

## **2.0 PROPOSED PROJECT/ACTION AND ALTERNATIVES**

### **2.1 INTRODUCTION**

The proposed communication facilities, their construction, and operation are described in this section. As compliance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) is required, as presented in this document, the Hetch Hetchy Water & Power (HHW&P) proposed facilities are described both as the composite system of all components for purposes of the comprehensive environmental impact assessment as well as the specific actions that would be undertaken by each of the Lead Agencies. The CEQA “proposed project” includes all proposed facilities, their construction and operation. The NEPA “Proposed Action” differs from the “proposed project” in that each federal Lead Agency would consider only parts of the proposed communication system and other related considerations for its “Action.” However, the impact analysis considers the entire system so that a comprehensive disclosure of the overall effects on the environment is presented herein.

The analysis of alternatives to a Proposed Action is a fundamental aspect of the NEPA process. As stated in the NPS DO-12 Handbook and Director’s Order (NPS 2001), alternatives “propose different means of accomplishing...goals, while at the same time protecting or minimizing impacts to some or all resources.” Reasonable alternatives are “those that are economically and technically feasible, and that show evidence of common sense” (NPS 2001). The Council of Environmental Quality regulations require a No Action Alternative and identification of the agencies’ preferred alternative. The No Action alternative provides a basis to compare the preferred alternative to environmental conditions that may be expected if the project were not implemented (see Section 3.0). Alternatives to the Proposed Action are required by Section 102(2)(E) of NEPA. However, alternatives analysis is not required for the project under CEQA.

The proposed facilities comprise a system of facilities distributed over a large geographic area. The proposed facilities are located within three primary jurisdictional areas: lands owned in fee or Raker Act right-of-way owned and managed by the City and County of San Francisco over Forest Service and National Park Service lands (easements); lands within the United States Department of Agriculture (USDA) National Forest Service (USFS) Stanislaus National Forest and not within Raker Act right-of-way and; lands within the United States Department of Interior (USDOI) National Park Service (NPS) Yosemite National Park and not within Raker Act right-of-way. As a result of this configuration of facilities, the Proposed Action must be considered both in its composite totality and in the context of individual Actions to be undertaken by each jurisdictional authority. In brief, the project is divided into three composite actions:

- The City and County of San Francisco Planning Department will take discretionary action on the entire composite of communication facilities and their operation regardless of their location. This is the proposed project for purposes of CEQA. However, the proposed facilities located within the Raker Act right-of-way are within the discretionary authority of the City and County of San Francisco Planning Department, as discussed in Section 1.11 and, thus, only require compliance with CEQA.
- The USFS Proposed Action is defined by those proposed facilities located only within the Stanislaus National Forest. The Burnout Ridge site is located in Stanislaus National Forest and is

not within the Raker Act right-of-way. Thus, the Proposed Action for the USFS is the decision whether to permit construction and operation of the proposed communication facility on the subject USFS land and to implement an amendment to the Forest Plan that would allow this facility to be constructed. The proposed project would include: the removal of FCC-licensed microwave communication equipment at Duckwall Mountain and Jones Point, existing sites located in the Stanislaus National Forest, not within the Raker Act right-of-way, and currently operating under a Special Use Permit; and decommissioning of Jones Point and termination of the Special Use Permit associated with this site, which would involve removing the existing microwave equipment, shelter, communication tower, antennas, and antenna feed system.

- The USDO National Park Service (NPS) Action is defined by those facilities located only within Yosemite National Park. The Proposed Action for the NPS is the decision whether to permit construction (through a right-of-way permit) and operation through the issuance of a land use entitlement for the proposed Poopenaut Pass site.

For purposes of understanding the proposed project and federal actions, a comprehensive description of the components is presented in Section 2.3. The USFS Proposed Action is presented in Section 2.4. The NPS Proposed Action is presented in Section 2.5. Table 2-1 provides an overview of the breakout of the various proposed components and the related SFPUC, USFS and NPS jurisdictions for specific Actions. Alternatives are presented in Section 2.6.

