus blossevillii</i> SSC	Western red bat	LSM: Potential impacts include temporary noise disturbances	Valley and Upcountry: Roosts individually in foliage within trees along riparian areas, orchards and suburban areas	N/A	Manual control activities that require use of chainsaws or other loud equipment within 100 feet of suitable habitat	M-BI-2e: Avoidance/ Protection of Special-Status Bat Species
		LS: Project is not expected to remove mature riparian roost habitat			Mechanical control activities within 100 feet of suitable habitat	
					Tree removal within 100 feet of suitable habitat	
					Culvert replacement activities within 100 feet of suitable habitat	

***Explanation of Potential Impact Codes**

LSM Less than Significant with Mitigation
 LS Less than Significant
 NI No Impact

***Explanation of Special Status and Sensitive Species Codes**

FT Federally listed as Threatened
 SE State listed as Endangered
 ST State listed as Threatened
 SCE State Candidate Endangered
 SSC California Species of Special Concern
 FP California Fully Protected – take is prohibited
 SA California Special Animal

Impact BI-3: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (Less Than Significant with Mitigation)

Sensitive natural communities are characterized as plant assemblages that are unique in constituent components, restricted in distribution, supported by distinctive soil conditions, considered locally rare, potentially support special-status plant or wildlife species and/or receive regulatory protection from municipal, county, state and/or federal entities. The project area includes riparian habitat and four sensitive natural communities, two of which are potential habitat for vernal pool species. Project impacts on wetlands are discussed under Impact BI-4.

Three sensitive natural communities were observed only within the valley area: Mixed Serpentine Chaparral, *Eryngium vaseyi/castrense* Herbaceous Association (which is a type of vernal pool) and Northern Hard Pan Vernal Pools. The only sensitive natural community found in the upland area is Wetland Meadow Alliance. These communities and land cover types are listed in **Table 17** and are described below.

Table 17. Sensitive Natural Communities in the Project Area

Vegetation Type	Acreage	Project Activities with Potential Impact
<u>Wetland Herbaceous Dominated Vegetation Types</u>		
<i>Eryngium vaseyi/castrense</i> Herbaceous Association	0.27	None – no work allowed in vernal pools
Northern Hardpan Vernal Pool	0.26	None – no work allowed in vernal pools
Wetland Meadow Alliance	2.85	Culvert Replacement – no vegetation management work allowed in wet meadow
<u>Shrub Dominated Vegetation Types</u>		
Mixed Serpentine Chaparral	0.43	Culvert Replacement
Source: Nomad Ecology, 2018. Biological Resources Assessment, SFPUC Reliable Power Project. Note that acreage of sensitive communities may be included in acreage of wetlands and waters of the U.S. because in some of the vegetation types are also considered wetlands.		

There is no riparian habitat present at the sand shed or within areas proposed for transmission vegetation management.¹⁵⁵ Potential impacts to riparian habitat are possible from trimming or removal of riparian or aquatic vegetation during culvert replacement activities. Impacts to sensitive natural communities would mostly be avoided because no vegetation management work would be allowed in vernal pools or wet meadows. Culvert replacement would avoid work in wet meadows to the where feasible, but some work in wet meadows may be required, because wet meadows are also jurisdictional wetlands, potential impacts to wet meadows are discussed in more detailed under Impact BI-4. Culvert replacement activities could affect a small amount of wet meadow and 0.43 acres of serpentine chaparral. These impacts would be potentially significant.

¹⁵⁵ Nomad Ecology, Biological Resources Assessment, April 2018.

Implementation of the SFPUC's standard construction measures and proposed vegetation management best management practices described in Section B.3 of the project setting, as well as **Mitigation Measures M-BI-1a: Training, M-BI-3a: Riparian Vegetation Replacement, and M-BI-3b: Avoidance or Restoration of Serpentine Chaparral**, would reduce impacts to less-than-significant levels by requiring restoration of riparian vegetation that would be removed for culvert maintenance and replacement, and avoidance or restoration of sensitive serpentine chaparral. Therefore, impacts to sensitive natural communities due to project activities would be less than significant with mitigation incorporated.

Mitigation Measure M-BI-3a: Riparian Vegetation Replacement

All exposed/disturbed areas and temporary access points within the riparian zone left barren of vegetation following culvert repairs or replacements shall be mulched with certified weed-free straw or rice straw, or revegetated or seeded with appropriate seed mixes or container species, as determined by a qualified biologist. Mature riparian trees shall be replaced at a 3:1 ratio. Revegetation shall take place upon the completion of ground-disturbing activity and prior to or concurrent with the rainy season. A qualified biologist shall monitor site conditions for up to three years following project completion or until a minimum of 70 percent vegetation cover is achieved.

Mitigation Measure M-BI-3b: Avoidance or Restoration of Serpentine Chaparral.

Work activities immediately adjacent to or within sensitive serpentine chaparral shall be avoided if possible. Any serpentine chaparral that occurs within the project area shall be flagged and avoided with a 10-foot buffer, at a minimum, or at a greater distance determined by the qualified biologist based on site specific conditions. If avoidance is not feasible, where culvert maintenance or replacement activities require removal of vegetation in mixed serpentine chaparral communities, chamise shrubs would be cut with a chainsaw above the burl at the top of the root crown to allow for natural regeneration after culvert construction is complete.

Impact BI-4: Have a substantial adverse effect on federally protected wetlands as defined by section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (Less than Significant with Mitigation)

Any activity that fills, destroys, degrades the water quality, or disturbs the natural hydrology of a wetland or other water of the U.S. or of the state would be a significant impact. Wetlands and other waters of the U.S. or of the state may also provide habitat for a variety of special-status species. For the following analysis, wetlands were identified based on evidence of wetland hydrology, including evaluation of hydrology, presence of wetland vegetation, and evidence of hydric soils. Wetlands were further classified based on plant species composition, hydrologic regime, and geomorphology. Wetland types in the project area are listed in **Table 18**.

Table 18. Wetlands and Waters of the U.S. in the Project Area

Wetland Type	Acreage	Project Activities with Potential Impact
Other Waters of the U.S. (jurisdictional culverts, intermittent streams, perennial streams)	1.22	Culvert Replacement; Activities that could introduce invasive weeds
Pond	0.19	Culvert Replacement; Activities that could introduce invasive weeds
Seasonal Wetlands and Freshwater Marsh, including wet meadows	0.53	Culvert Replacement; Activities that could introduce invasive weeds
Total Wetlands and Waters	1.94	
Source: Nomad Ecology, <i>Aquatic Resource Delineation Report Reliable Power Project Culvert Work Locations</i> , January 2018.		

An aquatic resources delineation was conducted in 2017 to aid in project permitting and assessed the presence of jurisdictional wetlands and waters of the U.S. at the 269 initially identified culvert locations that are planned for repair and replacement.

This analysis presumes that intermittent creeks, ponds, and seasonal wetlands within the project area are regulated as wetlands or waters of the U.S. and/or waters of the state falling under U.S. Army Corps of Engineers or Regional Water Quality Control Board jurisdictions through the Clean Water Act and/or the Porter-Cologne Water Quality Control Act. These features may also fall within the California Department of Fish and Wildlife's jurisdiction through sections 1600-1603 of the Fish and Game Code.

Transmission Vegetation Management Program

Vegetation management control methods could be implemented at any location along the transmission right of way over the next several decades. Additionally, most vegetation management activities would occur during the dry season (generally April 15-November 15, depending on weather conditions) when the alignment is accessible and the various vegetation control methods are more easily implemented. Although only limited portions of the project alignment would be affected at any given time, it is assumed that any part of the wetlands and other aquatic resources described above could be directly disturbed at some point during the lifetime of the program. It is not expected that vegetation management activities would occur within wetlands or waters of the U.S. because wetland vegetation is compatible with transmission lines and would not need to be managed or removed. Also, as described in Section B.3.7 of the project setting, vegetation management activities would include avoidance of sensitive wetlands in the project area, including vernal pools and wet meadows. However, it is possible that wetlands could be disturbed by vegetation management activities in adjacent areas.

Direct disturbances to wetlands and other waters near vegetation management areas may include damage from vehicles and equipment including degradation of water quality because of accidental spills of hazardous materials used by construction equipment (such as oil or gasoline). Additionally, vegetation management activities may impact wetlands and waters of the U.S. and of the state adjacent to locations of project activities because of sedimentation. As described in Section B.3.6 of the project setting, the SFPUC would implement its standard construction measures and proposed vegetation management best management practices to reduce erosion and sedimentation, avoid impacts from hazardous materials, and prevent the spread of noxious weeds and invasive species that could alter hydrology if streams become invaded by noxious

weeds. Impacts to wetlands and other waters could be potentially significant given that vehicles and equipment used for vegetation management could damage adjacent wetlands.

However, implementation of **Mitigation Measures M-BI-1a: Training** and **M-BI-4a: Wetlands and Aquatic Habitat Avoidance** would reduce impacts to less-than-significant levels by requiring avoidance of wetlands adjacent to construction areas and use of flagging and exclusion fencing to protect areas outside of the immediate construction area.

Thus, impacts on wetlands and other waters from vegetation management activities would be less than significant with mitigation incorporated.

Mitigation Measure M-BI-4a: Wetland and Aquatic Habitat Avoidance

Vegetation management activities, shall avoid wetland features (i.e., ephemeral, intermittent, and perennial creeks, ponds, and seasonal wetlands). Vehicle access shall be restricted seasonally (generally October 15-June 30) from working adjacent to wetlands, streams, and other aquatic habitat areas until the soils are no longer saturated (generally July 1-October 14), especially in the spring and summer, but potentially during other times of year, depending on precipitation patterns. These wetland and aquatic features shall be flagged and avoided with appropriate buffers, as determined by a qualified biologist, based on the class of feature and contributing site conditions such as slope and type of vegetative buffer. A 10-foot buffer shall be maintained whenever possible to prevent impacts. Based on site specific conditions this buffer may be adjusted by the qualified biologist.

Culvert Replacement

Culvert replacement work would be conducted between late spring/early summer and early fall (April 15-November 15). Culvert replacements would not occur during the winter period (when conditions are generally wetter).

Culvert repair and replacement activities would occur at various culvert locations in the project area. Culverts are manmade structures that convey water beneath roads or other utilities. Culverts within the project area convey water associated with a variety of jurisdictional wetlands and other waters, including seasonal streams, seasonal wetlands (such as wet meadows), and canal/ditches. Excavation, removal of culverts, and backfilling would have direct impacts on jurisdictional waters, including placement of fill (new structures such as headwalls, wingwalls and energy dissipaters may be required), temporary disruption of hydrology (flows may need to be diverted during construction), and temporary removal of vegetation, which would reduce habitat value and degradation of water quality due to sedimentation. This activity could cause potentially significant impacts given that it could result in both temporary and permanent loss of wetland habitat. It is currently anticipated that a total of 1.944 acres of wetlands and waters of the U.S. would be temporarily affected by culvert construction.¹⁵⁶

¹⁵⁶ Nomad Ecology, *Aquatic Resource Delineation Report Reliable Power Project Culvert Work Locations*, January 2018.

However, implementation of **Mitigation Measures M-BI-1a: Training, M-BI-3a: Riparian Vegetation Replacement, and M-BI-4b: Compensation for Unavoidable Wetland and Aquatic Habitat Impacts**, would reduce impacts to less-than-significant levels by requiring compensation for any unavoidable loss of wetlands through restoration, creation, enhancement, or a combination of these measures so as to ensure no permanent net loss of wetland extent or function.

Thus, impacts on wetlands and other waters from culvert replacement activities would be less than significant with mitigation incorporated.

Mitigation Measure M-BI-4b: Compensation for Unavoidable Wetland and Aquatic Habitat Impacts

Where the project cannot avoid disturbance or cannot maintain a 10-foot buffer (e.g., culvert replacements), the SFPUC shall employ measures to minimize impacts to wetlands and other waters of the U.S. and of the state. These measures shall be developed in consultation with the applicable regulatory agencies (e.g., RWQCB, CDFW and/or the U.S. Army Corps of Engineers) and may include, but are not limited to, the following:

- Prior to the start of culvert replacement, a qualified biologist shall identify all avoidable and unavoidable wetlands and other waters within project limits. Identification shall be based on anticipated repair or replacement activities, anticipated ground disturbance areas, field investigation and existing maps of all wetlands and waters within the project area.
- All wetlands and other waters identified for avoidance shall be clearly marked in the field throughout repair or replacement activities. Under the direction of the SFPUC's Natural Resources and Land Management staff, as advised by a qualified biologist, the contractor shall install appropriate exclusion fencing (generally silt fencing or orange construction barrier fencing) along the edge of all construction areas and at least 20 feet away from areas flagged for avoidance. The contractor shall install erosion and sediment control measures (e.g., silt fence or straw wattles) along the edge of all construction areas that are upslope and at least 20 feet away from wetland or aquatic habitat to control soil erosion and prevent sediment from flowing into these habitats.
- The SFPUC's Natural Resources and Lands Management Division staff shall ensure that the work plan contains clear language stating that construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities are prohibited within the flagged area.

Where direct permanent impacts to wetlands and other waters of the U.S. and the state are unavoidable, the SFPUC shall compensate for such impacts by implementing wetland restoration, creation, enhancement, or a combination of these measures, to ensure no permanent net loss of wetland extent or function. Compensation may also be met by purchasing credits from an approved mitigation bank or paying into a federal or state sponsored mitigation fund. During the permitting process, any required compensation would be determined in consultation with appropriate resource/permitting agencies such as the U. S. Army Corps of Engineers to ensure that there is no net loss of habitat functions and

values. Compensation shall result in no net loss of habitat functions and values and shall be provided at a minimum ratio of 1:1 for permanent impacts to wetlands.

Sand Shed Construction

Construction of the shed would occur entirely within the transmission right of way and the site would be accessed from Cherry Lake Road. The site is not located in or near any wetlands or other waters of the U.S. or the state.¹⁵⁷ As described in Section B.3 of the project description, the SFPUC would implement its standard construction measures and proposed vegetation management best management practices to reduce erosion and sedimentation, avoid impacts from hazardous materials, and prevent the spread of plant pathogens, noxious weeds and invasive species. There would thus be no impacts to wetlands associated with sand storage shed construction.

Impact BI-5: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impeded the use of native wildlife nursery sites? (No Impact)

The project area consists of a transmission line right of way that has been subject to regular vegetation clearance and maintenance in the past. The area is surrounded by a variety of land cover types varying from orchards, grassland, oak woodland, and pine forest. Because most of the area surrounding the project area is undeveloped, the entire project area likely functions as a movement corridor for many species. Vegetation management would not preclude use of the corridor because there would not be a substantial change to vegetation that would affect its suitability as a wildlife corridor, compared to the existing conditions. Although there are some special-status plant species present within the project area, all vegetation communities within the project area are common. The proposed project activities would not create a new barrier to any wildlife species. The proposed project modifications are limited to vegetation maintenance, culvert replacement, and installation of a sand storage shed, and are not expected to reduce the utility of the project area as a movement corridor. Therefore, the project would result in no impact to the movement or migration of native species.

