

## 3.13 FIRE PROTECTION SERVICES AND WILDFIRE HAZARDS

### 3.13.1 ENVIRONMENTAL SETTING

#### California Department of Forestry and Fire Protection Services

The project site is within the California Department of Forestry and Fire Protection's (CAL FIRE's) Humboldt–Del Norte Unit (CAL FIRE 2018). The Humboldt–Del Norte Unit is located along the California coastline and includes Humboldt, Del Norte, and southwestern Trinity counties. The unit extends from the Oregon border in the north to Mendocino County in the south, and inland to the eastern boundary of Six Rivers National Forest. This area encompasses 3.1 million acres, of which 1,928,267 acres are state responsibility lands and 1,927,410 acres are direct protection area. Approximately 70 percent of these lands are managed for timber production and another 10 percent are recreation areas. The Humboldt–Del Norte Unit includes 1.3 million acres of federally managed and tribal lands (CAL FIRE 2018).

The CAL FIRE Humboldt–Del Norte Unit is composed of one unit administration headquarters facility, 11 fire stations, three camps, one air attack base, and one helitack base, along with one state fire marshal office. The unit maintains 14 frontline engines, with three engines in reserve, two dozers, 15 inmate crews, one helicopter, one air attack, and one air tanker for fire suppression efforts. Approximately 100 permanent fire suppression personnel, 15 resource management personnel, and 10 clerical personnel staff these efforts. The Humboldt–Del Norte Unit also hires approximately 99 limited-term and seasonal personnel to supplement the permanent staff during fire season (CAL FIRE 2018).

The project site is within Battalions 2 and 3 of CAL FIRE's Humboldt–Del Norte Unit (CAL FIRE 2018). These battalions are described below.

#### ***Battalion 2***

Battalion 2 is located in the Southern Division of the Humboldt–Del Norte Unit. Fire protection in Battalion 2's service area is generally provided by volunteer fire departments, fire protection districts, and CAL FIRE seasonal staff. The battalion consists of a two-engine station in Weott (the Weott Station), a one-engine station in Honeydew (the Mattole Station), and the Grasshopper Lookout (CAL FIRE 2018). High Rock Conservation Camp is located within the battalion. The Weott Station is open year-round, while the Mattole Station is open during peak preparedness periods.

Land within Battalion 2's service area consists mainly of private timberland, with Humboldt Redwood Company (HRC) being the largest industrial landholder. Much of the California Redwoods State Park is located within the battalion boundary. Several municipalities and small communities with mostly residential structures are spread out in the State Responsibility Area (SRA), with Weott being the largest municipality in the battalion's service area (CAL FIRE 2018).

#### ***Battalion 3***

Battalion 3 is located in the central portion of the Humboldt–Del Norte Unit. Fire protection in the Battalion 3 service area generally includes paid local government employees, volunteer fire departments, and CAL FIRE seasonal staff members. Two state fire stations are in the Battalion 3 service area. The Fortuna Station houses one Type III engine, and the Bridgeville Station houses one Type III engine on a seasonal basis (CAL FIRE 2018).

The Rohnerville Air Attack Base, approximately 7 miles north of the generation area, and Mount Pierce communications tower are located within the Battalion 3 service area.

Eight fire protection districts are in the Battalion 3 service area. These districts encompass the communities of Rio Dell, Fortuna, Ferndale, Loleta, and Humboldt Bay, and a portion of the Kneeland and Bridgeville fire protection districts. The Carlotta Community Services District provides funding for Carlotta fire protection. Each of these fire districts contains portions of the State Responsibility Area (CAL FIRE 2018; Humboldt County 2017a).

Battalion 3 consists primarily of private timberland, with HRC and Green Diamond Resource Company being the largest industrial land holders. Several municipalities and small communities with mostly residential structures are spread out in the SRA, with Eureka being the largest municipality (CAL FIRE 2018).