It is important to note that the proposed facilities are a system of interlinked facilities. Thus, the composite facilities require that all three Actions by the SFPUC, USFS and NPS must be approved for the proposed project (composite facilities) to be constructed and operated. This CEQA document will be reviewed and approved as compliant with CEQA requirements by the Planning Department Major Environmental Analysis Division Environmental Review Officer. Only after the CEQA document is approved by the by the Environmental Review Officer can the SFPUC deliberate on whether to approve the proposed project. That approval also is dependent on adoption of the Proposed Action by both the USFS and NPS.

## **2.2 COMPOSITE FACILITIES COMPRISING THE PROPOSED PROJECT/PREFERRED ALTERNATIVE**

The proposed Composite Project is a proposed telecommunication system that would link the SFPUC's communication system in the San Joaquin Valley to that at the SFPUC's sites in the Hetch Hetchy region. As a result, the proposed system would create a direct communication linkage for the SFPUC in the San Francisco Bay Area to the existing facilities and operations of its SFPUC water storage, power and conveyance system. In order to meet the purpose and need identified in Section 1.0, the Proposed Composite Facilities include the installation of new communication equipment and/or power sources at 26 previously developed locations, and the installation of three new facilities on previously undeveloped sites. In addition, the proposed project would include the removal of FCC-licensed microwave communication equipment at three locations (Duckwall Mountain and Jones Point in the Stanislaus National Forest, and Moccasin Powerhouse Passive Reflector in Yosemite National Park). The decommissioning of Jones Point and termination of the Special Use Permit associated with the site would involve removing the existing microwave equipment, shelter, communication tower, antennas, and antenna feed system. Figure 2-1 shows the general project site locations, and Figures 2-2 and 2-3 show

the location of the microwave repeater sites that would be needed to provide a connection between Moccasin Powerhouse and Intake Switchyard, since these sites do not have a line-of-sight with one another. Table 2-1 details the proposed changes at each of the sites.

The project sites are shown by general areas: Oakdale Area, Moccasin Area, Duckwall Mountain, Early Intake and Tuolumne River Area, Cherry Lake and Lake Eleanor Area, and Poopenaut Pass and O'Shaughnessy Area. Following each of the general area maps, the proposed project sites are shown at a larger scale on aerial photographs. The maps show the sites from west to east. Please refer to Figures 2-4 to 2-23 for the general project areas and aerial photographs.

The upgrades to the communication system included in the composite facilities comprising the proposed project/preferred alternative are summarized below:

New communication towers would be installed at Warnerville Switchyard, Moccasin Peak, Moccasin Powerhouse, Burnout Ridge, Intake Radio Site, Poopenaut Pass, and Cherry Tower Site to support one or more parabolic microwave radio dishes (antennas).<sup>1</sup> The parabolic dishes used for this project would vary in size up to a maximum of eight feet in diameter. Communication shelters (to house equipment) would also be installed at Burnout Ridge, Intake Radio Site, Poopenaut Pass, and Cherry Tower Site. Warnerville Switchyard, Moccasin Peak, and Moccasin Powerhouse have existing buildings where the equipment would be housed. O'Shaughnessy Stream Gauge, Cherry Lake Water Tanks, Cherry Pump Station, Lake Eleanor Dam Level Gauge, and Lake Eleanor-Cherry Lake Tunnel sites would require the installation of new rigid galvanized steel (RGS) conduit antenna masts to support a spread-spectrum Yagi radio antenna.<sup>2</sup>

Upgrades to the fiber optic component include the installation of fiber optic cable on the transmission lines in the Early Intake Area, and on the distribution lines in the Cherry Lake Area. New optical ground wire (OPGW) fiber optic cable would be installed on the existing HHW&P transmission lines between Intake Switchyard and Intake Radio Site, Holm Powerhouse, and Kirkwood Powerhouse. The existing overhead static wire (OHSW) on the transmission line between Intake Switchyard and Intake Radio Site would be replaced with OPGW fiber optic cable.

Table 2-1 details the proposed changes at each of the 32 sites.