Impact BI-6: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Less Than Significant)

Vegetation management would require the removal of trees that are incompatible with the power line. No tree removal would be needed for sand shed construction and the limited tree removal that might be needed for culvert replacement is addressed above in Impact BI-3 and would be reduced to less than significant with implementation of **Mitigation Measure M-BI-3a: Riparian Vegetation Replacement**, which requires replacement of any riparian trees that would be removed during construction. This impact thus focuses on removal of upland trees, such as oaks, and potential conflicts with local tree preservation policies and ordinances.

¹⁵⁷ Nomad Ecology, *Biological Resources Assessment, SFPUC Reliable Power Project*, 2018.

The project traverses portions of Stanislaus, Mariposa, and Tuolumne Counties. As discussed above in Section C, Compatibility with Existing Zoning and Plans, each county has adopted a General Plan that specifies goals and policies regarding conservation and/or the preservation of natural resources and open space. In addition, Tuolumne County has adopted an oak tree ordinance restricting the premature clearing of native oak trees from project sites. Neither Stanislaus County nor Mariposa County has a specific tree preservation policy or ordinance. Relevant components of each county's General Plan ordinance codes were reviewed to determine whether the project would conflict with provisions aimed at protecting biological resources.

The portion of the project area from the Warnerville switchyard to approximately 13 miles east along the right of way lies within Stanislaus County. The Stanislaus County General Plan promotes the protection of scarce natural resources, discourages wasteful destruction of natural resources, and recognizes the need for the conservation of natural resources for ecological values and benefits that they provide to humans. However, Stanislaus County does not have a heritage tree ordinance or oak woodland ordinance.

A very small portion (approximately 800 feet) of the right of way traverses Mariposa County. The Mariposa County General Plan promotes the protection of unique ecosystems and habitats to assure the continued health and availability of natural resources as important components to the County's quality of life and character, identifies land areas in which the management of natural resources shall be the primary purpose, and outlines conservation and enhancement of ecosystems and habitats for a variety of needs. However, Mariposa County does not have a heritage tree ordinance or oak woodland ordinance.

The remaining approximately 37 miles of the project corridor is located within Tuolumne County. As stated above, the county has adopted an oak tree ordinance. The Tuolumne County tree ordinance (chapter 9.24) would not apply to the project because it is not a land development project requiring a discretionary entitlement from the County. In addition, the ordinance provides exemptions for projects requiring permits from the California Department of Fish and Wildlife. Because the project could require a section 1602 Lake and Streambed Alteration agreement and may require a consistency determination under the California Endangered Species Act, it could also be exempt from the provisions of the ordinance for this additional reason. Furthermore, the tree ordinance provides exemptions for removal of native oak trees for health and safety reasons, including, but not limited to, preventing interference with utility lines or eliminating the risk of a diseased or dying tree falling. Therefore, the project would not conflict with the provisions of this ordinance.

Thus, the proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and impacts would be less than significant.

Impact C-BI-1: The proposed project, in combination with past, present and reasonably foreseeable future projects near the site, would not have a cumulatively considerable contribution to a significant cumulative impact on biological resources. (Less Than Significant with Mitigation)

The geographic scope for cumulative biological resource impacts includes the area from the Warnerville switchyard to the Holm and Kirkwood powerhouses, in which project activities would occur. The area encompasses the projects shown in **Figure 7** and listed in **Table 2**. Of the projects listed in **Table 2**, most have the potential to affect biological resources. Some projects have limited potential to affect natural habitats because they consist primarily of improvements to existing developed facilities. For example, project numbers 2 (Warnerville Substation upgrade), 4 (Holm Powerhouse Rehabilitation and Kirkwood Powerhouse Oil Containment), 13 (Moccasin Wastewater Treatment Plant), and 21 (Moccasin Yard – New Shops/Office Buildings) would all take place on existing developed sites and, as a result, are not expected to contribute to cumulative impacts to biological resources. However, the other projects listed in **Table 2** are considered to have potential impacts to biological resources. Projects 16 through 19, all of which are associated with recovery efforts following the Rim Fire, include tree removal, range rehabilitation, and habitat management activities. The Rim Fire itself affected biological resources in the project area, resulting in the loss of substantial numbers of trees in the burn area. SFPUC projects, including projects associated with the Mountain Tunnel (projects 3, 5, 7 and 8) and San Joaquin Pipeline Rehabilitation (project 20) could entail activities that could contribute to cumulative impacts to special-status species, sensitive natural communities, and jurisdictional wetlands and waters of the U.S. or waters of the state in the project area.

The project would not result in impacts to established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites and thus would not contribute to cumulative impacts to those resources. However, the project could result in significant impacts to special-status species, sensitive natural communities, and jurisdictional wetlands and waters of the U.S. of the state in the project area. Potentially significant cumulative impacts to biological resources, including the impacts to special-status plants, disruption of breeding of special-status bird and bat species, and loss of trees, could be caused by the combined effects of the project and cumulative projects 1, 3, 5 through 12, 14 through 20, 22 and 23. The project's incremental contribution to those impacts could be cumulatively considerable before mitigation because project activities could temporarily displace or cause mortality to special-status species during maintenance and construction activities. However, the mitigation measures presented above (**Mitigation Measures M-BI-1a through M-BI-4b**) would ensure that impacts to sensitive habitats and species are avoided or minimized and would ensure that wetlands and waters of the U.S. and of the state are avoided to the extent feasible and any unavoidable impacts are minimized or mitigated through restoration of wetlands and waters of the U.S. or waters of the state that are affected by project construction. Additionally, the nature of the vegetation management program and the program of culvert replacement is such that disruption would be intermittent and temporary and would be fully mitigated through implementation of the mitigation measures described above. As a result, these measures would reduce the project's contribution to cumulative impacts on biological resources to a less-than-cumulatively considerable level with the above listed mitigations incorporated into the project (less than significant with mitigation incorporated).

E.14. GEOLOGY AND SOILS

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
GEOLOGY AND SOILS— Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Change substantially the topography or any unique geologic or physical features of the site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
g) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Implementation of the proposed project would not include the use of septic tanks or alternative wastewater disposal systems. Therefore, Topic 14(e) is not applicable and is not discussed further.

Impact GE-1: The proposed project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure (including liquefaction), or landslides. (No Impact)

Surface Fault Rupture. The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The law requires the State Geologist to establish regulatory zones around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties and state agencies for their use in planning and controlling new or renewed construction. The list of maps does not include Tuolumne County because it is relatively distant from any known faults that meet the criteria of the mapping program, according to the Tuolumne County Multi-Jurisdictional Hazard Mitigation Plan.¹⁵⁸ Tuolumne County lies within the portion of the state that has had no record of damaging shaking events since 1800.

There are no active earthquake faults near the project corridor in Stanislaus or Mariposa Counties.^{159, 160} The fault zones closest to the project corridor are the Bear Mountain and Melones fault zones, located in Tuolumne County, north of the corridor four and nine miles away, respectively.¹⁶¹ There are no earthquake fault zones or active or potentially active faults in the immediate vicinity of the project corridor. The State Geologist produces Stanislaus County fault zone maps only for a small area of the County located about 40 miles southwest of the project corridor. Therefore, there would be no impacts related to fault rupture.

Seismic Groundshaking. None of the project components would expose people or structures to a significant seismic safety risk or hazard. Design and construction of the proposed sand shed would be in accordance with applicable construction standards and other established industry design criteria. In addition, the shed would be for maintenance use and not for human occupancy, thereby posing little seismic safety risk to people. The project would result in the presence of people working in the project corridor on the utility corridor vegetation management and access road culvert replacement components of the project. However, given that workers would be outdoors while engaged in these activities and that the exposure of workers to seismic groundshaking would not be significantly different than existing operations and maintenance activities, the risk of injury due to seismic activity would be minimal, and the no new impacts would occur.

¹⁵⁸ Tuolumne County, Tuolumne County General Plan Update, Draft Environmental Impact Report, 2015. Available at: <http://www.co.tuolumne.ca.us/index.aspx?NID=889>, accessed on January 24, 2017.

¹⁵⁹ Stanislaus County, *Draft Stanislaus County General Plan and Airport Land Use Compatibility Plan Update, Draft Program Environmental Impact Report*, 2016. Available at: <http://www.stancounty.com/planning/pl/gp/current/DraftEIR.pdf>, accessed on January 24, 2017.

¹⁶⁰ The County of Mariposa, *The County of Mariposa General Plan Volume III Technical Background Reports, Safety and Hazards*. Available at: <http://ca-mariposacounty.civicplus.com/DocumentCenter/Home/View/3104>, accessed on February 23, 2017.

¹⁶¹ United States Geological Survey, *Quaternary Fault and Fold Database of the United States, Interactive Fault Map*. Available at: <http://earthquake.usgs.gov/hazards/qfaults/>, accessed on January 24, 2017.

Seismic-Related Ground Failure or Landslides. Seismically induced ground failures, including landslides, settlement and liquefaction, can occur in areas underlain by saturated, loose, unconsolidated silts, sands, silty sands, and gravel. The project corridor is not located in an area that is susceptible to landslides.¹⁶² Additionally, the corridor is not susceptible to liquefaction hazards. Therefore, no impacts related to liquefaction, earthquake-induced settlement, and lateral spreading would occur.

Impact GE-2: The proposed project would not result in substantial soil erosion or the loss of topsoil. (Less than Significant)

Most maintenance activities performed under the vegetation management program would not result in ground-disturbing activities, and therefore would not result in increased soil erosion or loss of top soil. For example, trees would be cut but the trunk and roots would be left in place (see Section B.2.1., Transmission Vegetation Management Program, of the project description, above). Shredding does result in some ground disturbance, as woody vegetation is severed, separated and chopped into mulch-like material. However, the mulch generated from the shredding would be left on site and would provide erosion control where any disturbance occurs. Leaving the mulch on site would stabilize the soil and prevent loose soil from being transported off site during rain events.

Construction of the sand shed would require grading and excavation in a 2,500-square-foot area to prepare the site for the new structure. The culvert replacements could require excavation around the existing corrugated metal pipes currently in place. It is expected that construction at culvert sites would require a 200-square-foot area, approximately 100 square feet on each side of the inlet and discharge.

The proposed culvert replacement and sand shed ground disturbance activities could result in soil erosion or loss of topsoil. Overall, the disturbance would be minimal because of the short construction period for each culvert replacement. It is expected that work on large culverts would take about one day to complete, and for smaller culvert crossings, up to three replacements could be completed in one day. As described in Section B, Project Description, the project contractor would be required to implement SFPUC Standard Construction Measure 3 – Water Quality, including erosion and sedimentation controls tailored to each site to minimize impacts associated with wind and water erosion. With implementation of the standard measure, impacts related to erosion or loss of topsoil would be less than significant.

Once constructed, the temporarily disturbed areas at the replacement culverts and sand shed would be stabilized and no ground disturbing activities would be required during maintenance of these facilities. Therefore, impacts would be less than significant.

¹⁶² United States Geological Survey, Landslide Hazards Program, *Landslide Overview Map of the Conterminous United States*, 1982. Available at: <http://landslides.usgs.gov/hazards/nationalmap/>, accessed on January 25, 2017.

Impact GE-3: The proposed project would not be located on geologic unit or soil that is unstable, or that would become unstable because of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. (No Impact)

As noted under Impact GE-1, the project corridor is not located in an area that is susceptible to landslides, and the corridor is not susceptible to liquefaction hazards. All project-related work would occur within the existing right of way, and no construction activities would require trenching or deep excavations that could result in unstable conditions. As a result, there would be no impact.

Impact GE-4: The proposed project would not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property. (No Impact)

Soils with a moderate to high shrink-swell potential, also known as expansive soils, expand and contract with changes in moisture content and therefore do not provide a suitable substrate for construction without modification. Structures built on expansive soils would be subject to the expansion and contraction of these soils, which could cause structural damage if the structures are not properly engineered. Soil conditions along the project corridor are varied, and soil issues of concern in Stanislaus County and Tuolumne County include expansive soils.^{163,164}

Vegetation management would not involve construction of any structures along the project corridor; therefore, there would be no impact related to soil conditions. Procedures for construction of the sand shed and for culvert replacements would conform with SFPUC Standard Construction Measure 1, Seismic and Geotechnical Studies, described above in Section B.3.6, which requires characterization of the soil types and potential for hazards at the project site to ensure that structures are engineered and designed as necessary to minimize risks to safety and reliability. Adherence to the California Building Standards Code, Title 24, also would ensure that the construction of the sand shed would be responsive to on-site soil conditions. Culverts associated with the project are crossed quickly and relatively infrequently by SFPUC operations crews, and generally do not create risks to life or property, due to their relatively small size and limited use. Furthermore, culvert repair and replacement would improve on existing conditions, thus reducing the small existing risks. The soils in the sand shed site are in the Holland family of soils which are well drained and not generally expansive.¹⁶⁵ Therefore, there would be no impact.

¹⁶³ Stanislaus County, *Draft Stanislaus County General Plan and Airport Land Use Compatibility Plan Update, Draft Program Environmental Impact Report*, 2016. Available at: <http://www.stancounty.com/planning/pl/gp/current/DraftEIR.pdf>, accessed on January 24, 2017.

¹⁶⁴ Tuolumne County, *Tuolumne County General Plan Update, Draft Environmental Impact Report*, 2015. Available at: <http://www.co.tuolumne.ca.us/index.aspx?NID=889>, accessed on January 24, 2017.

¹⁶⁵ USDA – Natural Resources Conservation Service, Web Soil Survey. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>, accessed on June 12, 2017.

Impact GE-5: The proposed project would not substantially change the topography or any unique geologic or physical features of the site. (Less than Significant)

The proposed project consists of work within the existing transmission corridor and access road rights of way. The proposed sand shed would require excavation for construction of a building foundation, but the structure would be built in a flat area and no major changes to existing topography would occur. Culvert replacement activities would temporarily alter the existing topography during project construction activities, due to excavation activities required to replace or repair culverts. However, these excavations would not significantly alter existing topography along the project corridor because the culvert sites would be returned to their general preexisting conditions. The vegetation management component of the project would not alter the corridor's topographical features because these activities do not require excavation. The proposed project's impacts related to alteration of topography would be less than significant.

Impact GE-6: The proposed project would potentially directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Less than Significant with Mitigation)

Paleontological resources include fossilized remains or traces of animals, plants, and invertebrates, including their imprints, from a previous geological period. Collecting localities and the geologic formations containing those localities are also considered paleontological resources as they represent a limited, non-renewable resource and once destroyed, cannot be replaced.

Stanislaus County. Most of the geologic units in Stanislaus County are highly sensitive for paleontological resources.¹⁶⁶ The University of California Museum of Paleontology database contains 765 records of vertebrate fossils found in the county.¹⁶⁷ In addition, most of the Central Valley is immediately underlain by the Modesto and Riverbank Formations of the Late Pleistocene. These deposits represent sediment eroded from the uplifting Sierra Nevada. California's Pleistocene sedimentary units are typically considered highly sensitive for paleontological resources because of the large number of recorded fossil finds in such units throughout the state.

Tuolumne County. Tuolumne County is located primarily within the Sierra Nevada geomorphic province, with an extremely small portion (less than 10 percent) of the western boundary located in the Great Valley province.¹⁶⁸ Based on geologic mapping, the majority of the County, especially in the Sierra Nevada Mountains, is underlain by granitic and volcanic rocks, which are generally not fossil-bearing.¹⁶⁹ Paleozoic marine rocks occur in the western portion of the County and may contain fossils of marine invertebrates. A pocket of Plio-Pleistocene and Pliocene loose

¹⁶⁶ Stanislaus County, *Draft Stanislaus County General Plan and Airport Land Use Compatibility Plan Update, Draft Program Environmental Impact Report*, 2016. Available at: <http://www.stancounty.com/planning/pl/gp/current/DraftEIR.pdf>, accessed on January 26, 2017.