## **Local Fire Protection Services**

### ***Fire Protection Districts***

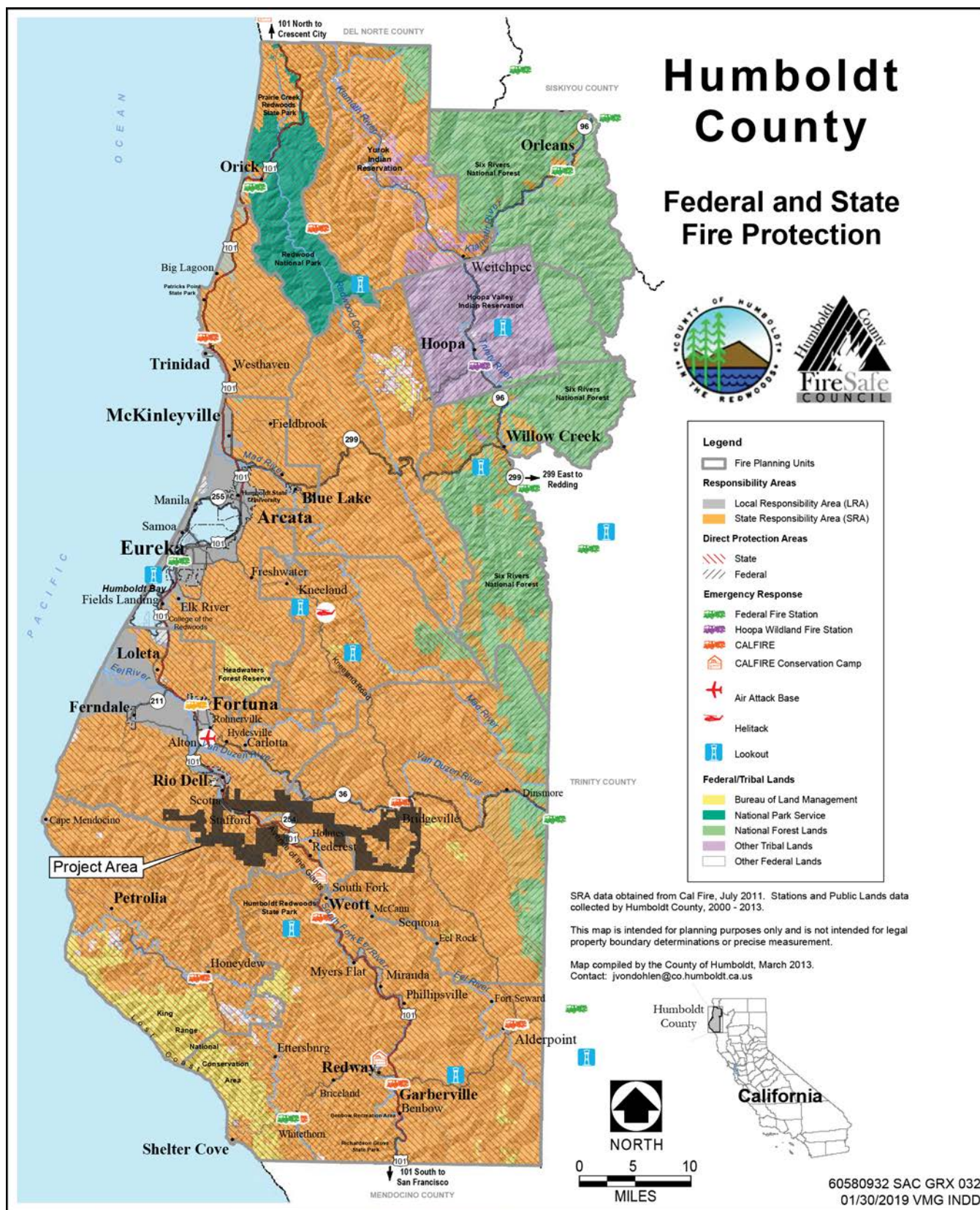
Humboldt County has 42 local fire protection organizations: 17 fire protection districts, seven community service districts, 14 volunteer fire companies (including two tribal stations), two other special districts, and two city fire departments. There are 743 firefighters in the county, of whom 657 are volunteers and 90 are paid (or career).

Local fire departments use formal and informal mutual-aid and automatic-aid agreements to augment provided levels of protection. The Fire Services Annual Report, produced by the fire chiefs and presented to the Board of Supervisors, identifies Humboldt County's fire demands and service needs. This report is a tool used to inform decision makers and the public regarding locations where resources are needed, the services the local departments can provide, and the volunteer effort needed to sustain service levels.

Fire detection services in Humboldt County are provided by fire lookouts, fixed-wing reconnaissance aircraft, vehicular patrols during periods of high fire danger, and automated lightning detection. Citizens often report structure fires and medical emergencies. The Fortuna Interagency Command Center (FICC) is the command and control point for many emergency agencies in Humboldt County. Personnel from the U.S. Forest Service (USFS) and CAL FIRE jointly staff the FICC 24 hours a day, 7 days a week from the CAL FIRE Humboldt–Del Norte Unit administrative headquarters in Fortuna.

The FICC provides dispatch services for the Humboldt Dispatch Cooperative, which includes all but four of the 42 local fire protection organizations, as well as the Fortuna Ambulance Company. The FICC is the coordination point for fire and rescue mutual-aid resources through the Governor's Office of Emergency Services (CAL FIRE's unit chief serves as the Governor's Office of Emergency Services' operational-area coordinator) and the dispatch center for wildland-fire emergencies in the SRA in Humboldt County and for Six Rivers National Forest lands.

Figure 3.13-1 shows the locations of fire protection–related facilities in Humboldt County. With the exception of the Bridgeville Fire Protection District (BFPD), the project site does not fall within the boundaries of any fire-related district. Portions of the generation transmission line (gen-tie) and the substation are within BFPD's boundaries. Areas of the project site adjacent to U.S. Highway 101 (U.S. 101), including the proposed operations



Source: Humboldt County Fire Safe Council 2013:Figure II.3-8; adapted by AECOM in 2019

**Figure 3.13-1. Locations of Fire Protection Facilities in Humboldt County**

and maintenance (O&M) facility, are within the Redcrest Volunteer Fire Department's nondistrict response area.<sup>1</sup> The generation area is within the Rio Dell Fire Protection District's out-of-district response area (Humboldt LAFCO 2016). Both departments would be dispatched to fire, emergency medical, traffic collision, and rescue calls within their respective response areas (Humboldt County 2017a). The Rio Dell Fire Protection District provides "goodwill" service to its response area but is not obligated to do so (Humboldt County Fire Chiefs' Association 2017).

The Bridgeville Volunteer Fire Department provides fire suppression, rescue services, emergency medical services, and hazardous material response to the community of Bridgeville and the Van Duzen watershed. BFPD covers 196 square miles and approximately 126,000 acres, making it the largest fire protection district in Humboldt County. BFPD currently has 12 trained firefighters, two of whom are emergency medical technicians; all others are trained as first responders. BFPD also offers nontransport basic life support services (Humboldt County Fire Chiefs' Association 2017).