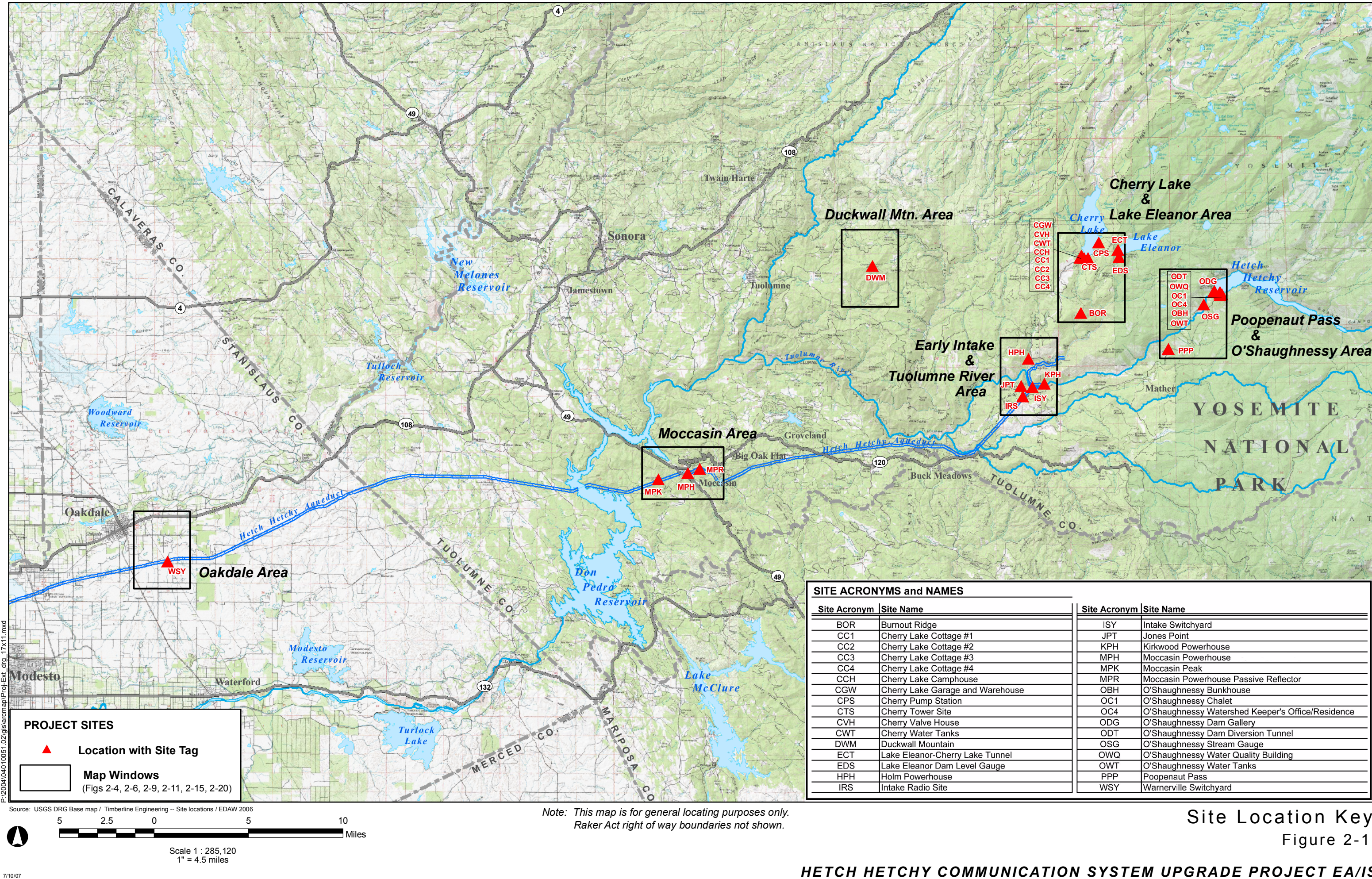
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<sup>1</sup> The terms microwave radio antenna, parabolic radio antenna, parabolic antenna, parabolic dish antenna, and microwave radio dish antenna are often used interchangeably. Microwave radio antennas are often parabolic in shape, so they are often referred to as "parabolic antennas." Omni-directional and Yagi antennas may be installed on these towers in the future.

<sup>2</sup> A Yagi radio antenna is a type of directional antenna approximately two feet long constructed and similar in appearance to an "old fashioned" roof-mounted television antenna.