¹⁶⁷ Ibid.

¹⁶⁸ Tuolumne County, *Tuolumne County General Plan Update, Draft Environmental Impact Report*, 2015. Available at: <http://www.co.tuolumne.ca.us/index.aspx?NID=889>, accessed on January 26, 2017.

¹⁶⁹ Ibid.

consolidated deposits also occurs along SR 108 southwest of Jamestown and northwest of Chinese Camp, which is about seven miles north of the project corridor. This area may contain evidence of Pleistocene-era large mammals.

Mariposa County. A short segment of the project corridor passes through Mariposa County (i.e., approximately 800 feet), remaining within 500 feet of the Tuolumne County border. No studies are available on Mariposa County's paleontological resources, but potential for paleontological resources would likely correspond to the adjacent portion of Tuolumne County, which is underlain by granitic non-fossil-bearing rocks. However, because most of the County is undeveloped, the status of paleontological resources is unknown, and potential for impacts may exist.¹⁷⁰

Project implementation would not result in an extensive amount of ground disturbance in previously undisturbed areas. Construction of the proposed sand shed would require excavation up to 4 feet deep to construct the building's foundation. Construction activities associated with the culvert replacement component would also require excavation at depths between 4 to 6 feet, and a maximum of 10 feet; but excavation activities would occur largely in previously disturbed areas. The vegetation management would not involve excavation.

Any construction activity involving subsurface soil excavation in formations that may contain fossils has the potential to disturb or destroy paleontological resources. The proposed project's ground disturbance activities have the potential to encounter paleontological resources. However, the probability for impacts to paleontological resources depends on both the paleontological potential of the underlying geology and the magnitude and depth of excavation that would be required at any one site. As largely buried resources, the exact location or presence of fossils within unexposed and undisturbed geologic units cannot be determined, but the relative likelihood of encountering fossils can be estimated based on the paleontological potential of the rock unit.

The sand shed is in an area that is generally not fossil-bearing.

Given that some of the culvert replacements are in areas considered paleontologically sensitive, the proposed project's construction activities could result in damage to or destruction of unique paleontological resources. The potential is low given the limited area of disturbance and because activities would primarily occur where disturbance has already occurred. However, with the implementation of **Mitigation Measure M-GE-1: Unanticipated Discoveries for Paleontological Resources**, this impact would be reduced to a less-than-significant level by requiring work stoppage and the inspection of any fossil discoveries by a qualified paleontologist.

¹⁷⁰ County of Mariposa, *County of Mariposa General Plan – Volume IV Final Environmental Impact Report*, December 18, 2006. Available at <http://ca-mariposacounty.civicplus.com/DocumentCenter/Home/View/3113>, accessed on February 23, 2017.

Mitigation Measure M-GE-1: Accidental Discoveries for Paleontological Resources

If potential vertebrate fossils are discovered by construction crews, all earthwork or other types of ground disturbance within 50 feet of the find shall stop immediately and the monitor shall notify the Environmental Review Officer and the SFPUC. Work shall not resume until a qualified professional paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the qualified paleontologist may record the find and allow work to continue or recommend salvage and recovery of the fossil. The qualified paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations shall be consistent Society of Vertebrate Paleontology 1995 guidelines, and currently accepted scientific practice, and shall be subject to review and approval by the Environmental Review Officer. If required, treatment for fossil remains may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection (e.g., the University of California Museum of Paleontology), and may also include preparation of a report for publication describing the finds. The Environmental Review Officer shall ensure that information on the nature, location, and depth of all finds is readily available to the scientific community through university curation or other appropriate means.

Impact C-GE: The project, in combination with other past, present, and reasonably foreseeable future projects, would not result in a considerable contribution to cumulative impacts related to geologic hazards. (Less than Significant)

The geographic scope of potential geology and soils impacts is restricted to the project corridor and its immediate vicinity because related risks are localized and site specific. The project corridor is an area that is not very seismically active. Seismic impacts related to the project and other projects would be addressed by compliance with state and local seismic codes and applicable design standards. The proposed project would have no impacts associated with fault rupture, location on unstable soils or changes in topography and thus would not contribute to cumulative impacts. Due to the nature and location of each project element, the sand shed, culvert replacements and vegetation management activities associated with the proposed project would not combine with cumulative projects to result in cumulative impacts associated with exposure to the risks of ground shaking, liquefaction, landslides, or expansive soils. The only impact to which both the project and other projects could contribute would be potential to increase erosion in the project area and potential effects on paleontological resources.

Cumulative projects that could result in erosion in the same area are other SFPUC projects including the Mountain Tunnel Long-Term Improvements, Repair and Adit Improvements (projects 3, 7, and 8); various projects associated with the Rim Fire, including fire recovery, hazard tree removal, and fire rehabilitation projects (projects 18-21); the Don Pedro Reservoir Transmission Line project (project 9), and Rehabilitation of the San Joaquin Pipeline System (project 20). The proposed project impacts are expected to be minor due to the limited nature of proposed activities, and although some of the cumulative projects could entail a substantial level of construction and excavation, with implementation of SFPUC's Standard Construction Measure 3 described in Section B.3.6, Construction Best Management Practices for water quality, all SFPUC projects would be required to implement erosion and sedimentation controls

tailored to the project site, and potential for cumulative erosion impacts would be less than significant.

Impacts on paleontological resources are usually site-specific, and the proposed culvert repair and replacement activities would have no potential to combine with effects of other projects on undiscovered paleontological resources. Therefore, the proposed project, in combination with other past, present, and reasonably foreseeable future projects, would not result in a significant cumulative impact on paleontological resources.

E.15. HYDROLOGY AND WATER QUALITY

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
HYDROLOGY AND WATER QUALITY— Would the project:					
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The proposed project would not include the construction of housing; therefore, Topic E.15 (g) is not applicable and is not discussed further.

E.15.1. Setting

Hydrology along the project corridor is influenced by precipitation, surface water runoff, geologic stratigraphy, topography, soil permeability, and plant cover. The project corridor crosses over a number of named and unnamed intermittent streams and drainages.¹⁷¹ In the eastern portion of the project area, there are two named (Big Creek and Garrotte Creek) and three unnamed intermittent streams that are all adjacent to the Tuolumne Canyon. All these drain into the Tuolumne River. All these drainages have culverted road crossings.

The western portion of the project corridor includes six named intermittent drainages (from east to west): Big Creek, West Fork Creek, Quigley Creek, Ryberg Creek, North Fork Dry Creek, and Cashman Creek. In addition, there are approximately 16 unnamed intermittent drainages within the study area. Most of these drainages have culverted road crossings through them although some are only dry season fords.

Impact HY-1: The proposed project would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality. (Less than Significant)

Water Quality Standards

The proposed project would fall under the jurisdiction of the Central Valley Regional Water Quality Control Board and associated *basin plan*. The discharge of pollutants to waters of the U.S. from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System permit. Subsequent regulations expanded the permit program to address stormwater discharges, including those from construction activities that disturb a land area equal to or greater than 1 acre.

For stormwater discharges associated with construction activity in the State of California, the State Water Resources Control Board has adopted the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities¹⁷² to avoid and minimize water quality impacts attributable to such activities for projects that involve one acre or more of ground disturbance. Among other provisions, the Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan, which would include and specify best management practices designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving off-site into receiving waters.

Construction-Related Stormwater Discharge

Potential impacts to water quality resulting from the proposed project could occur primarily because of ground disturbing activities during culvert replacements, sand shed construction activities use of a masticator, and skidding trees. Site preparation, demolition, clearing, grading, excavation, soil stockpiling, backfilling, compacting, and site restoration would occur for the sand shed and each culvert replacement project site. Culvert replacement would also involve

¹⁷¹ Nomad Ecology, *Biological Resources Assessment, SFPUC Reliable Power Project*, 2018.

¹⁷² State Water Resources Control Board Order 2009-0009-DWQ: Construction General Permit.

spreading of spoil on the access road adjacent to the culvert. The project would use concrete and would generate concrete washout water, which, if released into waterways, could be toxic to fish and aquatic organisms. These construction activities have the potential to adversely affect the quality of nearby surface waters if stormwater runoff discharges from the sites that reach surface waters contain elevated levels of suspended sediment, turbidity, toxins, or other chemicals (i.e., due to presence of exposed soils, soil stockpiles, material staging areas, fuels, or chemicals associated with vehicles and construction equipment).

Given that no one project site would exceed one acre of disturbance and considering the proposed geographic extent of culvert replacements locations, it is expected that the project would not require coverage under the Construction General Permit. However, construction water quality best management practices would be implemented at each site in accordance with SFPUC Standard Construction Measure 3, as described in Section B, Project Description, including erosion control measures tailored to each site. Measures such as fiber rolls, gravel bags, silt fences, or other such methods would be employed to prevent discharges of sediment to surface waterways to minimize impacts associated with wind and water erosion. Measures to prevent discharge of pollutants from construction equipment to surface waters would include prohibiting leaking equipment, requiring secondary containment under generators and for other hazardous materials (i.e., lubricants, paints) that may be temporarily stored on site, and procedures for preventing spills as well as containing and cleaning-up spills if they were to occur. As noted above in Section B.3.4, placement of spoil generated during culvert replacement would be managed to as to ensure that spoil is not washed into nearby drainage areas. Spoil would be spread on the road, watered and compacted, and would not be placed within 100 feet of any surface waters or drainage courses or on slopes of greater than 10 percent. Implementation of these construction water quality best management practices would reduce potential construction-related impacts associated with erosion, runoff, and water quality degradation to a less-than-significant level.

Operations/Maintenance

Vegetation Management. In addition to manual, mechanical, and cultural control of vegetation along the project corridor, project implementation would also involve limited chemical control of vegetation. Chemical control would involve the limited application of herbicides along the project corridor to manage noxious weeds, invasive plants, and/or incompatible species prone to re-sprout in areas where they could come in contact with electric transmission infrastructure. Residue from application of chemicals used to control vegetation could potentially migrate into the hydrologic system, resulting in a negative effect on water quality. This potential would be minimized because the chemicals would be applied directly to the individual plants or tree stumps as opposed to large scale, foliar application (i.e., general spraying).

Implementation of the vegetation management program would be subject to the City's pest management ordinance (chapter 3 of the San Francisco Environment Code), which applies to City

and County of San Francisco-owned property, including utility rights of way.¹⁷³ The City's pest management ordinance contains requirements for how the City's pest management program is implemented; places limitations on pesticide products through a Reduced Risk Pesticide List; and establishes requirements for allowing exemptions to the Reduced Risk Pesticide List, posting and notification for pesticide treatments, recordkeeping (including necessary data), and accountability.¹⁷⁴ Under the City's pest management ordinance, pesticides are to be used only as a last resort as part of an integrated program such as the proposed vegetation management program, and must be used in a manner consistent with the limitations described on the Reduced Risk Pesticide List and U.S. EPA label. In addition, the use of chemicals would comply with the City's pest management ordinance's stipulations regarding when the use of chemicals would be appropriate. As specified in section 300.d.3.A of the San Francisco Environment Code, the use of chemicals would be a last resort, and factors such as weather conditions would be considered as to when the use of chemicals would be appropriate.

Herbicide use would be consistent with the approved list of herbicides from the City and County of San Francisco.

Implementation of these best management techniques would ensure that the project's impacts on water quality from vegetation control using chemicals would be less than significant.

Sand Shed. During the project's operational phase, use of the proposed sand shed would not result in the potential to adversely affect nearby surface waters. Sand, gravel, and other materials to be stored within the shed would be maintained within the structure and trucks would be loaded such that sand is not tracked out of the shed. With this practice, as proposed, impacts on hydrology and water quality would be less than significant.

Impact HY-2: The proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. (Less than Significant)

The project would not construct any wells, nor would it pump or extract groundwater in any way. As a result, the project would not deplete groundwater supplies to the extent that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Minor excavation during sand shed construction and culvert replacement construction activities would not be deep enough to reach groundwater. The proposed sand shed would be a small new impervious-surface area surrounded by a very wide area of pervious soil such that water would runoff from the shed area onto the surrounding ground where it would be absorbed. As a result, it would not interfere substantially with groundwater recharge. The vegetation management component of the project would not involve extraction of groundwater, nor would it interfere with groundwater recharge. Therefore, the impact would be less than significant.

¹⁷³ City and County of San Francisco, San Francisco Environment Code Chapter 3: Integrated Pest Management Program, enacted in October 1996, revised in 2011.

¹⁷⁴ Ibid.

Impact HY-3: The proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. (Less than Significant)

Transmission Vegetation Management Program. The vegetation management component of the project would not involve significant ground disturbing activities that would alter the existing drainage pattern of the area because it would not involve grading. In many cases, vegetation removal would involve only trimming, not removal of entire plants. Removal of trees would occasionally occur, but stumps would be left in place (see Section B.2.1., Transmission Vegetation Management Program, of the project description, above), thereby ensuring that root systems continue to hold soils in place such that exiting topography is maintained. Vegetation management program treatments that are considered ground disturbing activities under the Cultural Resources Section (use of masticators and log dragging) would only be expected to disturb approximately the top 2 inches of the ground, so the potential impacts to the drainage pattern of the site would be relatively minor. Therefore, impacts on drainage patterns associated with the vegetation management program would be less than significant.

Culvert Replacements. Culvert replacements would at times require installation of a bypass system that could temporarily alter the course of a stream. However, this would be done only during the short construction period required for repair or replacement of a culvert, after which the stream's original course would be restored. The culverts would be replaced in place and as such would not create new drainages or drainage patterns. The culvert replacements would not result in new impervious surfaces that could affect the surrounding drainage. Some of the culverts would be increased in size, which would improve drainage flow and would have a beneficial impact on drainage patterns once construction is complete. Therefore, impacts on drainage patterns associated with the culverts would be less than significant.

Sand Shed Construction. The proposed sand shed would measure 50 feet wide by 50 feet long, resulting in a new impervious area of 2,500 square feet, which would not substantially alter the area's existing drainage pattern because this new impervious surface would be small and located in a level area surrounded by pervious soils. Any runoff from the new structure would infiltrate directly into the surrounding ground. The shed would not be constructed within any existing drainages or require rerouting drainages. As a result, the impact on hydrology and water quality would be less than significant.

Impact HY-4: The proposed project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (No Impact)

Runoff from the project area does not directly enter a municipal or manmade stormwater drainage system. Additionally, the project would not substantially increase impervious surface coverage that could increase runoff to natural drainages that could at some point enter a municipal or manmade stormwater drainage system. As such, the project would not exceed the capacity of a municipal or manmade stormwater drainage system.

The culvert improvement component of the proposed project would improve the functionality of the culverts in the project corridor. The project's culvert improvements would include manual clearing of the watercourse above and below the pipe, cleaning out catch basins, repairing or improving energy dissipaters, erosion control and weed removal to prevent sedimentation. All these actions would improve the functionality and capacity of the natural drainage system in the project corridor, which would be a beneficial impact of the project.