The Rio Dell Volunteer Fire Department serves the city of Rio Dell and surrounding areas of Monument Road and Blue Slide Road, with a total response area of 62 square miles. The department includes two assistant chiefs and two fire companies, totaling 27 volunteer firefighters (Humboldt County Fire Chiefs' Association 2017). The Rio Dell Fire Protection District is currently negotiating annexation of the Scotia Volunteer Fire Department and Redcrest and Shively volunteer fire departments. Currently, the Rio Dell and Scotia departments respond by mutual-aid agreement to any fires, vehicle accidents, or other significant call types within both response areas (Wilson, pers. comm., 2019).

The Redcrest Volunteer Fire Company serves communities in the Redcrest, Holmes, Larabee, Shively, and Stafford areas and in the corridor of U.S. 101 and State Route 254 from Dyerville Loop to Shively Road. The volunteer fire company is staffed with eight volunteer and six ancillary personnel (Humboldt County Fire Chiefs' Association 2017).

The Eel River Valley Fire Chiefs' Association was formed in fall 2010 to cooperatively address the need for technical rescue capabilities in the Eel River Valley. The association represents seven volunteer fire departments—Scotia, Rio Dell, Ferndale, Loleta, Fortuna, Carlotta, and Bridgeville—and is responsible for the development and direction of the Eel River Valley Technical Resource Team (ERVTRT). Formed in fall 2010, the ERVTRT consists of representatives from the fire departments of Scotia, Rio Dell, Ferndale, Loleta, Fortuna, Carlotta, and Bridgeville. The ERVTRT covers emergency response for the Eel River Valley and the State Route 36 corridor to the Dinsmore area. The team functions under the guidance of the Eel River Valley fire chiefs and acts as a resource to assist fire jurisdictions in providing a higher level of rescue operations to local communities. These operations include low- and high-angle rope rescue, confined-space and trench rescue, collapse and water rescue. The team also provides additional manpower and equipment as needed during emergency events.

The ERVTRT can assist other rescue teams throughout the county, including the Southern Humboldt Technical Rescue Team and the Humboldt Bay Urban Search and Rescue Team. The ERVTRT is trained and equipped to Urban Search & Rescue Level 3. Operations and training are overseen by one team leader, while each department has a squad leader who oversees their individual squads, in turn. The ERVTRT is dispatched by the CAL FIRE

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<sup>1</sup> Nondistrict fire companies are companies that do not have an official jurisdictional boundary.

Command Center. Although trained and equipped to Urban Search & Rescue Level 3, the ERVTRT may not have the specialized equipment and training necessary to carry out turbine-related rescues (Humboldt County Fire Chiefs' Association 2017).

## **WILDFIRE CONDITIONS**

Humboldt County has a mixture of rugged mountains, rolling hills, and broad valleys. Elevations in the county range from 13 feet above sea level at the coast to 6,962 feet at the peak of Salmon Mountain. The remoteness and steepness of slopes in the county can limit the ability of fire equipment and personnel to access land during wildfires.

Fire season in Humboldt County normally spans late May/early June through early October. The supporting agencies—USFS—Six Rivers National Forest, Redwood National Park, the U.S. Bureau of Land Management (BLM), CAL FIRE, and the Hoopa Wildland Fire Department—increase resources for firefighting during these months.

Intensive fire suppression over the last 70 years combined with increased development, lack of adequate defensible space around structures, and logging of the largest trees has led to an increase in the amount of flammable materials. Federal and state agencies—Redwood National Park, BLM, USFS, CAL FIRE, and the California Department of Parks and Recreation—use prescribed fires when possible to reduce fuel loads.

## **WILDFIRE BEHAVIOR**

The following discussion of wildfire behavior in Humboldt County is taken from the *Humboldt County Community Wildfire Protection Plan* (Humboldt County Fire Safe Council 2019).

### **Topography**

Topographic features such as slope and aspect influence fire intensity, direction, and rate of spread. Fires burning in flat or gently sloping areas tend to burn more slowly and spread in wider ellipses than fires on steep slopes. Streams, rivers, and canyons can channel local diurnal and general winds, which can accelerate the fire's speed and affect its direction, especially during foehn (warm, dry, and usually strong) wind events. The topography of most of the project site has a slope ratio between 30 and 50 percent; in some locations, the slope ratio exceeds 50 percent.

Local winds are greatly affected by topography, which “bends the wind” as it flows around or over landforms. Topography also causes daily upslope and downslope winds. The topographic features of aspect and elevation affect vegetation. Solar exposure affects fuel moisture.

### **Weather**

Weather conditions influence the potential for fire ignition and rates of spread, intensity, and the direction(s) toward which a fire burns. Wind, temperature, and relative humidity are the variables used to predict fire behavior (Husari et al. 2006). Humboldt County is an area of moderate temperatures and considerable precipitation. The marine influence near the coast creates a cool and stable temperature regime. The farther from the coast, the more temperatures vary and humidity decreases. Coastal temperatures vary by 10 degrees from summer to winter, while a greater range occurs in inland areas. Temperatures throughout the county reach 32 degrees Fahrenheit (°F) or

lower in the winter, with temperature decreasing farther inland. In the warm months, temperatures rarely exceed 80°F on the coast but can reach more than 100°F in the mountain valleys.