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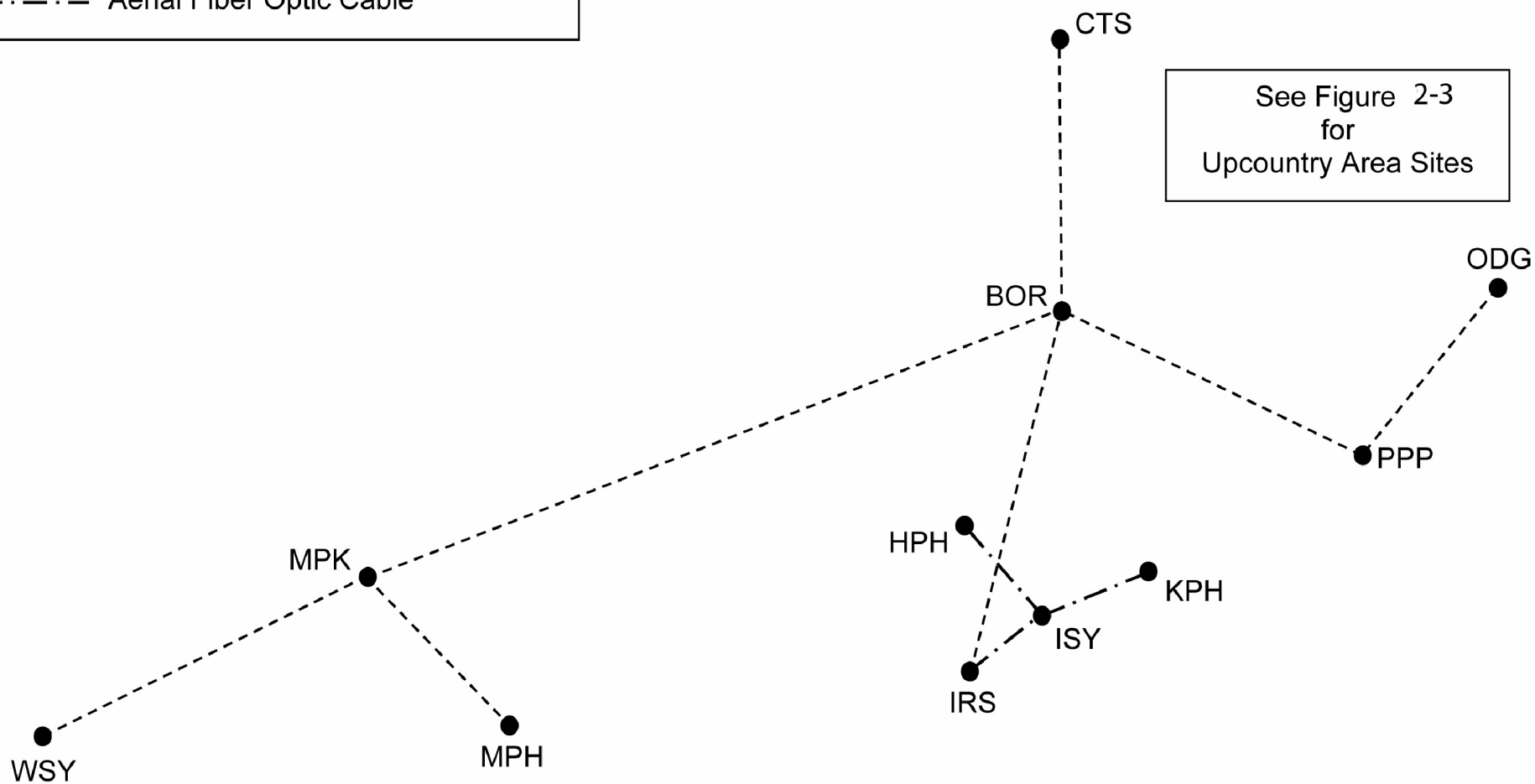