Impact HY-5: The proposed project would not place structures in a 100-year flood hazard area or expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding because of the failure of a levee or dam. (No Impact)

The project corridor within Stanislaus County is not located within a 100-year flood zone.¹⁷⁵ For the vast majority of Tuolumne County, the 100-year floodplain is directly adjacent to waterways and other water bodies.¹⁷⁶ Most of the major waterways in Tuolumne County are within deeply defined drainage channels, capable of containing flood waters. In some areas, the drainage channels are less defined and are not capable of containing flood waters. However, because the project would not involve the construction of housing or structures for human occupancy, it would not expose people or the public to loss, injury, or death because of flooding. Therefore, the project would result in no impact to structures in a 100-year flood hazard area or expose people or structures to a significant risk involving flooding.

Impact HY-6: The proposed project would not expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow. (No Impact)

The project corridor is located about 90 miles from the Pacific Ocean coastline and is therefore not at risk from a tsunami. Seiches are standing waves in enclosed or partially enclosed water bodies such as harbors, lakes, and bays. They can be caused by sudden changes in winds or atmospheric pressure, earthquakes, and landslides. Although the project corridor crosses the Don Pedro Reservoir, the project does not include any new construction that would result in the exposure of people or structures to these hazards. Vegetation management activities and culvert repair work would be commensurate with existing, ongoing maintenance and would not change existing conditions with respect to risk from mudflow. Construction and operations of the sand shed would not result in staff or other workers to be permanently located on site, activities would not be expected to occur during times of mudflow risk (e.g., during periods of heavy rains), and would be located at a site with low slope and near the top of a ridgeline. Therefore, the project would have no impact.

¹⁷⁵ Stanislaus County, Draft Stanislaus County General Plan and Airport Land Use Compatibility Plan Update, Draft Program Environmental Impact Report, 2016. Available at: <http://www.stancounty.com/planning/pl/gp/current/DraftEIR.pdf>, accessed on February 21, 2017.

¹⁷⁶ Tuolumne County, Tuolumne County General Plan Update, Draft Environmental Impact Report, 2015. Available at: <http://www.co.tuolumne.ca.us/index.aspx?NID=889>, accessed on January 26, 2017.

Impact C-HY: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in cumulative hydrology and water quality impacts. (Less than Significant)

The geographic context for the cumulative impacts associated with surface water hydrology and water quality is the watershed area contributing to the same receiving waters as the proposed project. All cumulative projects listed in **Table 2** are within the watershed and have the potential to affect hydrology and water quality, which could result in cumulative impacts. The construction of the proposed sand shed could combine with construction of other cumulative projects in **Table 2** that would be constructed at the same time, resulting in potential effects on water quality from erosion, sedimentation, and release of hazardous materials used during construction. However, the proposed project and other projects in the vicinity would be required either to comply with the Construction General Permit and/or to implement best management practices designed to protect water quality, which would minimize impacts on the beneficial uses of water bodies in the vicinity. As a result, cumulative impacts on stormwater quality during construction would be less than significant.

Both the proposed project and the Rim Fire reforestation project include the use of herbicides. Herbicide use, as proposed, would be minimized and would be applied consistent with the City's pest management ordinance. Both the proposed project and Rim Fire reforestation project are required to implement best management techniques that would ensure that cumulative impacts on water quality from vegetation control using chemicals would be less than significant. Operational water quality impacts from the sand shed site would be less than significant as noted above under Impact HY-1 and, given its location, would not combine with the runoff impacts of other identified cumulative projects to result in a significant cumulative impact, given its isolated location surrounded by pervious soil.

No significant cumulative impacts would occur, and the proposed project's impacts related to hydrology and water quality, both individually and cumulatively, would be less than significant.

E.16. HAZARDS AND HAZARDOUS MATERIALS

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
HAZARDS AND HAZARDOUS MATERIALS— Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The project corridor is located over 3.5 miles away from the nearest private airstrip. Therefore, Topic E.16(f) is not applicable and not discussed further.

The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, hazardous material means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable

basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.¹⁷⁷ Many pesticides, including herbicides that may be used during the proposed project, as well as construction-related materials, are considered hazardous materials.

Impact HZ-1. The proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (Less than Significant)

Construction of the proposed culvert replacements and sand shed would require the routine use of hazardous materials such as herbicides, fuels, lubricants, paints, and solvents for construction vehicles and maintenance equipment. The proposed project would also be required to comply with many federal, state, and local laws and regulations regarding the storage, use, transport, and disposal of hazardous materials.

The SFPUC would be required to adhere to federal transportation regulations that address safety considerations for the transport of goods, materials, and substances, and governs the transportation of hazardous materials, including types of materials and marking of transportation vehicles.¹⁷⁸ The SFPUC would be required to comply with the Federal Occupational Safety and Health Administration, Title 29 of the Code of Federal Regulations, section 1910, which regulates workplace safety, including those workplaces that use hazardous materials and chemicals. The SFPUC would also be required to comply with the California Occupational Safety and Health Administration under California Code of Regulations Title 8, which specifies requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings. California Occupational Safety and Health Administration requirements include safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. California Code of Regulations Title 8 also includes hazard communication program regulations that contain worker safety training and hazard information requirements, procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparing health and safety plans to protect workers.

The City and County of San Francisco's municipal code includes provisions for storing, handling, and reporting hazardous materials (Health Code, Article 21 Hazardous Materials). Article 21, Division II Certificate of registration includes thresholds for when storage or handling of hazardous materials requires registration. One component of the hazardous material registration is a hazardous materials plan, which must include an inventory of the hazardous materials, a site plan, an emergency plan, and a training program for employees.

¹⁷⁷ California Health and Safety Code, Chapter 6.95, section 25501.

¹⁷⁸ Code of Federal Regulations section 49, Transportation. Office of the Secretary of Transportation. Available at: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49tab_02.tpl. Accessed Feb 23, 2017.

Following completion of construction, no hazardous materials are anticipated to be associated with the sand shed, other than fuel for trucks delivering sand or hauling sand for distribution during the winter.

As described in Section B, Project Setting, implementation of the vegetation management program could require the limited use of herbicides to control noxious weeds, non-native invasive plants, and incompatible vegetation under the transmission lines. As noted in the Project Description, herbicide would be applied with targeted application via a backpack sprayer. Application of all chemicals would be compliant with U.S. Environmental Protection Agency regulations regarding personal protective equipment, application and storage methodology, and all other applicable federal and state regulations and requirements.

Implementation of the vegetation management program would also be subject to the City's pest management ordinance (chapter 3 of the San Francisco Environment Code), which applies to City and County of San Francisco-owned property including rights of way.¹⁷⁹ The City's pest management ordinance is described in section C.1.5. Under the City's pest management ordinance, pesticides are to be used only as a last resort as part of an integrated program such as the proposed vegetation management program and must be used in a manner consistent with the limitations described on the Reduced Risk Pesticide List and U.S. Environmental Protection Agency label.

Herbicide use would be consistent with the approved list of herbicides from the City and County of San Francisco. Compliance with federal, state, and local regulations would reduce hazardous materials exposure risk during implementation of the vegetation management program to less than significant.

Because the proposed project's construction and maintenance activities would involve relatively minor quantities of hazardous materials, compliance with existing hazardous materials laws and regulations would ensure that project impacts due to the routine transport, use, or disposal of hazardous materials would be less than significant.

Impact HZ-2: The proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (Less than Significant)

The proposed project would involve the use of hazardous materials, such as herbicides for long-term vegetation management and routine construction-related chemicals (fuels, lubricants, paints, and solvents for construction vehicles and equipment). There is potential that during implementation of the proposed project, an accident could occur that results in a release of hazardous materials into the environment. However, the proposed project would be required to comply with applicable safety regulations regarding the transportation and use of such materials. Additionally, per Section B, Project Description, construction best practices would be implemented to 1) prevent and minimize accidental releases such as prohibiting leaking

¹⁷⁹ City and County of San Francisco, San Francisco Environment Code Chapter 3: Integrated Pest Management Program, enacted in October 1996, revised in 2011.

equipment, 2) require secondary containment under generators and for other hazardous materials (i.e., lubricants, paints) that may be used during maintenance activities or during construction, 3) impose procedures for preventing spills, and to 4) contain and clean-up spills if they were to occur.

The proposed project also includes excavation activities, primarily during culvert replacement and sand shed construction. It is unlikely that excavation activities could encounter contaminated soils given that areas where excavation would occur are rural, remote, and undeveloped. A review of hazardous materials site databases (Envirostor and GeoTracker) indicates no known hazardous sites are located within the potential areas of excavation. As such, the likelihood that excavation would encounter contaminated soils is considered less than significant.

Regardless, construction contractors and SFPUC staff would be required to comply with the federal Occupational Safety and Health Administration, Title 29 of the Code of Federal Regulations, section 191m, as well as California Occupational Safety and Health Administration under California Code of Regulations Title 8, which specifies requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings. Compliance with applicable federal, state, and local regulations regarding the transport, storage, and use of hazardous materials during the proposed project would reduce the potential impacts relative to hazardous materials to less-than-significant levels.

Impact HZ-3: The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (Less than Significant)

The Big Oak Flat School is located approximately 0.22-mile from one of the access roads. Hazardous materials associated with culvert replacement would be minimal and limited to fuels, lubricants, paints, and solvents for construction vehicles and maintenance equipment. The construction period at each of the culvert locations would be short term, and typically take one day to complete. No hazardous materials would be used or stored along the access roads or culverts once construction is complete. These materials are commonly used during construction, are not acutely hazardous, and would be used in small quantities such that an accidental spill or release would be unlikely to result in significant impacts on the school. The contractor would implement and follow best management practices to reduce the risk of impacts related to accidental spills or releases. Further, the proposed project is located on the far side of a hill from the only school within 0.25 mile of the proposed project, reducing the potential for impacts at the school itself, as the hillside would act as a natural barrier. Compliance with applicable federal, state, and local regulations regarding the transport, storage, and use of hazardous materials during the proposed project and implementation of best management practices during construction would reduce the potential impact to the school to a less-than-significant level.

Impact HZ-4: The proposed project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment. (No Impact)

A search of the California Department of Toxic Substances and Control's EnviroStor and State Water Resources Control Board's GeoTracker online databases was conducted to identify hazardous material sites within one mile of the project corridor. One site was listed on the

Department's EnviroStor database, located less than one mile from the project corridor: Snyder Lumber, which is classified as "Inactive: - Needs Evaluation."¹⁸⁰ The State Water Resources Control Board's GeoTracker database listed four open sites within 1/4 mile of the project corridor.¹⁸¹ The proposed project would not be located within any of these identified hazardous materials sites on lists compiled pursuant to Government Code section 65962.5. Proposed project activities would generally be limited to specific sites along the transmission line right of way, immediately adjacent to existing roadways, and at the sand shed. Exposure to known hazardous sites would not occur within the identified work areas for the proposed project. Of the proposed activities, only construction of the sand shed and the culvert replacements would involve excavation. Given that construction would not occur at a location on a listed hazardous materials site, there would be no impacts.

Impact HZ-5: The proposed project would be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport but would not result in a safety hazard for people residing or working in the project area. (Less than Significant)

There is one public airport within 2 miles of the project corridor: Oakdale Municipal Airport, which is part of the Airport Land Use Commission Plan for Stanislaus County. A portion of the project corridor falls within the planning area of the Oakdale Municipal Airport. The airport itself is located approximately 2 miles east of the City of Oakdale and less than 1 mile north of the westernmost part of the project corridor. The Airport Land Use Plan recommends that surrounding lands remain agricultural and rural to reduce future land use conflicts with the airport.¹⁸² Implementation of the proposed vegetation management program and culvert replacements would not change existing land use, nor would it create any sort of physical hazard to aircraft or the airport. Further, the proposed project would not increase the population living or working near the airport because management activities would be temporary and transient in nature and incorporated into existing maintenance of the transmission line. The proposed project would not result in a safety hazard for people residing or working in the project area and impacts would be less than significant.

¹⁸⁰ California Department of Toxic Substance and Control. Website: EnviroStor. Available: http://www.envirostor.dtsc.ca.gov/public/mapfull.asp?global_id=&x=-119&y=37&z=18&ms=640,480&mt=m&findaddress=True&city=moccasin,%20ca&zip=&county=&federal_sup_erfund=true&state_response=true&voluntary_cleanup=true&school_cleanup=true&ca_site=true&tiered_perm_it=true&evaluation=true&military_evaluation=true&school_investigation=true&operating=true&post_closure=true&non_operating=true. Accessed September 20, 2016.

¹⁸¹ California State Water Resources Control Board. Website: Geotracker. Available: <https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=moccasin%20ca>. Accessed September 20, 2016.

¹⁸² Stanislaus County, Airport Land Use Commission Plan. Adopted August 3, 1978, Amended May 20, 2004. Available: <http://www.stancounty.com/planning/agenda-aluc/alucplan.pdf>.

Impact HZ-6: The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

Due to its rural location, the project corridor is not located near many emergency services. Four fire stations and one police station are within 5 miles of the project corridor. Construction-related activities could interfere with an adopted emergency response plan or emergency evacuation plan if the activities were to involve the complete or partial closure of roadways, interfere with identified evacuation routes, restrict access for emergency response vehicles, or restrict access to critical facilities such as hospitals or fire stations. The project corridor traverses S. 120, SR 49, and SR 108, which are roadways that would be used as evacuation routes in Stanislaus and Tuolumne counties.^{183,184} Implementation of the vegetation management program, culvert replacements, and sand shed construction would occur within the existing transmission and access roadway rights of way and would not affect those evacuation routes. Lane closures may be necessary during culvert replacements; however, these would affect only right of way access roads, the largest of which is Cherry Lake Road, and emergency service access would be maintained always on this road per SFPUC Standard Construction Measure 4: Traffic Control Measures. The lane closures would be limited to one day for culvert replacements. These culvert replacements would be located along transmission line access roads and are not anticipated to interfere with existing emergency response routes. Lane or closures would not be required for implementation of the vegetation management program or construction of the sand shed. Therefore, impacts related to interference with an emergency response or evacuation plan would be less than significant.

Impact HZ-7: The proposed project would not expose people or structures to a significant risk of loss, injury or death involving fires. (Less than Significant)

The project corridor is in an area with a history of wildfires. In accordance with CalFire's Fire and Resources Assessment Program mapping, portions of the proposed project would be located within fire hazard severity zones. The project corridor east of Don Pedro Reservoir falls within a "Very High Fire Hazard Severity Zone". A small portion of the project just west of Don Pedro Reservoir would be located within a "High Fire Hazard Severity Zone", while the portion of the proposed project in the very westernmost part of Tuolumne County and in Stanislaus County would be in a "Moderate Fire Hazard Severity Zone".^{185,186,187}

¹⁸³ Tuolumne County, Tuolumne County General Plan Safety Element, December 26, 1996.

¹⁸⁴ Stanislaus County, Stanislaus County Emergency Operations Plan, September 2015.

¹⁸⁵ California Department of Forestry and Fire Protection (CalFire), Very High Fire Hazard Severity Zones in LRA As Recommended by CAL FIRE – Tuolumne County, September 2008. Available: http://frap.fire.ca.gov/webdata/maps/tuolumne/fhszl_map.55.pdf.