The humidity from the marine climate can reduce fire hazards. The town of Scotia receives an average of 30–50 inches of rain per year and the Bridgeville area averages 50–70 inches of rain per year.

## **Vegetation**

Vegetation usually provides most of the fuel that feeds wildfire, along with other flammable materials on-site (such as human-built structures). The volume, character, distribution, and arrangement of vegetation, the relative presence of volatile oils, and the moisture content of fuels all greatly influence fire behavior. Nearly every major fuel type in California exists in Humboldt County. Examples include grasslands, oak woodlands, brush, mixed conifer forests, and hardwood forests. The project site is characterized by intermittent brush and grass cover and wooded areas.

## **Wind**

Wind plays a role in the flammability of fuels by removing moisture through evaporation, preheating fuels in a fire's path, and increasing spotting distances (the distance at which a spot fire might be ignited by a flying ember). Winds blowing more than 20 feet above the ground can carry embers downwind, causing spot fires.

Prevailing winds during Humboldt County's fire season (generally June through October) are out of the northwest. In July and August, local winds (slope winds and sea breezes) predominate, with the Pacific jet stream weak and well to the north. By September, weak to moderate north-to-northeast winds become more prevalent.

## **FIRE HAZARD SEVERITY ZONES IN THE PROJECT AREA**

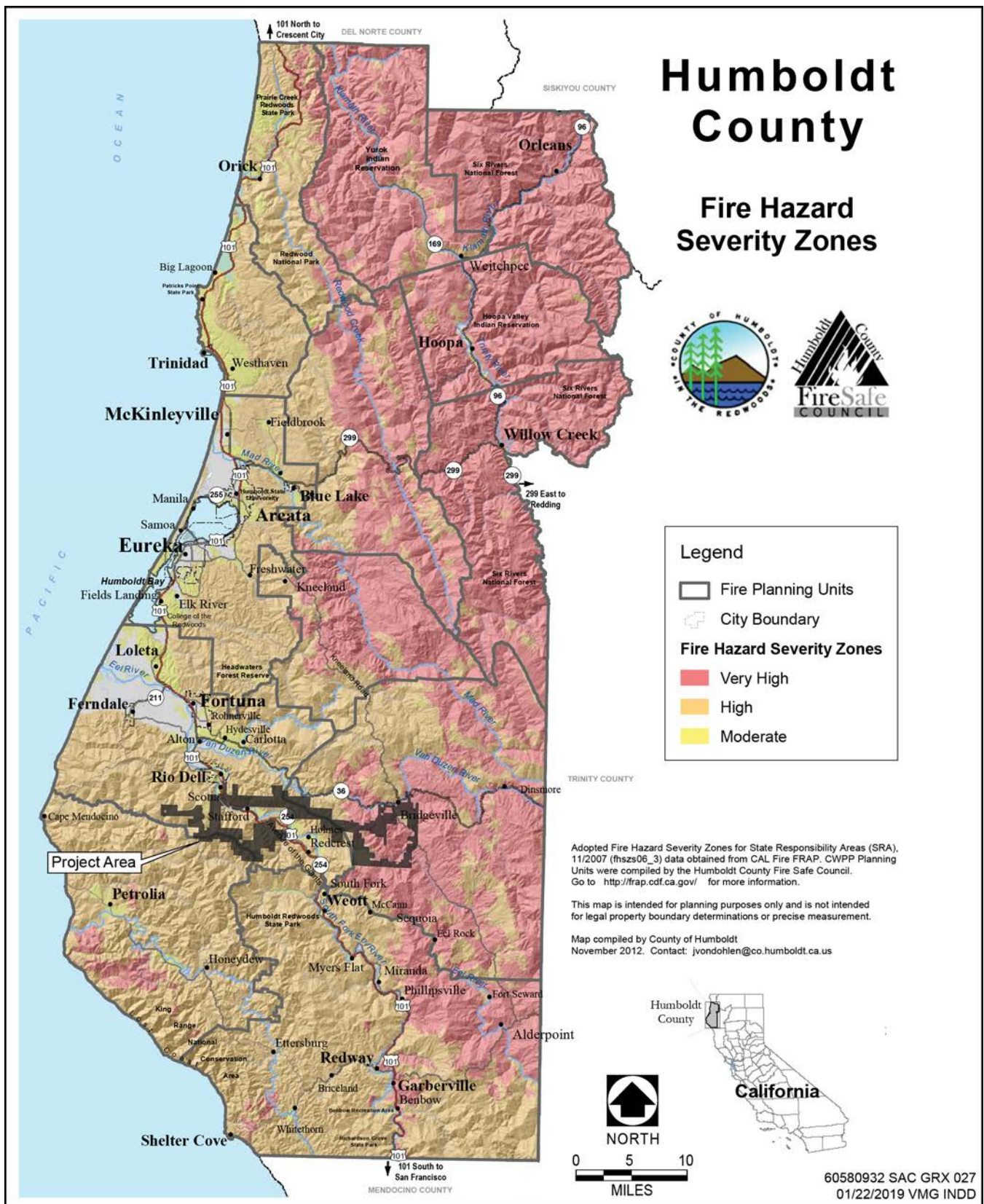
Fire hazard severity zones are measured qualitatively, based on vegetation, topography, weather, crown fire potential (a fire's tendency to burn upward into trees and tall brush), and ember production and movement within the area in question.