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### Legend

- Site Location
- - - Microwave Radio
- . - . - Aerial Fiber Optic Cable

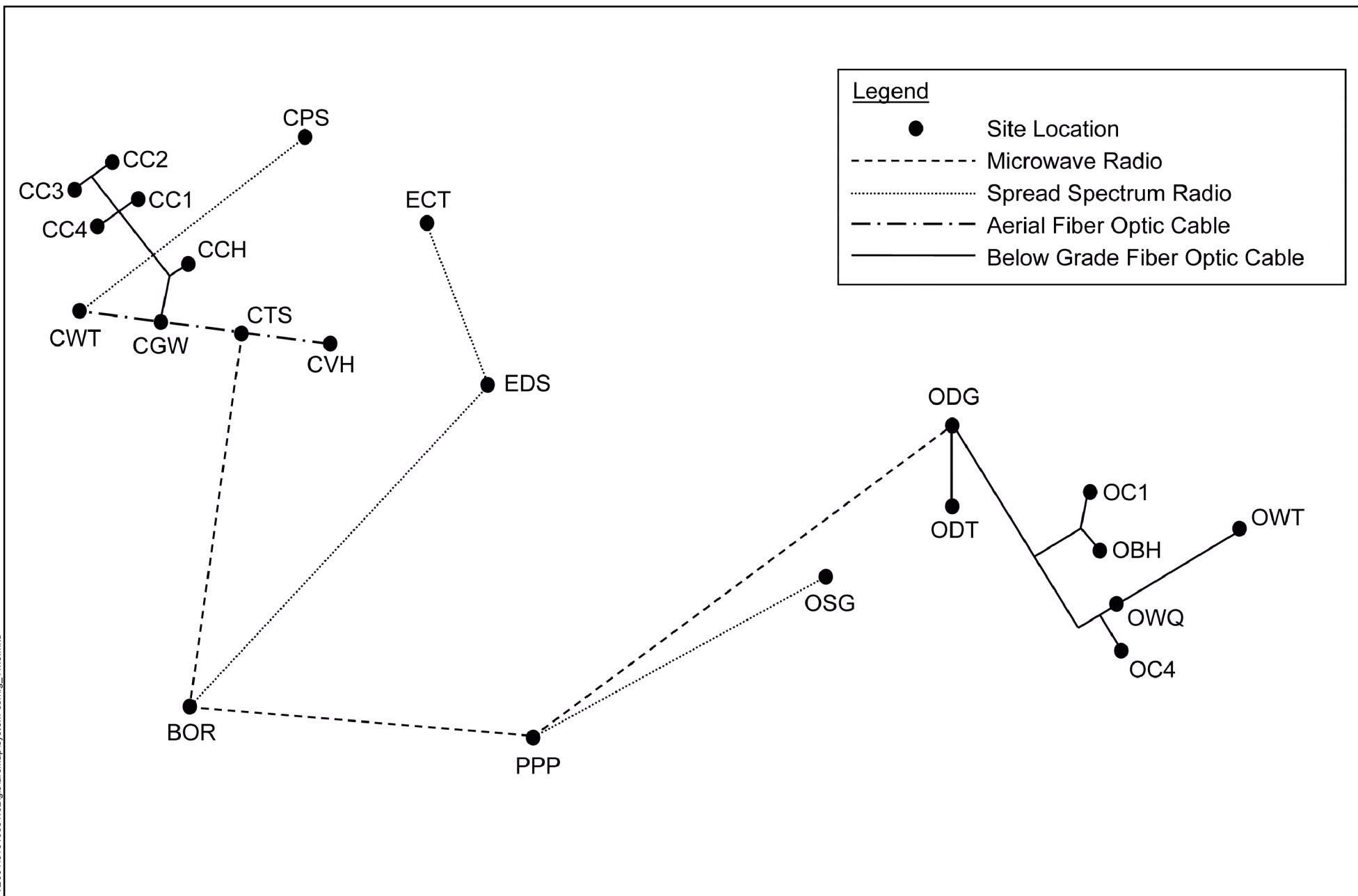


Source: Timberline Engineering, Inc. 2006

## Conceptual System Configuration

Figure 2-2

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Source: Timberline Engineering, Inc. 2006