¹⁸⁶ California Department of Forestry and Fire Protection (CalFire), Very High Fire Hazard Severity Zones in SRA – Tuolumne County, November 7, 2007. Available: http://frap.fire.ca.gov/webdata/maps/tuolumne/fhszs_map.55.pdf.

¹⁸⁷ California Department of Forestry and Fire Protection (CalFire), Very High Fire Hazard Severity Zones in SRA – Stanislaus County. November 7, 2007. Available: http://frap.fire.ca.gov/webdata/maps/stanislaus/fhszs_map.50.pdf.

The activities associated with the proposed project would require the use of potential sources of ignition such as equipment with internal combustion engines and gasoline-powered equipment or tools. The use of these tools around dry vegetation could result in accidental wildfires from a spark, fire, or flame produced from the equipment in these high fire hazard areas. The proposed project's activities would be subject to California Public Resources Code regulations that govern the use of construction equipment in fire-prone areas to minimize risk of wildland fires.¹⁸⁸ Fire-prone areas include forest-, brush-, or grass-covered land. All the project activities would be required to comply with the requirements of these regulations, which restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment that has an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided for various types of work in fire-prone areas. The project would also be subject to the requirements of the California Fire Code (Chapter 14). The Fire Code includes requirements for fire safety during construction. Construction precautions against fire must include the following: prohibitions on smoking except in approved areas; appropriate storage of materials susceptible to ignition, such as flammable and combustible liquids and oily rags; procedures for cutting and welding; and maintenance of portable fire extinguishers and water for firefighting.

Implementation of the vegetation management program would, in a more systematic way, maintain a low plant cover within the transmission right of way, which in turn could reduce the risk of wildfires along the project corridor. As described in Section B, Project Description, the manual control method could require pile burning. The pile burning would occur a minimum of 50 feet away from the wire zone, and would be performed in accordance with Title 17, Smoke Management Guidelines for Agricultural and Prescribed Burning (subchapter 2) as required by the California Air Resources Board. These regulations limit prescribed burning during no-burn days, specify the need for a permit to conduct burning activities, and require submittal of a burning report.

As a result, through compliance with the applicable regulations, impacts related to fires would be less than significant.

Impact C-HZ-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would result in less than significant impacts related to hazards and hazardous materials. (Less than Significant)

The geographic scope for cumulative hazards and hazardous materials impacts is the project corridor and immediate vicinity. The proposed project would not be located on a hazardous materials site and would not create safety hazards associated with public or private air strips.

The proposed project and all present and future cumulative projects would use hazardous materials such as fuels, lubricants, paints and solvents during construction. However, because all construction activity would be required to comply with applicable federal and California

¹⁸⁸ California Public Resources Code section 4427-4442.

regulations, cumulative impacts associated with the use of hazardous materials during construction would be less than significant. Similarly, the vegetation management program element of the proposed project and Rim Fire Reforestation project would both employ herbicides, which would be used in accordance with federal, state, and local regulations and would thus not result in a significant cumulative impact. Federal and state regulations also provide sufficient safeguards to reduce potential cumulative impacts associated with upset and accident conditions to less-than-significant levels.

The proposed project would temporarily disrupt traffic on transmission line access roads but would not interfere with emergency response plans (for reasons discussed above), and it is not expected that any of the other cumulative projects would result in lane or road closures. No significant cumulative impact to emergency response would occur. The proposed project and cumulative projects would all use equipment that could be a source of sparks. However, the risk of wildlife would be maintained at less-than-significant levels by compliance with California regulations to minimize risk of wildfires. Additionally, the vegetation management program could reduce the risk of wildfires along the project corridor, as would the Rim Fire hazard tree, rehabilitation and habitat improvement projects. As such, no significant cumulative hazards impacts would occur (less than significant).

E.17. MINERAL AND ENERGY RESOURCES

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
MINERAL AND ENERGY RESOURCES—Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact ME-1: The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. (No Impact)

The project corridor does not pass over any demonstrated areas of mineral resource significance (MRZ-2a).^{189,190,191} It does pass over zones where significant resources are inferred (MRZ-2b), areas where significance is unknown but resources are known or inferred to occur (MRZ-3a, MRZ-3b), and areas where no minerals are known to occur and significance has not been evaluated (MRZ-4).^{192,193,194} Thus, the majority of the project corridor contains no areas of identified mineral resources of significance.¹⁹⁵ The only inferred minerals of significance (MRZ-

¹⁸⁹ California Department of Conservation Division of Mines and Geology, *DMG Open-File Report 77-16: Mineral Land Classification Study of the Stanislaus River Area, San Joaquin and Stanislaus Counties, California*, 1977.

¹⁹⁰ California Department of Conservation, *Mineral Land Classification of Stanislaus County, California. Special Report 173*, 1993.

¹⁹¹ California Department of Conservation Division of Mines and Geology, *DMG Open-File Report 97-09: Mineral Land Classification of a Portion of Tuolumne County, California, for Precious Metals, Carbonate Rock, and Concrete-Grade Aggregate*, 1997.

¹⁹² California Department of Conservation Division of Mines and Geology, *DMG Open-File Report 77-16: Mineral Land Classification Study of the Stanislaus River Area, San Joaquin and Stanislaus Counties, California*, 1977.

¹⁹³ California Department of Conservation, *Mineral Land Classification of Stanislaus County, California. Special Report 173*, 1993.

¹⁹⁴ California Department of Conservation Division of Mines and Geology, *DMG Open-File Report 97-09: Mineral Land Classification of a Portion of Tuolumne County, California, for Precious Metals, Carbonate Rock, and Concrete-Grade Aggregate*, 1997.

¹⁹⁵ California Department of Conservation, *Mineral Land Classification of Stanislaus County, California. Special Report 173. Plate 8C*, 1993.

2b) expected to exist in the project area are precious metals, just east of Moccasin.¹⁹⁶ These may be of future value to the region and residents of the state.

The proposed project would not remove these minerals, unless they are found in the very limited and shallow areas where culvert construction would occur. Culvert replacement activities would require excavations to a depth of 4-6 feet on average, with a maximum depth of 10 feet. The maximum surface area excavated would be 200 square feet for each one. For construction of the sand shed, a 50-foot by 50-foot area would be excavated to a depth of 3 to 4 feet. If mineral resources are very close to the ground surface, these project activities could encounter mineral deposits. However, the chances of this occurring would be minimal, because excavation depths would be shallow and significant mineral resources are rare in the project area. Additionally, the project transmission line corridor is within SFPUC's right of way for electric utilities and the culvert replacement sites are within existing access road right of way. Because the project corridor consists of an electrical transmission facility and roadways, which are uses not compatible with mineral or mining extraction, none of the project sites are currently available for mineral or resource extraction. Due to the forgoing reasons, the proposed project would not result in the loss, depletion, or reduction in future availability of a mineral resource. Therefore, no impact would occur.

Impact ME-2: The proposed project would not result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. (No Impact)

The General Plans of Stanislaus and Tuolumne Counties identify the presence of mineral resources via reference to reports by the California Department of Conservation Division of Mines and Geology. No additional locally-important mineral resource recovery sites are identified in the General Plans, and none of the counties' Specific Plans are relevant to the project area. The Stanislaus National Forest Plan Direction does not identify locally important mineral resource recovery sites. Therefore, no loss of availability of local mineral resources would occur. As a result, the proposed project would have no impact on the availability of a locally-important mineral resources recovery site delineated on a local general plan, specific plan or other land use plan.

Impact ME-3: The proposed project would not encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner. (Less Than Significant)

The proposed project would require the use of fuels (primarily gas and diesel) for a variety of activities, including vehicle travel, vegetation maintenance, excavation, backfill, and construction. The precise amount of fuel required for project activities is uncertain; however, it is expected that gasoline and diesel for construction equipment and worker and haul vehicles would be

¹⁹⁶ California Department of Conservation Division of Mines and Geology, *DMG Open-File Report 97-09: Mineral Land Classification of a Portion of Tuolumne County, California, for Precious Metals, Carbonate Rock, and Concrete-Grade Aggregate*, Plate 3, 1997.

comparable to quantities used for similar maintenance and construction projects, and that this consumption would not have a measurable effect on local and regional energy supplies.

The culvert replacement and sand shed construction portions of the project would result in the short-term use of fuel, water, and electricity during construction. The vegetation management component is an existing activity that requires diesel fuel for vehicle travel on an ongoing basis, as vegetation management occurs regularly. The amount used to go forward is presumed to be consistent with the amount used for existing vegetation management activities. Additionally, there would be no increase in SFPUC staffing to serve the proposed project. There would not be a significant increase in fuels for vehicle travel, and the project's fuel demand would be typical for a project of this type. Electricity use would be negligible. Water may be used in small amounts for dust control during culvert replacement or sand shed construction, as needed. Demand for energy resources would be relatively low, and project activities would not cause wasteful or excessive use of these resources.

As a result, the proposed project would have a less than significant impact in terms of resource use and would not result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner.

Impact C-ME: The proposed project, in combination with the past, present, and reasonably foreseeable future project in the site vicinity, would result in less than significant cumulative impacts to energy and minerals (Less than Significant)

The project would not contribute to any cumulative impact on mineral resources, so there would be no cumulative impact associated with mineral resources.

The geographic scope for potential cumulative impacts on energy and water resources consists of the project vicinity and broader region. All the identified cumulative projects listed in **Table 2** would require the use of fuel, water, and energy for construction and operation, which could result in a significant cumulative impact on energy and water resources. However, all these projects would be required to promote energy efficiency consistent with applicable building codes, standards, and regulations. In addition, and as described in Impact ME-3, the proposed project would require energy for construction; however, this analysis presumes that the wasteful use of fuels, energy, and water would not be economical for contractors. In addition, measures to reduce GHGs would prevent the wasteful use of fuel and energy. Therefore, the proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts on fuel, energy and water resources.

E.18. AGRICULTURE AND FOREST RESOURCES

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
18. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.					
—Would the project					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact AG-1: The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. (No Impact)

Portions of the project corridor through Stanislaus County are located on lands designated as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland.¹⁹⁷ The California Department of Conservation does not maintain data on the acreage of farmland in Tuolumne County.¹⁹⁸ The vast majority of agricultural land in Tuolumne County is grazing land, and not cultivated farmland that has greater value for crop production and could be classified as

¹⁹⁷ California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, *Stanislaus County Important Farmland*, 2015. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2014/sta14_no.pdf, accessed on January 24, 2017.

¹⁹⁸ Tuolumne County, Tuolumne County General Plan Update, Draft Environmental Impact Report, 2015. Available at: <http://www.co.tuolumne.ca.us/index.aspx?NID=889>, accessed on January 24, 2017.

Important Farmland.¹⁹⁹ The entirety of the project corridor is located within SFPUC-owned land, SFPUC easements, and along the right of way of access roads. The activities associated with the proposed project would occur within the easement and right of way area and would not change the existing use of the transmission right of way and access roads. As a result, the project would not result in the conversion of farmland to non-agricultural uses and there would be no impact.

Impact AG-2: The proposed project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. (No Impact)

Williamson Act contracts are used by local governments to preserve agricultural and open space lands by discouraging conversion to urban uses. In both Stanislaus and Tuolumne counties, portions of the project corridor pass through lands that are currently under Williamson Act contract.^{200,201} However, the entirety of the project corridor is located within existing SFPUC transmission right of way and along access road rights of way. The activities associated with the proposed project would occur within the rights of way, which are not subject to any Williamson Act contracts. The project corridor would continue to operate as a utility corridor and no changes to the access roads would occur. Therefore, the proposed project would not conflict with existing zoning for agricultural use nor with a Williamson Act contract. As a result, the project would have no impact.

Impact AG-3. The proposed project would not conflict with existing zoning for, or cause rezoning of, forest land or timberland; and would not result in the loss of forest land or conversion of forest land to non-forest use. (No Impact)

The proposed project activities would occur within the SFPUC's transmission right of way and along access road rights of way. None of the project's components would result in the conversion of forest land to non-forest use. The utility corridor vegetation management component would result in the removal or trimming of vegetation located within the strike zone of electrical transmission line infrastructure. The proposed sand shed would be constructed within the existing transmission right of way, and the culvert replacements would occur within the existing access road right of way. The proposed project would not increase the capacity of the transmission facilities or extend the area to which SFPUC serves electricity. Therefore, there would be no indirect effects related to growth inducement or resulting conversion of forest land. For these reasons, the proposed project would have no impact on the loss of forest land or conversion of forest land to non-forest use.

¹⁹⁹ Ibid.

²⁰⁰ California Department of Conservation, Division of Land Resource Protection, *Stanislaus County Williamson Act FY 2010/2011*, 2012. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Stanislaus_north_10_11_WA.pdf, accessed on January 24, 2017.

²⁰¹ California Department of Conservation, Division of Land Resource Protection, *Tuolumne County Williamson Act FY 2013/2014*, 2013. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Tuolumne_13_14_WA.pdf, accessed on January 24, 2017.

E.19. MANDATORY FINDINGS OF SIGNIFICANCE

<i>Topics:</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>	<i>Not Applicable</i>
MANDATORY FINDINGS OF SIGNIFICANCE— Would the project:					
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have impacts that would be individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact MF-1. The proposed project would have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. (Less than Significant with Mitigation)

As discussed in Section E under each of the resource topics in this Initial Study, the proposed project could result in potentially significant impacts on the environment with respect to cultural resources, biological resources, and paleontological resources, but all these potential impacts would be reduced to a less-than-significant level with mitigation.

As discussed in Impacts CR-1, CR-2, CR-3, and GE-1 ground-disturbing activities at the project site could result in potential impacts on unknown historical resources of the built environment, archaeological resources, human remains, tribal cultural resources, and paleontological resources. These impacts would be reduced to a less-than-significant level with the implementation of **Mitigation Measure M-CR-1a: Project-level Archaeological/Historic Resource Review Procedures, Mitigation Measures M-CR-1b: General Archaeological Resource Protection Measures, Mitigation Measure M-CR-3: Tribal Cultural Resources Interpretive Program, and Mitigation Measure M-GE-1: Unanticipated Discoveries for Paleontological Resources.**

As discussed in Impacts BI-1 and BI-2, the proposed project would have temporary impacts associated with ongoing maintenance activities but would not cause a substantial reduction in

habitat because the nature of the vegetation management program and the program of culvert replacement is such that disruption would be intermittent and temporary and would be fully mitigated through implementation of the **Mitigation Measures M-BI-1a through M-BI-1g** and **M-BI-2a through M-BI-2g**. Those measures would also ensure that impacts to fish and wildlife populations would be avoided or minimized and that sensitive species would be protected during on-going maintenance activities. As discussed in Impacts BI-3 and BI-4, **Mitigation Measures M-BI-3a: Riparian Vegetation Replacement, M-BI-3b: Avoidance or Restoration of Serpentine Chaparral, M-BI-4a: Wetland and Aquatic Habitat Avoidance and M-BI-4b: Compensation for Unavoidable Wetlands and Aquatic Habitat Impacts**, would ensure that sensitive communities, including jurisdictional wetland and waters of the U.S. would be avoided or restored after maintenance or construction activities are complete. As discussed in Impact BI-5, there would be no impacts on native resident or migratory wildlife corridors, and the project would not impede the use of native wildlife nursery sites. The discussion of Impact BI-6 documents that conflicts with local ordinances would be less than significant.