Fire prevention areas considered to be under state jurisdiction are referred to "State Responsibility Areas" or SRAs. CAL FIRE has responsibility for vegetation fires within SRA lands.<sup>2</sup> In general, SRA lands contain trees producing, or capable of producing, forest products; timber, brush, undergrowth, grass, whether of commercial value or not, which provide watershed protection for irrigation or for domestic or industrial use; or lands in areas that are principally used, or are useful for, range or forage purposes.

In SRAs, CAL FIRE is required to define three fire hazard levels: moderate, high, and very high. As shown in Figure 3.13-2, the entire generation area lies within an SRA and is rated as mostly a High Fire Hazard Severity Zone (CAL FIRE 2007). The proposed gen-tie would run briefly through a Local Responsibility Area in the town of Scotia, parcel number 20535130. This area contains both unzoned and moderate fire severity areas. The remainder of the gen-tie lies within an SRA and is rated as a High to Very High Hazard Severity Zone (CAL FIRE 2007).

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<sup>2</sup> The State Responsibility Area is defined in California Public Resources Code (PRC) Sections 4125–4127 as lands in which the financial responsibility for preventing and suppressing wildland fire resides with the state.



Source: Humboldt County Fire Safe Council 2013:Figure II.1-9; adapted by AECOM in 2019

**Figure 3.13-2. Fire Hazard Severity Zones**

As discussed above, CAL FIRE's Humboldt–Del Norte Unit is primarily responsible for response to wildland fires. Fire departments serving the unincorporated areas support CAL FIRE by providing initial response to wildfire incidents. The volunteer fire departments include Honeydew, Redcrest, and Salmon Creek, and the fire protection districts include Petrolia, Meyers Flat, and Fruitland Ridge (CAL FIRE 2018; Humboldt County 2017a). Each of these departments and districts includes portions of the SRA (Humboldt County 2017a). It should be noted that although fire-related districts are not responsible for wildland fire protection, in most instances they are the first units at the scene and they provide essential initial response services.

### **3.13.2 REGULATORY SETTING**

#### **FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS**

No federal plans, policies, regulations, or laws related to fire response and wildfire hazards apply to the project under consideration.

#### **STATE PLANS, POLICIES, REGULATIONS, AND LAWS**

##### **California Fire Plan**

The California Fire Plan is the statewide plan for reducing the risk of wildfire. The plan's basic principles are as follows:

- ▶ Involve the community in the fire management planning process.
- ▶ Assess public and private resources that could be damaged by wildfires.
- ▶ Develop pre-fire management solutions and implement cooperative programs to reduce the community's potential wildfire losses.

One of the more important objectives of the California Fire Plan pertains to pre-fire management solutions. Included within the realm of pre-management solutions are fuel breaks, the establishment of wildfire protection zones, and prescribed fires to reduce the availability of fire fuels. In addition, the plan recommends that clearance laws, zoning, and related fire safety requirements implemented by state and local authorities address fire-resistant construction standards, hazard reduction near structures, and infrastructure.

The California Fire Plan does not contain any specific requirements or regulations. It acts as more of an assessment of current fire management practices and standards and recommends methods for how best to improve the practices and standards in place.

##### **California Public Utilities Commission General Order 95: Rules for Overhead Electric Line Construction**

General Order 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in California. General Order 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing; minimum ground clearance for conductors; standards for calculating maximum sag; and requirements for electrical line inspection and vegetation clearance.

On January 19, 2018, the California Public Utilities Commission (CPUC) adopted the CPUC Fire-Threat Map. The map delineates the boundaries of a new High Fire-Threat District Map where stricter fire-safety regulations apply. The project site is designated as a High Fire-Threat area (CPUC 2018). As such, the following conditions apply:

- ▶ Rule 31.2, Inspection of Lines, requires frequent and thorough inspection of lines to ensure that they are in good condition. Lines that are temporarily out of service must be inspected and maintained in such a condition as not to create a hazard.
- ▶ Rule 35, Tree Trimming, defines minimum vegetation clearances around power lines. Rule 35 guidelines require 10-foot radial clearances for any conductor of a line operating at 110,000 volts or more, but less than 300,000 volts.

## **California Public Resources Code**

### ***Section 4290***

PRC Section 4290 was adopted to establish minimum wildfire protection standards in conjunction with building, construction, and development in State Responsibility Areas. Under PRC Section 4290, the future design and construction of structures, subdivisions, and developments in SRAs must provide for basic emergency access and specified perimeter wildfire-protection measures. These measures provide for road standards for emergency access; signing and building numbering; water supply reserves; and fuel breaks and greenbelts. Local standards that exceed those of PRC Section 4290 supersede the measures presented in Section 4290.

### ***Section 4119***

PRC Section 4119 authorizes USFS, BLM, and CAL FIRE to inspect properties to determine whether they comply with state forest and fire laws, regulations, or use permits.

After completing the inspection, the inspector should note all violations in writing on the Interagency Inspection Form and set a definite time limit for compliance. The time limit should be reasonable for the amount of work to be done. The inspector may consult the electric utility and jointly set the time limit, if within reason, to increase the likelihood that the work will be completed on time.

### ***Section 4291***

PRC Section 4291 applies to a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area; lands covered by forest, brush, or grass; or land that is covered with flammable material. Section 4291 requires maintaining defensible space of 100 feet from each side of the structure, but not beyond the property line. The amount of fuel modification necessary must account for the flammability of the structure as affected by building material, building standards, location, and type of vegetation.