## Conceptual System Configuration (New Sites Subsystem)

Figure 2-3

**Table 2-1**  
**Project Site Information and Proposed Changes**

	Site Name/ Federal Agency Jurisdiction (if applicable)	Within SFPUC Right-of-Way (Raker Act)	FCC Licensing or Relicensing	New Communication Tower/ Microwave Dish	New Antenna Mast with Yagi Antenna	Other Upgrades or Changes	New Communication Shelter	Battery Power Backup	New Propane Fueled Emergency Generators
Existing Microwave Communication Sites (Including Early Intake Area Sites Served by Aerial Fiber Optic Cable)	Warnerville Switchyard (WSY)	X	X	X				X (Existing)	
	Moccasin Peak (MPK)	X	X	X				X (Replace- ment of existing)	X (Replacement of existing)
	Moccasin Powerhouse (MPH)	X	X	X				X (Existing)	
	Moccasin Powerhouse Passive Reflector (MPR)	X				X (Removal of Equipment)			
	Duckwall Mountain (DWM) (Forest Service)					X (Removal of Equipment)			

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	Jones Point (JPT) (Forest Service)					X (Removal of Equipment including shelter, communication tower, antennas, antenna feed system)			
	Intake Switchyard (ISY)	X				X (Installation of fiber optic cable equipment)		X (Existing)	
	Holm Powerhouse (HPH)	X				X (Installation of fiber optic cable equipment)		X (Existing)	
	Kirkwood Powerhouse (KPH)	X				X (Installation of fiber optic cable equipment)		X (Existing)	

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Proposed Microwave Communication Sites	Burnout Ridge (BOR) (Forest Service)		X	X		X (Roadway improvements, fencing, installation of power line in road)	X	X (New)	X
	Intake Radio Site (IRS)	X	X	X		X (Installation of fiber optic cable equipment)	X	X (New)	X
	Poopenaut Pass (PPP) (Park Service)		X	X		X (fencing, installation of electrical service line along foot path)	X	X (New)	
	Cherry Tower Site (CTS)	X	X	X		X (Fencing, Installation of fiber optic cable equipment)	X	X (New)	

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Project Site Information and Proposed Changes**

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	O'Shaughnessy Dam Gallery (ODG)	X		X (New microwave dish, no tower)		X (Installation of fiber optic cable equipment)		X (Existing)	
O'Shaughnessy Campus Sites	O'Shaughnessy Dam Diversion Tunnel (ODT)	X				X (Installation of fiber optic cable equipment)			
	O'Shaughnessy Stream Gauge (OSG) <sup>3</sup>	X			X				
	O'Shaughnessy Water Quality Building (OWQ)	X				X (Installation of fiber optic cable equipment)			
	O'Shaughnessy Chalet (Cottage 1) (OC1)	X				X (Installation of fiber optic cable equipment)			

<sup>3</sup> It is generally accepted that the O'Shaughnessy Stream Gauge is within the Raker Act Land



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	O'Shaughnessy Watershed Keeper's Office/ Residence (Cottage 4) (OC4)	X				X (Installation of fiber optic cable equipment)			
	O'Shaughnessy Bunkhouse (OBH)	X				X (Installation of fiber optic cable equipment)			
	O'Shaughnessy Water Tanks (OWT)	X				X (Installation of fiber optic cable equipment)			
Cherry Lake Campus Sites	Cherry Lake Garage and Warehouse (CGW)	X				X (Installation of fiber optic cable equipment)			
	Cherry Valve House (CVH)	X				X (Installation of fiber optic cable equipment)			

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	Cherry Water Tanks (CWT)	X			X	X (Installation of fiber optic cable equipment)			
	Cherry Lake Camphouse (CCH)	X				X (Installation of fiber optic cable equipment)			
	Cherry Lake Cottage #1 (Watershed Keeper's House) (CC1)	X				X (Installation of fiber optic cable equipment)			
	Cherry Lake Cottage #2 (Watershed Keeper's Office) (CC2)	X				X (Installation of fiber optic cable equipment)			
	Cherry Lake Cottage #3 (CC3)	X				X (Installation of fiber optic cable equipment)			

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	Cherry Lake Cottage #4 (CC4)	X				X (Installation of fiber optic cable equipment)			
	Cherry Pump Station (CPS)	X			X				
Lake Eleanor Sites	Lake Eleanor Dam Level Gauge (EDS)	X			X				
	Lake Eleanor- Cherry Lake Tunnel (ECT)	X			X				