Impact MF-2: The proposed project would not have impacts that would be individually limited, but cumulatively considerable. (Less than Significant)

Table 2 provides a cumulative projects list of past, present, and reasonably foreseeable projects. The geographic context for the proposed project's cumulative impact analyses is generally the SFPUC right of way, culvert locations, and immediate vicinity, with an expanded geographic scope applied to some resource topics (e.g., air quality).

Cumulative impacts for each environmental topic are provided in the relevant subsections of Section E, Evaluation of Environmental Effects, of this Initial Study. For the reasons described in Topics E.1 through E.18, either there would be no potentially significant cumulative impacts or, with implementation of mitigation measures to address potentially significant project-level impacts, the proposed project's contribution to the cumulative impacts on the environment would be less than cumulatively considerable.

Impact MF-3: The proposed project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. (Less than Significant with Mitigation)

The discussion in Section E, Evaluation of Environmental Effects, identifies potentially significant impacts related to cultural resources, biological resources, and paleontological resources. Mitigation measures have been identified in this Initial Study to reduce all potentially significant impacts to a less-than-significant level. Impact determinations of "no impact" or "less-than-significant impact" were made for the following environmental issues: land use, air quality, population and housing, greenhouse gas emissions, noise, wind and shadow, recreation, utilities and service systems, public services, geology and soils (other than paleontology), hydrology, mineral and energy resources, and agricultural and forest resources. Therefore, with implementation of the mitigation measures specified in Sections E.1 through E.18, the proposed project would not result in substantial adverse effects, direct or indirect, on human beings.

F. MITIGATION MEASURES

The following mitigation measures have been agreed to by the SFPUC and are necessary to avoid potentially significant impacts of the proposed project.

Mitigation Measure M-CR-1a: Implementation of Project-level Archaeological/Historic Resource Review Procedures

The following mitigation measure is required to avoid potential impacts from project activities on known and yet undiscovered archaeological and historical resources.

1. The SFPUC shall develop and maintain a confidential GIS database of cultural resources and associated site records within the area of potential effects in conjunction with preparation of the Mitigation Monitoring and Reporting program for this MND. This database shall include, at a minimum, site number; site type (historic, prehistoric, or both); location cross-referenced to transmission line tower numbers or other clearly identifiable geographic landmarks; eligibility recommendation; and citations to associated site records, surveys or other archaeological report in which the site is discussed. This database shall be maintained and updated, as needed, with the results of each subsequent archeological records searches or survey. Site locational data shall be held confidential, and made available only to the SFPUC environmental planner or to professional archaeologists. Locational information provided to work crews shall identify archaeological site areas as environmentally sensitive but shall not explicitly identify archaeological resources.
2. Prior to ground-disturbing activities, the SFPUC shall verify that the archeological records search of records at the California Historical Resources Information System Information Center, and of Forest Service and BLM records for the planned work locations occurred within the last 5 years. If not, the SFPUC shall update the record search for those areas.
3. Prior to ground-disturbing activities, the SFPUC shall verify that the archaeological field survey at the planned work locations occurred within the last 10 years. If not, the SFPUC shall conduct a new survey for those areas. The survey methodology shall maximize the identification of archeological resources, particularly for assessing areas with low visibility and higher potential for resources. The survey methodology shall be as follows:
 - d. All archaeological surveys shall comply with professional standards for complete intensive survey current at the time of the survey. Surveys shall be performed at no greater than 50-foot transect intervals, except in areas with slopes over 20% or areas where, based on the judgment of a professional archeologist, there either is no potential for resource to be detected (e.g. paved areas; filled areas) and/or to survive (e.g., road cuts to subsoil). All archaeological resources and historic

features shall be documented, at a minimum, on the DPR 523 primary record. If site area documentation requires more than a single mapped point, an archaeological site record shall be completed and shall include a sketch map with a mapped datum point and identified site boundaries, to scale or labeled with dimensions. Each record also shall discuss the basis for establishment of site boundaries, and include an assessment of the potential for subsurface deposits within and beyond the mapped site boundaries.

- e. Areas considered to have higher potential for resources are defined to be areas of shallow to moderate slope within approximately 300 feet of a stream, seasonal creek, spring, vernal pool, or other natural water source; along ridge lines; areas of moderate to shallow slope with bedrock outcroppings; and areas within approximately 300 feet of observed archaeological/historic architectural features.
 - f. In areas of higher potential for resources as defined above and where ground surface visibility is poor (i.e., less than approximately 40 percent), survey methods shall be intensified as follows: Survey transects shall be spaced no more than 30 feet apart. Surface scrapes shall be performed with a trowel or shovel to clear vegetation from a 1-foot by 1-foot area at no more than 50-foot intervals. Particular attention shall be given to rodent burrow spoils and exposures provided by animal and vehicle tracks, road cuts and shoulders, and other fortuitous exposures.
4. An SFPUC environmental planner shall perform a site-specific review of each planned project activity and implement the following cultural resource management actions:
- d. Identify whether the planned work would involve ground-disturbing activities (including but not limited to hand or mechanical excavation, such as excavation or grading for culvert replacements and associated maintenance or improvements; clearing, grading or excavation for construction of the sand shed; use of tracked equipment (such as a masticator); use of manual or mechanical equipment that entails removal of the roots of vegetation; and the dragging of felled trees or limbs.
 - e. Confirm whether the record search and survey at the location of planned ground-disturbing activities are current, per items 1 and 2, above.
 - f. Review if there are any known archeological resources near planned ground-disturbing activities and:
 - vi. If no known resources are present within 50 feet of the nearest planned ground disturbing activities, the SFPUC may proceed with the proposed work. Mitigation Measure M-CR-1b.1 (Accidental Discovery) would be implemented, and Mitigation Measures M-CR-1b.2 (Archaeological

Monitoring) and M-CR-1b.3 (Archaeological Testing/ Data Recovery), as applicable.

- vii. If known resources are limited to historic linear features (e.g., walls, roads, railroad, transmission lines, and ditches) that do not include associated archaeological features or deposits are present within 20 feet of the planned work area, the SFPUC shall flag a 10-foot buffer around the resource as a ground-disturbance avoidance zone. Once the buffer is flagged, work may proceed outside this buffer. Mitigation Measure M-CR-1b.1 (Accidental Discovery) would be implemented, and Mitigation Measures M-CR-1b.2 (Archaeological Monitoring) and M-CR-1b.3 (Archaeological Testing/Data Recovery), as applicable.
 - viii. If any other known resource is present within 100 feet of the planned ground disturbing activities, the SFPUC environmental planner or a qualified archaeologist shall demarcate a 50-foot buffer around the previously-mapped boundary of the resource as a ground-disturbance avoidance zone. Once the buffer is demarcated on the ground work may proceed outside of this buffer.
 - ix. If ground-disturbing activities must take place within a buffer identified above, a qualified archaeologist shall then conduct a new archaeological field survey to confirm or modify previously-recorded site boundaries and to demarcate the site boundary on the ground, and shall include within the boundary any areas where, based on professional archaeological judgment, there is reason to suspect that buried deposits might be present. The archeologist shall also update the archeological site record and map as needed. No ground-disturbing activities shall be conducted within the demarcated site boundary.
 - x. If avoidance of ground disturbing activities is not feasible within the site boundary of any historic or prehistoric archaeological resource (as demarcated by the qualified archaeologist under item iii, above), the SFPUC shall ensure that a qualified archaeologist develops a site-specific treatment plan in consultation with the Planning Department's archaeologist pursuant to Mitigation Measure M-CR-1b.3 (Archaeological Testing/Data Recovery). No ground disturbing activities shall take place within the site boundary of any historic or prehistoric archaeological site prior to Planning Department approval of the treatment plan.
5. The SFPUC shall submit an annual report to the Planning Department that includes a map or other spatial data showing where ground-disturbing activities occurred within the buffers of archeological sites and describes the impact avoidance measures

implemented or refers to the treatment plans developed per item 4.c.v, above, for where ground-disturbing work within identified sites could not be avoided.

6. In the unlikely event that artifacts are incidentally collected from the field, the SFPUC shall follow U.S. Forest Service land management policies on U.S. Forest land; shall consult with the EP archaeologist on curation of finds made elsewhere; and shall ensure that any collected artifacts are curated with appropriate documentation at an established curation facility.
7. Where ground-disturbing activities would occur within the boundary of a known prehistoric site, the SFPUC shall offer an opportunity for the traditionally associated Native American group for that area to monitor the activity in conjunction with the archaeological monitoring or other archaeological treatment required per Measure M-CR-1b.1 (Accidental Discovery).

Mitigation Measure M-CR-1b: General Archaeological Resource Protection Measures

The following measures shall be implemented in the context of project review, as described above, and also as applicable during program implementation.

1. Accidental Discovery

The following mitigation measure is required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in *CEQA Guidelines* Section 15064.5(a) and (c), on tribal cultural resources as defined in *CEQA Statute* Section 21074, and on human remains and associated or unassociated funerary objects.

Work Crew Archeological Training. SFPUC shall ensure that the Planning Department archeological resource “ALERT” sheet is distributed to the work crews and crew supervisors and to any contractors involved in ground-disturbing work. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the “ALERT” sheet is circulated to all field personnel including, machine operators, field crew, supervisory personnel, etc.

Archaeological training shall be provided to all vegetation management personnel performing or managing soils disturbing activities by a qualified archaeologist or designee prior to the start of soils disturbing activities, annually or more frequently, as needed to ensure that all persons involved in the work have been trained. The training may be provided in person or using a video and include a handout prepared by or approved by the qualified archaeologist. The video and materials will be reviewed and approved by the ERO. The purpose of the training is to enable personnel to identify archaeological resources that may be encountered and to instruct them on what to do if a potential discovery occurs. Images of expected archeological resource types and archeological testing and data recovery methods should be included in the training.

The SFPUC shall provide the Environmental Review Officer (ERO) annually with documentation confirming that all field personnel have received copies of the Alert Sheet and have taken the preconstruction archeological training.

Should any indication of an archeological resource be encountered during any soils disturbing activity of the project, the project SFPUC shall immediately notify the ERO and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures should be undertaken.

If the ERO determines that an archeological resource may be present within the project site, SFPUC shall retain the services of a qualified archaeological consultant. The archeological consultant shall advise the ERO as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the SFPUC, as detailed under 1.2 and 1.3, below. The ERO may also determine that the archeological resource is a tribal cultural resource and will consult with affiliated Native Americans tribal representatives, if warranted.

Measures that will then be implemented, based on the recommendations of the archeological consultant in consultation with the ERO, tribal representatives that have requested consultation, and SFPUC. These measures might include: preservation in situ of the archeological resource; an archaeological monitoring program; an archeological testing program; or an interpretative program or other culturally appropriate treatment based on consultation. If an archeological monitoring program, archeological testing program, or interpretative program is required, it shall be consistent with the Environmental Planning (EP) division guidelines for such programs and reviewed and approved by the ERO in consultation with tribal representatives. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource may be at risk from vandalism, looting, or other damaging actions.

Consultation with Descendant Communities: On discovery of an archeological site²⁰² associated with descendant Native Americans, an appropriate representative of the Native American group, which shall include the Tuolumne Band of Me-Wuk, and the ERO shall be contacted. The Native American representative shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the ERO regarding appropriate treatment of the site, of recovered

²⁰² The term “archeological site” is intended here to minimally include any archeological deposit, feature, burial, or evidence of burial.

materials from the site, and, if applicable and desired, any interpretative treatment. A copy of the Final Archaeological Resources Report shall be provided to the representative of the descendant group.

Human Remains, Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and Federal Laws, including immediate notification of the County Coroner and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code Sec. 5097.98). The ERO shall also be immediately notified upon discovery of human remains. The archeological consultant, project sponsor, ERO, and MLD shall have up to but not beyond six days after the discovery to make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects. Nothing in existing State regulations or in this mitigation measure compels the project sponsor and the ERO to accept recommendations of an MLD. The archeological consultant shall retain possession of any Native American human remains and associated or unassociated burial objects until completion of any scientific analyses of the human remains or objects as specified in the treatment agreement if such an agreement has been made or, otherwise, as determined by the archeological consultant and the ERO. If no agreement is reached State regulations shall be followed including the reburial of the human remains and associated burial objects with appropriate dignity on the property in a location not subject to further subsurface disturbance (Pub. Res. Code Sec. 5097.98).

Final Archeological Resources Report. The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. The Draft FARR shall include a curation and deaccession plan for all recovered cultural materials. The Draft FARR shall also include an Interpretation Plan for public interpretation of all significant archeological features.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO, the consultant shall also prepare a public distribution version of the FARR. Copies of the FARR shall be distributed as follows: California Archaeological Site Survey Central California Information Center (CCIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the CCIC. The Environmental Planning division of the Planning Department shall receive one bound and one unlocked, searchable PDF copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of public interest in or the high interpretive value of the resource, the ERO may

require a different or additional final report content, format, and distribution than that presented above.

2. Archaeological Monitoring Program

Based on the reasonable potential that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources and on human remains and associated or unassociated funerary objects. The project sponsor shall retain the services of an archaeological consultant. The archeological consultant shall undertake an archeological monitoring program. All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of *construction* can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a) and (c).

Consultation with Descendant Communities. Applicable provisions of measure 1, above, shall be implemented.

Archeological monitoring program (AMP). The archeological monitoring program shall minimally include the following provisions:

- The archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the AMP reasonably prior to any project-related soils disturbing activities commencing. The ERO in consultation with the project archeologist shall determine what project activities shall be archeologically monitored.
- The archeological consultant shall undertake a worker training program for soil-disturbing workers that will include an overview of expected resource(s), how to identify the evidence of the expected resource(s), and the appropriate protocol in the event of apparent discovery of an archeological resource;
- The archaeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO until the ERO has, in consultation with the archeological consultant, determined that project construction activities could have no effects on significant archeological deposits;
- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;
- If an intact archeological deposit is encountered, all soils disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect all soil-disturbing work until the deposit is evaluated. The

archeological consultant shall immediately notify the ERO of the encountered archeological deposit. The archeological consultant shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, present the findings of this assessment to the ERO.

If the ERO in consultation with the archeological consultant determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, at the discretion of the project sponsor either:

- F) The proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or
- G) An archeological testing and data recovery program shall be implemented, as detailed under 3, below.
- H) Treatment of human remains and reporting shall be implemented as specified under 1, above.

3. Archeological Testing

Based on a reasonable presumption that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried historical resources and/or on human remains and associated or unassociated funerary objects. The project sponsor shall retain the services of a qualified archaeological consultant. The archeological consultant shall undertake an archeological testing program as specified herein. In addition, the consultant shall be available to conduct an archeological monitoring and/or data recovery program if required pursuant to this measure. The archeological consultant's work shall be conducted in accordance with this measure at the direction of the Environmental Review Officer (ERO). All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend ground disturbing work at the resource location for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a) and (c).