### ***Section 4427***

PRC Section 4427 limits the use of any motor, engine, boiler, stationary equipment, welding equipment, cutting torches, tarpots, or grinding devices from which a spark, fire, or flame may originate, when the equipment is located on or near land covered by forest, brush, or grass. Before such equipment may be used, all flammable material, including snags, must be cleared away from the area around such operation for a distance of 10 feet. A

serviceable round point shovel with an overall length of not less than 46 inches and a backpack pump water-type fire extinguisher, fully equipped and ready for use, must be maintained in the immediate area during the operation.

### **Section 4428**

PRC Section 4428 limits industrial operations on or near any land covered by forest, brush, or grass between April 1 and December 1 of any year, or other times when ground litter and vegetation will sustain combustion permitting the spread of fire. Such operations must provide and maintain, for firefighting purposes only, suitable and serviceable tools in the following amounts, manner, and locations:

- ▶ A sealed box of tools must be located in the operating area, at a point accessible in the event of fire. The fire toolbox must contain a backpack pump-type fire extinguisher filled with water, two axes, two McLeod fire tools, and enough shovels for each employee at the operation to be equipped to fight fire.
- ▶ One or more serviceable chainsaws must be immediately available in the operating area, or in the alternative, a full set of timber-felling tools must be located in the fire toolbox.
- ▶ Each passenger vehicle used must be equipped with a shovel and an ax, and any other vehicle used must be equipped with a shovel. Each tractor used must also be equipped with a shovel.

### **Section 4431**

PRC Section 4431 requires users of gasoline-fueled internal combustion-powered equipment operating within 25 feet of flammable material on or near land covered by forest, brush, or grass to have a tool for firefighting purposes at the immediate location of use. This requirement is limited to periods when burn permits are necessary. Under Section 4431, the Director of Forestry and Fire Protection specifies the type and size of fire extinguisher necessary to provide at least a minimum assurance of controlling fire caused by use of portable power tools during various climatic and fuel conditions.

### **Section 4442**

PRC Section 4442 prohibits the use of internal combustion engines running on hydrocarbon fuels on any land covered by forest, brush, or grass unless the engine is equipped with a spark arrestor and is constructed, equipped, and maintained in good working order when traveling on any such land.<sup>3</sup>

### **Section 4292**

PRC Section 4292 sets forth the basic requirements for clearances around poles and towers. This section requires that flammable fuels be cleared for a minimum 10-foot radius from the outer circumference of certain poles and towers (nonexempt or subject poles or towers). The minimum clearance requirements are based on the type of hardware affixed to the line at the pole or tower. The distances for clearance requirements must be measured horizontally, not along the surface of sloping ground.

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<sup>3</sup> A spark arrestor is a device constructed of nonflammable materials used specifically for removing and retaining carbon and other flammable particles larger than 0.0232 inch from the exhaust flow of an internal combustion engine that uses hydrocarbon fuels, or that is qualified and rated by USFS.

## Section 4293

PRC Section 4293 sets forth the basic requirements for clearances around electrical conductors. This section requires that all vegetation be cleared for a specific radial distance from conductors, based on the voltage carried by the conductors: 4 feet for voltages between 2,400 and 72,000 volts; 6 feet between 72,000 and 110,000 volts; and 10 feet for voltages greater than 110,000 volts. In addition, this section calls for removal or trimming of trees that are dead, decadent, rotten, decayed, or diseased, and could fall into the line or cause other surrounding trees to fall into the line.

## REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

### Humboldt County General Plan, Safety Element

The following policy and standard in the Safety Element of the *Humboldt County General Plan* (Humboldt County 2017b) are relevant to the proposed project.

- ▶ **Policy S-P19: Conformance with State Responsibility Areas (SRA) Fire Safe Regulations.** Development shall conform to Humboldt County SRA Fire Safe Regulations.
  - **Standard S-S9: SRA Fire Safe Regulations.** Development within SRA shall conform to SRA Fire Safe Regulations (Humboldt County Code, Division 11 of Title III as amended).

### Humboldt County Community Wildfire Protection Plan

The *Humboldt County Community Wildfire Protection Plan, 2019 Update*, is intended to guide actions that will help mitigate the potential for wildfire loss in all vulnerable communities within the boundaries of Humboldt County (Humboldt County Fire Safe Council 2019). As such, the Humboldt County Fire Safe Council and its collaborators are working toward the following goals for 2018–2023:

- ▶ **Wildfire Ignition Prevention:** Reduce Human-Caused Wildfire Ignitions.
- ▶ **Wildfire Preparedness:** Increase Community Resilience and Adaptation to Wildfire.
- ▶ **Disaster Preparedness:** Increase Residents' Ability to Effectively Prepare for and Survive Wildfire.
- ▶ **Fire Protection:** Support Fire-Protection Services for People, Property, Communities, and Natural Resources.
- ▶ **Restoration of Beneficial Fire:** Restore Beneficial Fire at the Landscape Scale.
- ▶ **Integrated Planning:** Maximize Integration of Planning Efforts to Improve Community and Ecosystem Resilience to Wildfire.

### Humboldt County Emergency Operations Plan

The Humboldt County Office of Emergency Services uses the *Humboldt County Emergency Operations Plan* (Humboldt County EOP) as a guide to disaster response. This plan identifies existing conditions and

infrastructure, identifies threats and hazards, and then describes the process and roles for response and recovery actions (Humboldt County 2015).

The Humboldt County EOP identifies the incident command and response hierarchy responsible for engaging resources needed to provide sufficient response during an emergency. Engaging the aid of other responders through the use of mutual-aid agreements at the state, county, and local levels ensure that resources and personnel are assigned to meet the threat as called for by the incident commander.

### ***Fire/Rescue Unit***

All fire and emergency rescue operations in the Humboldt Operational Area other than search and rescue are managed by the fire/rescue unit leader, as described in Section 3.4.4.8, “Fire/Rescue Leader Checklist,” of the Humboldt County EOP.<sup>4</sup> According to the Wildlands Fire Checklist, a division chief or higher in the CAL FIRE Humboldt–Del Norte Unit is appointed as the fire/rescue unit leader. Agency representatives from other area fire/rescue agencies coordinate their related fire and emergency rescue efforts through the fire/rescue unit leader. Unit responsibilities and duties include:

- ▶ establishing and maintaining communications with other fire/rescue commanders in the field;
- ▶ coordinating all fire, hazardous materials, and site-specific rescue operations in the Humboldt Operational Area;
- ▶ evaluating and processing requests for fire mutual-aid resources through the operations section chief;
- ▶ providing general logistical support to field personnel as required, using established procedures for ordering support resources;
- ▶ coordinating fire/rescue unit operations with the law enforcement response/safety unit; and
- ▶ maintaining a fire/rescue unit log.

### ***Evacuation***

The Humboldt County EOP also generally outlines evacuation procedures. According to the wildlands fire checklist in Section 2.8.2.3 of the Humboldt County EOP, the following procedure is followed.

If the incident commander requests an evacuation of affected areas, the following actions are taken in coordination with local law enforcement and fire agencies:

- ▶ Identify safe evacuation routes.
- ▶ Identify and establish adequate evacuation reception areas.
- ▶ Request that the American Red Cross activate a shelter if long-term evacuation is expected.
- ▶ Provide security for evacuated areas.

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<sup>4</sup> Humboldt County Ordinance 2203 established the Humboldt Operational Area, which comprises the entire county and its cities, towns, and special districts, in coordination with independent tribes. The Humboldt County Sheriff is designated as the director of emergency services for the operational area.

## North American Electric Reliability Corporation Standards

The North American Electric Reliability Corporation (NERC) is a nonprofit corporation comprising 10 regional reliability councils. The Federal Energy Regulatory Commission oversees NERC in the United States. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, NERC develops and enforces reliability standards; monitors bulk power systems; and educates, trains, and certifies industry personnel.

To improve the reliability of regional electric transmission systems, NERC developed a transmission vegetation management program, applicable to all transmission lines operated at 200 kilovolts and above, and to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the regional electrical system. The plan, which became effective on April 7, 2006, establishes requirements for the formal transmission vegetation management program. Clearances between vegetation and any overhead, ungrounded supply conductors must be identified and documented, while considering transmission line voltage; effects of ambient temperature on conductor sag under maximum design loading; fire risk; line terrain and elevation; and effects of wind velocity on conductor sway. The clearances identified must be no less than those set forth in Institute of Electrical and Electronics Engineers Standard 516-2003.

The NERC vegetation standards also include the following requirements:

- ▶ Vegetation must be managed to prevent vegetation encroachment inside the flash-over clearance.
- ▶ The maintenance strategies, procedures, processes, and specifications used to manage vegetation to prevent potential flash-over conditions must be documented. The documentation must consider conductor dynamics and the interrelationships between vegetation growth rates, control methods, and inspection frequency.
- ▶ The appropriate control center must receive timely notification of vegetation conditions that could cause a flash-over.
- ▶ Vegetation conditions must be inspected annually.
- ▶ Work needed to prevent flash-over must be completed annually.

### 3.13.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

#### THRESHOLDS OF SIGNIFICANCE

The following thresholds of significance are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. Implementing the proposed project would result in a significant impact related to fire protection services and wildfire hazards if it would:

- ▶ result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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 fire protection;
- ▶ substantially impair an adopted emergency response plan or emergency evacuation plan;

- ▶ due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
- ▶ require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment;
- ▶ expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes; or
- ▶ expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

## ANALYSIS METHODOLOGY

This analysis of impacts of the proposed project on fire protection services and wildfire hazards is based on review of CAL FIRE’s Fire Hazard Severity Zone map for Humboldt County (CAL FIRE 2007) and the following planning documents:

- ▶ *Humboldt County General Plan Update Revised Draft Environmental Impact Report* (Humboldt County 2017a),
- ▶ *Humboldt County General Plan* (Humboldt County 2017b),
- ▶ *Humboldt County Emergency Operations Plan* (Humboldt County 2015),
- ▶ *Humboldt County Community Wildfire Protection Plan* (Humboldt County Fire Safe Council 2019),
- ▶ *Power Line Fire Prevention Field Guide* (CAL FIRE 2008), and
- ▶ *Humboldt–Del Norte Unit Strategic Fire Plan* (CAL FIRE 2018).

Additional background information on current services, staffing, and equipment was obtained through consultation with the Rio Dell Fire Protection District and CAL FIRE.

## ISSUES NOT DISCUSSED FURTHER

### **Substantial Impairment of an Adopted Emergency Response Plan or Emergency Evacuation Plan—**

Construction of the proposed project would not impair an adopted emergency response plan or emergency evacuation plan. Increased truck traffic along haul routes during construction and the temporary closure of U.S. 101 to accommodate the large size and low maneuverability of heavy trucks hauling project components are discussed in Section 3.12, “Transportation and Traffic.”