Consultation with Descendant Communities: Applicable provisions of measure 1, above, shall be implemented

Archeological Testing Program. The archeological consultant shall prepare and submit to the ERO for review and approval an archeological testing plan (ATP). The archeological testing program shall be conducted in accordance with the approved ATP. The ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the proposed project, the testing method to be used, and

the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

At the completion of the archeological testing program, the archeological consultant shall submit a written report of the findings to the ERO, as detailed under measure 1, above. If based on the archeological testing program the archeological consultant finds that significant archeological resources may be present, the ERO in consultation with tribal representatives and the archeological consultant shall determine if additional measures are warranted. Additional measures that may be undertaken include additional archeological testing, archeological monitoring, and/or an archeological data recovery program. No archeological data recovery shall be undertaken without the prior approval of the ERO or the Planning Department archeologist. If the ERO determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, at the discretion of the project sponsor either:

- I) The proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or
- J) A data recovery program shall be implemented, unless the ERO in consultation with tribal representatives determines that the archeological resource is of greater interpretive or other cultural value than research significance and that interpretive or other cultural treatment of the resource is feasible.

Archeological Data Recovery Program. The archeological data recovery program shall be conducted in accord with an archeological data recovery plan (ADRP). The archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the ADRP prior to preparation of a draft ADRP. The archeological consultant shall submit a draft ADRP to the ERO. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.

The scope of the ADRP shall include the following elements:

- *Field Methods and Procedures.* Descriptions of proposed field strategies, procedures, and operations.
- *Cataloguing and Laboratory Analysis.* Description of selected cataloguing system and artifact analysis procedures.

- *Discard and Deaccession Policy.* Description of and rationale for field and post-field discard and deaccession policies.
- *Interpretive Program.* Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program.
- *Security Measures.* Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.
- *Final Report.* Description of proposed report format and distribution of results.
- *Curation.* Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.

Human Remains, Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall be implemented as detailed under section 1, above.

Final Archeological Resources Report. The archeological consultant shall submit a Draft and Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken, as detailed under section 1, above.

Mitigation Measure M-CR-3: Tribal Cultural Resource Protection, Tribal Consultation and Implementation of Tribal Cultural Resources Treatment Plan.

Upon identification of cultural resources of Native American origin that are within the area where ground-disturbing project activities will occur, the Environmental Review Officer (ERO) will consult with the tribal representative(s) to determine whether the resource represents a Tribal Cultural Resource. If the tribe indicates that the resource is a Tribal Cultural Resource, the ERO shall consult with the SFPUC and the tribe to determine whether effective long-term protection and the avoidance of impacts are feasible, and to identify how this will be accomplished. Potential means may include, but would not be limited to measures such as flagging of boundaries on the ground prior to work and avoiding the resource; allowing brush to grow to obscure the resource; and blocking vehicle access routes to or across the resource. The identified measures will be memorialized in a memo attached to the archaeological site record.

If the ERO, in consultation with the affiliated Native American tribal representatives and the SFPUC, determines that there are no feasible and effective means of preserving the tribal cultural resource in place, the ERO and SFPUC shall consult with the tribal representative and a qualified archaeologist to implement additional applicable measures as outlined in **Mitigation Measures M-CR-1a: Project-level Archaeological/Historic Resource Review Procedures and M-CR-1b: General Archaeological Resource Protection Measures**, such as archeological testing or monitoring, as appropriate to preserve the archaeological values of the resource. SFPUC shall supply the tribe with copies of the reports of archaeological work.

SFPUC's archaeological consultant shall prepare and distribute to the tribe a synopsis of archaeological results for the use of the tribe in a format of the tribe's choice.

In addition, in cases where project work will substantially damage a significant Tribal Cultural Resource, and if requested by the tribe, the ERO and SFPUC shall consult with the tribe to develop a **Tribal Cultural Resources Treatment Plan**, to identify additional interpretive, educational or cultural measures to preserve the tribal cultural values represented by the resource, and the plan shall be implemented by SFPUC. The plan shall identify, as applicable, materials, content and formats, venues for installation, producers or artists for the displays, as applicable; a long-term maintenance program; and a schedule for implementation; and will be subject to approval by SFPUC and the ERO. The plan may include, but would not be limited to, measures such as the following:

- Development and installation or distribution of interpretive products such as artifact displays, interpretive signage, and artist installations by Native American artists;
- Preparation and distribution and/or archival preservation of oral histories
- Educational materials or classroom teaching kits related to the affected resource;
- One or more archaeological training presentations for the tribe and identification of opportunities for the tribe to participate in future archaeological projects or resource monitoring
- Measure to ensure access to traditional resources, such as basketry or stone tool materials associated with the TCR site, or to provide access to alternative sources of such material at other protected locations

Mitigation Measure M-BI-1a: Worker Environmental Awareness Training

The SFPUC's Natural Resources and Lands Management Division staff shall oversee the preparation and implementation of an annual Worker Environmental Awareness Training, which shall be conducted for all work crews prior to starting work on the project, and for any new SFPUC worker or contractor prior to their participation in work associated with vegetation management or culvert replacement activities. Training materials shall be updated annually to ensure that the list of special-status species is current. The training shall include a brief review of locations of sensitive areas, photographs of special-status species and their descriptions of their habitat, possible fines for violations, avoidance recommendations, and requisite actions should sensitive species be encountered. The program shall cover the mitigation requirements, environmental permits, and regulatory compliance requirements. Additional training shall be conducted as needed including potential morning "tailgate" sessions to update crews as they advance into sensitive areas. A record of all personnel trained during the project shall be maintained for compliance verification by the SFPUC's Natural Resources and Lands Management Division staff. Training may be provided via video recording, with recordings to be evaluated annually to determine if updates are required.

Mitigation Measure M-BI-1b: Annual Vegetation Management and Culvert Work Planning

SFPUC operations staff shall submit an annual plan at the end of each year to the SFPUC Natural Resources and Lands Management Division summarizing all proposed vegetation management and culvert replacement activities for the upcoming year.

Before project activities are conducted within a given work area, a qualified biologist shall conduct a biological resources evaluation of the habitat(s) and habitat elements within, and adjacent to, the work area (including whether additional preconstruction surveys or species-specific surveys are needed) to confirm whether special-status species could be adversely affected by project activities. If the biologist confirms that a special-status species could be adversely affected by a project activity, the environmental planner in consultation with the biologist shall identify which specific adjustments to planned activities listed below, including but not limited to, would be required, including altering: (a) the timing of project activities (e.g., limiting activities to the non-breeding season); (b) the vegetation control method; and (c) other specific project elements (e.g., the location of the equipment staging area). In consultation with the biologist, the environmental planner shall condition the project activity work plan with avoidance measures and best management practices that shall be required.

In confirming the requisite mitigation measures for a given work plan, the environmental planner, following consultation with a qualified biologist, shall consider: (a) the specific project location; (b) the type, duration, and intensity of the activity; (c) habitat types present in and adjacent to the work area; (d) special-status species that could be affected by the activity; and (e) the time of year the activity would occur (e.g., breeding versus non-breeding season). If the biologist confirms species-specific surveys are needed, the surveys shall adhere to the methods outlined in the relevant mitigation measure(s) for that species. After completing the surveys, the biologist shall coordinate with the environmental planner to confirm whether additional measures shall be implemented prior to the commencement of project activities to avoid significant adverse effects to special-status species, as outlined in the specific mitigation measures. These measures may include establishing a buffer zone or changing the work schedule to avoid adverse effects to special-status species.

Mitigation Measure M-BI-1c: Special-Status Plant Avoidance Measures

Work activities within or adjacent to special-status plant populations shall be limited to occur outside of the growing season for that species to the extent feasible to allow for germination, maximum seed set and therefore avoidance of direct mortality.

If work is to occur within or adjacent to special-status plant populations during the growing season (i.e., from December 31-July 31, depending on species), individuals or colonies of plants shall be flagged for avoidance. Timing of flagging efforts shall correspond with the blooming period when the species is most conspicuous and easily recognizable, during the blooming period prior to work activities. Therefore, pre-construction surveys for these annual plant species shall be conducted in advance of work beginning, depending on the species:

- April 1-June 1 for yellow-lip pansy monkeyflower
- April 15-May 15 for Ewan's larkspur, hogwallow starfish and San Benito poppy

- April 15-June 30 for slender-stemmed monkeyflower and Stanislaus monkeyflower
- May 15-July 15 for Serpentine bluecup, Mariposa clarkia and Small's southern clarkia
- June 1-July 31 for Colusa grass, Hernandez bluecurls, Hoover's Cryptantha, and Patterson's navarretia.
- In limited areas of the Ranch vegetation management unit where foothill Jepsonia exists, flagging shall occur between October 1-October 31 of the year preceding work activities.

Mitigation Measure M-BI-1d: Minimize the Duration of Special-status Plant Disturbance

The duration of disturbance, especially for *Clarkia* species, shall be minimized to less than one year (i.e., one germination and seed set event) to avoid potential extirpation of a population.

Mitigation Measure M- BI-1e: Special-Status Plant Protection

For Manual Control:

- Manual clearing of vegetation shall be buffered from special-status plant populations by 10 feet to prevent damage to live plants, covering of soil seed bank from piling of biomass materials or soil, or plant damage from trampling. If manual clearing of vegetation is required within special-status plant habitat, it shall be conducted during the non-growing or seed set season (generally August 1-December 30, depending on species) and not during the germination and seed set season (generally December 31-July 31, depending on species). Prior to manual vegetation clearing in special-status plant habitat, populations shall be flagged by a qualified botanist to clearly delineate population boundaries during the appropriate blooming season. If manual control affects a special-status plant population during the germination and seed set window, then **Mitigation Measure M-BI-1f** below applies.

For Mechanical Control:

- Mechanical clearing of vegetation shall be prohibited within 50 feet of special-status plant populations to ensure masticated material is not distributed onto live plants or the soil seed bank. If mechanical clearing of vegetation is required within special-status plant populations, it shall be conducted during the non-growing season after seed has set (generally August 1-December 30, depending on species) and not during the germination and seed set window (generally December 31-July 31, depending on species). Prior to mechanical vegetation clearing, populations shall be flagged by a qualified botanist to clearly delineate population boundaries during the appropriate blooming season. If mechanical control cannot avoid special-status plant populations during the germination and seed set window, then **Mitigation Measure M-BI-1f** shall apply.

For Chemical Control:

- Herbicide application for spot treatment and selective elimination of target species shall be performed by a qualified applicator in compliance with the recommendations of the

pest control advisor. The pest control recommendation from the pest control advisor will include specifications regarding wind speed, direction, and precipitation conditions and shall ensure protection of sensitive plant species populations.

Mitigation Measure M-BI-1f: Restoration of Special-status Plants

If work is to occur during the growing season (generally December 31-July 31, depending on species), and sensitive plant populations within work areas have the potential to be significantly impacted (i.e., cannot be avoided), a qualified botanist shall:

1. Identify the estimated number of each sensitive plant species present within the boundaries (in square feet or acres) of the population.
2. If appropriate, seed from the plants to be impacted or appropriate reference sites shall be collected, properly stored, and replanted. Perennial individuals that are likely to be impacted may be translocated by digging up plants and replanting in suitable habitat under the supervision of a qualified botanist.
 - a. Soils removed from special-status plant habitat shall be clearly labeled and stockpiled separately. The stockpiles shall be protected from non-native plant propagules, with care taken to ensure the soil does not overheat, killing the native plant propagules in the soil. This shall include placing the stored topsoil where it is not in contact with non-native grassland soil and protecting it with weed-free straw mulch, jute netting, or other suitable cover.
3. The restoration of special-status plants shall be considered successful upon achieving the following after three years:
 - b. By year three, the number of individual special-status plants will be at least 75 percent of the population documented as the baseline present prior to initiation of work activities, as determined by the baseline condition assessment or appropriate reference site.
4. The qualified botanist shall monitor progress of restored special-status plants annually, document progress, and report to the SFPUC Natural Resources and Lands Management Division until 75 percent replacement is achieved. If sufficient replacement is not achieved by year three, remedial action (such as weeding and supplemental seeding) and continued monitoring, shall be taken for as long as necessary to meet the performance criteria.

Mitigation Measure M-BI-1g: Special-status Plants Protocol-level Surveys

Starting in the year 2022, protocol-level rare plant surveys shall be conducted by a qualified botanist in areas where potential habitat for rare plants exists and work is anticipated for the following year by the annual work plan. Surveys shall be done during the appropriate seasonal window for areas where potential impacts could occur. Surveys shall be conducted where previous surveys are more than five years old.

Mitigation Measure M-BI-2a: Nesting Birds

To avoid impacts to nesting birds, activities that could impact active nests (including shredding with a masticator and tree removal) shall be conducted outside of the bird breeding season (i.e., September 1 January 31), when feasible.

If project activities must occur during the bird breeding season (approximately February 1 August 31, depending on elevation and species), a qualified biologist shall conduct pre-work surveys for nesting birds within the project footprint and a 500- or 100-foot buffer (for raptors/owls and passerines, respectively), as access allows. The surveys shall be conducted by a qualified biologist no more than 14 days prior to the initiation of work activities within each work area. Surveys may include a variety of survey methods; including walking through the search area to observe incidental flushing of an adult from the nest, watching parental behavior (e.g., carrying nest material or food), systematically searching nesting substrates, and the use of call-broadcasts.

- i. If no active nests are found during the surveys, work activities may be cleared to proceed.
- ii. If active nests (i.e., nests with eggs or young birds present) are found, or their presence is inferred, the biologist shall establish a no-disturbance buffer zone around each nest. The default size of the buffer zones shall be 500 feet for raptors and 100 feet for all other birds, unless the biologist determines otherwise based on site conditions and species to avoid nest disturbance. In select instances, the biologist may allow a reduced buffer zone if the default buffer size is not feasible, and if the biologist determines that a reduced buffer would not adversely affect the nest. No work shall occur within the non-disturbance buffers until the young have fledged, as determined by a qualified biologist.

Mitigation Measure M-BI-2b: Avoidance and Minimization of Raptor and Owl Impacts

SFPUC shall avoid project activities that could affect raptor and owl nest sites during the breeding season as follows:

- Bald eagle and golden eagle: January 1-August 31
- California spotted owl and northern goshawk: February 15-September 15
- Great gray owl: March 1-August 15
- Swainson's hawk: March 15-September 15

If project activities must occur during the breeding season, and if those activities could adversely affect a raptor or owl nest site, as determined during the biological resources evaluation per **Mitigation Measure M-BI-1c**, the SFPUC shall solicit protocol-level survey data from the U.S. Forest Service. If the data are insufficient to ensure adverse impacts to raptor or owl nest sites are avoided, a qualified biologist shall conduct species-specific protocol-level surveys to establish whether raptors or owls are present within an appropriate buffer distance from the work area; standard buffer distances for specific species are listed below. Prior to conducting the surveys, the biologist shall coordinate with the U.S. Forest Service to avoid potential conflicts with any of their survey efforts. If protocol-level surveys reveal the presence of an active nest, or potential presence of an active nest (based on an individual displaying nesting behavior), an appropriate

buffer shall be established, or if a qualified biologist determines that a smaller buffer would be acceptable, the environmental planner, in consultation with the biologist shall determine the appropriate buffer to ensure species protection.

- Swainson's hawk, bald eagle and golden eagle – ½ mile buffer
- Great gray owl, California spotted owl and northern goshawk – ¼ mile buffer

Mitigation Measure M-BI-2c: Avoidance and Minimization of Burrowing Owl Impacts

Before the SFPUC implements manual control, mechanical control or culvert replacement activities in the valley study area west of Don Pedro Reservoir, a qualified biologist shall conduct a burrowing owl habitat assessment as described in the California Department of Fish and Wildlife's Staff Report on Burrowing Owl Mitigation. The habitat assessment shall include the work area, and all potentially suitable habitat within 500 feet of the work area. If no potential habitat is present, project activities may proceed. If potential habitat is present, the biologist shall conduct the Detection Surveys and Take Avoidance Surveys described in the California Department of Fish and Wildlife's Staff Report.

If the biologist confirms the burrows are unoccupied, project activities that could impact the burrows may proceed. However, if any of the burrows are occupied by owls, the SFPUC shall implement one of the following measures.

- a. If the burrow is occupied during the breeding season (February 1 August 31), the biologist shall establish a no-disturbance buffer zone around the burrow, consistent with the recommendations provided in the California Department of Fish and Wildlife's Staff Report on Burrowing Owl Mitigation. Vehicles, heavy equipment, and project personnel shall be prohibited from entering the buffer zone for the entirety of the nest occupancy as determined by a qualified biologist. In select instances, and in consultation with California Department of Fish and Wildlife, the biologist may allow a reduced buffer zone if the default buffer size is not feasible, and if the biologist determines that a reduced buffer would not adversely affect the burrow. No work shall occur within the non-disturbance buffers until the young have fledged, as determined by a qualified biologist.
- b. If the burrow is occupied during the non-breeding season, the biologist shall establish a no-disturbance buffer zone around the burrow, consistent with the recommendations provided in California Department of Fish and Wildlife's Staff Report on Burrowing Owl Mitigation. Vehicles, heavy equipment, and project personnel shall be prohibited from entering the buffer zone until the biologist confirms the owl has permanently vacated the burrow. In select instances and in consultation with California Department of Fish and Wildlife, the biologist may allow a reduced buffer zone if the default buffer size is not feasible, and if the biologist determines that a reduced buffer would not adversely affect the burrow. No work shall occur within the non-disturbance buffers until the young have fledged, as determined by a qualified biologist.
- c. If the burrow is occupied during the non-breeding season, and if it is not possible to avoid impacts to the burrow, the environmental planner, in consultation with the biologist shall consult with the California Department of Fish and Wildlife to develop a mitigation plan

consistent with methods described in the California Department of Fish and Wildlife's Staff Report on Burrowing Owl Mitigation. These may include burrow exclusion techniques. After the biologist confirms the owl has vacated the burrow, project activities that would impact the burrow may proceed.

Mitigation Measure M-BI-2d: Restrictions in Helicopter Use

If helicopters are required for the project, helicopter pilots shall not approach cliffs, shall provide deference to flying eagles (and other raptors) at all times, and shall adhere to all other aerial practices recommended by the U.S. Fish and Wildlife Service in the February 2010 Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance. During the raptor breeding season (January 1-August 31), helicopters shall not operate within 1,600 feet of a feature (i.e., cliff or large tree) that appears to serve as a breeding substrate for bald or golden eagles.

Mitigation Measure M-BI-2e: Avoidance/Protection of Special-Status Bat Species

If suitable bat habitat could be disturbed, the work area and a 100-foot buffer shall be surveyed by a qualified biologist to determine if special-status bats are using the site for roosting.

- i. The survey shall include a visual inspection of features within 100 feet of the work area for potential roosting features and sign of roosting bats no more than 2 weeks prior to disturbance of such features. If no sign of bats roosting is observed, the potential habitat features found during the survey shall be flagged or marked for avoidance. If signs of roosting bats are observed during the survey, and it is not feasible for the potential habitat features to be avoided, a phased disturbance strategy will be implemented during tree removal. If bats (individuals or colonies, not just roosting habitat) are detected during the survey or during work activities, the following additional measures shall be implemented to minimize impacts to special status bats and their roosts.
- ii. A qualified biologist shall conduct auditory surveys using ultrasound bat detectors to determine if special status bat species occur in the area.
- iii. If special-status bats are documented and any occupied hibernation or maternal roosts identified during the surveys will be altered or disturbed by project activities (i.e., by conducting work within 100 feet of the roost), the work shall occur when the roost is no longer occupied. If exclusion of bats from roosting habitat is required for this to occur, the applicable regulatory agency shall be contacted for further instructions on how to proceed.

Mitigation Measure M-BI-2f: Avoid Impacts to Special-Status Species in and Adjacent to Aquatic Features

To avoid adverse impacts to special-status species associated with aquatic habitats, including western pond turtle, San Joaquin roach, hardhead, California tiger salamander, western spadefoot, and foothill yellow-legged frog, the SFPUC shall avoid impacts to aquatic resources to the greatest extent feasible. If work must be completed in or adjacent to an aquatic feature, a

qualified biologist shall evaluate the aquatic feature to determine the special-status species that could be affected by work activities. The biologist shall then conduct focused surveys for those species to determine if there are species present that would require adjustments to location or timing of activities. Surveys shall be conducted within one week of the onset of work activities. The surveys shall focus on the aquatic habitat and any adjacent riparian or upland habitat that would be disturbed (i.e., within 1,200 feet for sites with potential habitat for California tiger salamander and western spadefoot, and 1,640 feet for sites with potential habitat for western pond turtle). In addition, the SFPUC shall implement the following measures to avoid and minimize impacts to aquatic species and their habitats.

- a. Fences designed to exclude sensitive species from the work area shall be installed if ground-disturbing work will occur within 100 feet of aquatic resources.
- b. To the extent feasible, the SFPUC shall avoid use of vehicles and heavy equipment within 1,200 feet of suitable aquatic breeding habitat for the California tiger salamander and western spadefoot toad. If impacts to small mammal burrows suitable for California tiger salamander or western spadefoot must occur, each burrow shall be surveyed using appropriate survey protocols. If California tiger salamander or western spadefoot are observed, all work within 100 feet shall cease and the applicable regulatory agency shall be contacted for further instructions on how to proceed.
- c. Aquatic habitats affected by project activities shall be restored on site at the completion of maintenance or construction work.

Mitigation Measure M-BI-2g: Valley Elderberry Longhorn Beetle

Prior to the start of work, blue elderberry plants growing at elevations below 800 feet in elevation with any stems one inch or greater in diameter shall be flagged by a qualified biologist for avoidance using a 100-foot buffer from individual plants.

Mitigation Measure M-BI-3a: Riparian Vegetation Replacement

All exposed/disturbed areas and temporary access points within the riparian zone left barren of vegetation following culvert repairs or replacements shall be mulched with certified weed-free straw or rice straw, or revegetated or seeded with appropriate seed mixes or container species, as determined by a qualified biologist. Mature riparian trees shall be replaced at a 3:1 ratio. Revegetation shall take place upon the completion of ground-disturbing activity and prior to or concurrent with the rainy season. A qualified biologist shall monitor site conditions for up to three years following project completion or until a minimum of 70 percent vegetation cover is achieved.

Mitigation Measure M-BI-3b: Avoidance or Restoration of Serpentine Chaparral.

Work activities immediately adjacent to or within sensitive serpentine chaparral shall be avoided if possible. Any serpentine chaparral that occurs within the project area shall be flagged and avoided with a 10-foot buffer, at a minimum, or at a greater distance determined by the qualified biologist based on site specific conditions. If avoidance is not feasible, where culvert maintenance or replacement activities require removal of vegetation in mixed serpentine chaparral

communities, chamise shrubs would be cut with a chainsaw above the burl at the top of the root crown to allow for natural regeneration after culvert construction is complete.

Mitigation Measure M-BI-4a: Wetland and Aquatic Habitat Avoidance

Vegetation management activities, shall avoid wetland features (i.e., ephemeral, intermittent, and perennial creeks, ponds, and seasonal wetlands). Vehicle access shall be restricted seasonally (generally October 15 June 30) from working adjacent to wetlands, streams, and other aquatic habitat areas until the soils are no longer saturated (generally July 1 October 14), especially in the spring and summer, but potentially during other times of year, depending on precipitation patterns. These wetland and aquatic features shall be flagged and avoided with appropriate buffers, as determined by a qualified biologist, based on the class of feature and contributing site conditions such as slope and type of vegetative buffer. A 10-foot buffer shall be maintained whenever possible to prevent impacts. Based on site specific conditions this buffer may be adjusted by the qualified biologist.

Mitigation Measure M-BI-4b: Compensation for Unavoidable Wetland and Aquatic Habitat Impacts

Where the project cannot avoid disturbance or cannot maintain a 10-foot buffer (e.g., culvert replacements), the SFPUC shall employ measures to minimize impacts to wetlands and other waters of the U.S. and of the state. These measures shall be developed in consultation with the applicable regulatory agencies (e.g., RWQCB, CDFW and/or the U.S. Army Corps of Engineers) and may include, but are not limited to, the following:

- Prior to the start of culvert replacement, a qualified biologist shall identify all avoidable and unavoidable wetlands and other waters within project limits. Identification shall be based on anticipated repair or replacement activities, anticipated ground disturbance areas, field investigation and existing maps of all wetlands and waters within the project area.
- All wetlands and other waters identified for avoidance shall be clearly marked in the field throughout repair or replacement activities. Under the direction of the SFPUC's Natural Resources and Land Management staff, as advised by a qualified biologist, the contractor shall install appropriate exclusion fencing (generally silt fencing or orange construction barrier fencing) along the edge of all construction areas and at least 20 feet away from areas flagged for avoidance. The contractor shall install erosion and sediment control measures (e.g., silt fence or straw wattles) along the edge of all construction areas that are upslope and at least 20 feet away from wetland or aquatic habitat to control soil erosion and prevent sediment from flowing into these habitats.
- The SFPUC's Natural Resources and Lands Management Division staff shall ensure that the work plan contains clear language stating that construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities are prohibited within the flagged area.

Where direct permanent impacts to wetlands and other waters of the U.S. and the state are unavoidable, the SFPUC shall compensate for such impacts by implementing wetland restoration, creation, enhancement, or a combination of these measures, to ensure no permanent

net loss of wetland extent or function. Compensation may also be met by purchasing credits from an approved mitigation bank or paying into a federal or state sponsored mitigation fund. During the permitting process, any required compensation would be determined in consultation with appropriate resource/permitting agencies such as the U. S. Army Corps of Engineers to ensure that there is no net loss of habitat functions and values. Compensation shall result in no net loss of habitat functions and values and shall be provided at a minimum ratio of 1:1 for permanent impacts to wetlands.

Mitigation Measure M-GE-1: Accidental Discoveries for Paleontological Resources

If potential vertebrate fossils are discovered by construction crews, all earthwork or other types of ground disturbance within 50 feet of the find shall stop immediately and the monitor shall notify the Environmental Review Officer and the SFPUC. Work shall not resume until a qualified professional paleontologist can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the qualified paleontologist may record the find and allow work to continue or recommend salvage and recovery of the fossil. The qualified paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations shall be consistent Society of Vertebrate Paleontology 1995 guidelines, and currently accepted scientific practice, and shall be subject to review and approval by the Environmental Review Officer. If required, treatment for fossil remains may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection (e.g., the University of California Museum of Paleontology), and may also include preparation of a report for publication describing the finds. The Environmental Review Officer shall ensure that information on the nature, location, and depth of all finds is readily available to the scientific community through university curation or other appropriate means.

G. PUBLIC NOTICE AND COMMENT

G.1. NOTIFICATION OF PROJECT RECEIVING ENVIRONMENTAL REVIEW

A “Notification of Project Receiving Environmental Review” was emailed and mailed on January 27, 2017, to responsible and trustee agencies, local jurisdictions, property owners and occupants of property within 300 feet of the project corridor. Two comment letters were received, one from the Central Sierra Environmental Resource Center and one from the California Department of Fish and Wildlife, and are summarized below.

To the extent that these comments related to physical impacts on the environment, they are addressed under the sections in parentheses.

Central Sierra Environmental Resource Center had the following questions and requests:

- How will SFPUC determine which treatment method would be utilized from the options available? (Section B. Project Description, see vegetation management program description)

- Adopt one of the objectives included in the existing vegetation management policy to “reduce and eliminate as much as practicable the use of herbicides on vegetation within the right of way and to implement integrated pest management. (Section B. Project Description, see vegetation management program and integrated pest management descriptions)
- Analyze range of impacts to vegetation and special status plants if herbicide use is proposed. (Section E.13 Biological Resources)
- Evaluate cumulative impacts from herbicide use. (Section E.13 Biological Resources and Section E.15 Hydrology and Water Quality)
- Analyze impacts to sensitive plant species. (Section E.13 Biological Resources)
- Consider cumulative impacts of lands that burned, have been treated, and proposed to be treated in association with the Rim Fire. (Cumulative Impacts at end of each section)
- Use straw wattles for erosion control. (Section B. Project Setting, see SFPUC Standard Construction Measures)
- Time culvert replacement with dry periods as much as possible. (Section B. Project Setting, see Culvert Repair and Replacement)
- Conduct surveys for foothill yellow-legged frog in suitable habitat. (Section E.13 Biological Resources)
- Assess short-term impact during repair and construction. (various sections, generally not significant impacts)
- Provide analysis and justification if SFPUC intends to provide clearance beyond minimum North American Electric Reliability Corporation standards. (Section B. Project Setting)

California Department of Fish and Wildlife had the following comments and questions:

- CDFW’s role is as a Trustee Agency (for fish and wildlife resources) and a Responsible Agency under CEQA. (Section B. Project Setting, see Permits, and Section E.13 Biological Resources)
- Suggested mitigation measures for potential impacts to California Tiger Salamanders. (Section E.13 Biological Resources)
- Suggested mitigation measures for potential impacts to Great gray owls. (Section E.13 Biological Resources)
- Suggested mitigation measures for potential impacts to Swainson’s Hawk. (Section E.13 Biological Resources)

- Suggested mitigation measures for potential impacts to fully protected raptors. (Section E.13 Biological Resources)
- Recommends consulting with U.S. Fish and Wildlife Service on potential impacts to federally listed species. (Section E.13 Biological Resources and Section B. Project Setting, see Permits)
- Provide information developed in MNDs to be incorporated into a database that may be used to make subsequent or supplemental environmental determinations, including species information for the California Natural Diversity Database. These database survey forms will be submitted online.
- Assessment of a filing fee is necessary. (SFPUC would pay the necessary fee when the Notice of Determination is filed)

G.2. TRIBAL NOTIFICATION

On April 11, 2018, the Planning Department mailed a “Tribal Notification Regarding Tribal Cultural Resources and CEQA” for this project to Native American tribal representatives in the project vicinity, as identified by the Native American Heritage Commission. During the 30-day comment period, one Native American tribal representative from the Northern Valley Yokut Tribe / Ohlone / Bay Miwuk Tribe requested consultation. However, after numerous attempts to follow up on the initial contact, the tribal representative did not accept the offer to set up a meeting to discuss concerns about the project. On February 8, 2017, during consultation in conjunction with an archaeological survey, a tribal representative of the Tuolumne Me-Wuk band requested to be contacted for consultation on potential tribal cultural resources if the SFPUC were to determine that it would not be possible to avoid ground disturbance at a known Native American site. Appendix C contains documentation of the tribal notification that was conducted for the proposed project.

H. DETERMINATION

Based on this Initial Study:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

DATE _____

Lisa Gibson
Environmental Review Officer
for
John Rahaim
Director of Planning

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APPENDIX A

Hetch Hetchy Water and Power Transmission Vegetation Management Program (TVMP)

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APPENDIX B

Sensitive Communities Where Vegetation Management Work Would Be Avoided

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APPENDIX C

Tribal Notification

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