**Exposure of Project Occupants to Pollutant Concentrations from a Wildfire or the Uncontrolled Spread of a Wildfire—**Carbon dioxide, water vapor, carbon monoxide, hydrocarbons, and other constituent materials are all present in wildfire smoke. However, the principal pollutant of concern from wildfire smoke is particulate matter. Section 3.4, “Air Quality,” addresses air quality in the project area, health effects associated with pollutants, and existing/typical wind and dispersion conditions.

**Exposure of People or Structures to Significant Risks as a result of Runoff, Post-fire Slope Instability, or Drainage Changes**—Clearing and grading for the project components would not substantially alter the topography, and stream channel crossings would be stormproofed to improve their capacity and protect against erosion. All timber harvest activity must follow the California Forest Practice Rules, which require preparation and implementation during the wet-weather season of a winter operations plan. Culverts, drains, or other water management devices would be inspected before the wet season and after large storms and would be kept clear to allow effective drainage. Section 3.10, “Hydrology and Water Quality,” provides a detailed discussion of stormwater runoff, slope stability, and drainage changes.

**IMPACTS AND MITIGATION MEASURES**

<b>IMPACT</b> <b>3.13-1</b>	<b>Increased Demand for Fire Protection Services.</b> <i>Implementing the proposed project could result in a need for additional firefighting equipment and technical rescue services that would exceed the training and existing equipment capabilities of likely responders. This impact would be <b>potentially significant</b>.</i>
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The proposed project would not include new residential development or buildings (the traditional drivers of service demand) that would result in a need to construct new or expand existing fire protection facilities. Instead, the project has the potential to create calls for service by increasing the risk of wildfire (see Impact 3.13-2), and injuries associated with falls or equipment failure in locations not accessible by existing equipment.

As discussed in Impact 3.13-2, below, the project applicant would prepare an O&M plan that would include a safety component, including fire protection. All activity conducted on the project site would adhere to applicable regulatory standards for fire protection: training and equipping on-site personnel in communication protocols for reporting a fire; providing each vehicle with equipment to suppress a fire; restricting high-risk activity during peak fire season; and rigorously clearing vegetation around project components. Application of the practices outlined in the O&M plan would reduce but not eliminate the project’s dependence on equipment and personnel from CAL FIRE, the Redcrest Volunteer Fire Department, and the Rio Dell Fire Protection District.

In the event emergency access to a wind turbine generator is required, specialized equipment or training may be needed that could exceed the capabilities of local fire protection providers. The Rio Dell Fire Protection District has indicated that the district would require additional equipment, including an aerial truck, water tender, and commercial firefighting equipment, and specialized training to provide adequate rescue and fire protection services to calls for service at the project site (Wilson, pers. comm., 2019).

The identification of need and revenue sources for allocation to fire and emergency services training and equipment is reviewed annually by the fire chiefs, who prepare a fire services annual report that is presented to the Board of Supervisors. Humboldt County staff use the report to inform the Board of Supervisors and the public about the entities that provides local community fire protection, the services they can provide, and the levels of volunteer effort needed to sustain service. Humboldt County policies on funding fire protection service districts are outlined in the *Humboldt County Community Wildfire Protection Plan*. This plan identifies a variety of ongoing funding sources for fire protection districts and departments, such as revenue exchange agreements, benefit assessments, mitigation fees, and user fees. It is the policy of Humboldt County to establish adequate and reliable revenue sources for local fire departments, as well as innovative cost-sharing programs.

This impact would be **potentially significant**.

### Mitigation Measure 3.13-1a: Prepare and Implement a Fire Services Financing Plan.

Before energizing the project, the project applicant shall develop and implement a fire services financing plan in consultation with the Humboldt County Fire Chiefs' Association and Rio Dell Fire Protection District. The plan shall identify:

- the equipment needed to provide emergency rescue, medical, or fire protection calls for service at the project site;
- the cost to acquire equipment and training in the use of the equipment as measured over the 30-year life span of the project;
- the project applicant's fair-share contribution toward acquisition of this equipment and training; and
- a financing mechanism to allow for receipt and distribution of funds to implement the plan.

The plan shall be monitored annually and the outcome shall be included in the fire services report completed by the fire chiefs and submitted to the County Board of Supervisors.

### Mitigation Measure 3.13-1b: Prepare and Implement a Fall Protection and Rescue Plan.

Before any construction permits are issued or construction activity begins, the project applicant shall prepare a fall protection and rescue plan that shall be submitted for approval by the Humboldt County Planning & Building Department. Once approved, the plan shall be implemented throughout the life of the project.

The fall protection and rescue plan shall identify site access, vehicle parking and staging areas, dimensions of confined spaces, anchor points, personal protection, and patient packaging. The project applicant shall retain a reputable training provider that will provide training in high-angle rescue. Potential training providers can include state fire training organizations and private companies. Training shall be in accordance with National Fire Protection Association (NFPA) 1006, Standard for Technical Rescuer Professional Qualifications, and NFPA 1670, Standard on Operations and Training for Technical Search and Rescue Incidents. This training shall include but not be limited to the following elements:

- Rope system anchors
- Evacuation litters
- Rescuer and patient packaging
- Lowering and raising systems
- Mechanical advantage systems
- Fall protection and/or limiter systems

Personnel shall practice their techniques on a regular basis to remain proficient. All training shall be documented and include attendee signatures, and files documenting all training shall be maintained in the event of an investigation after an incident.

**Implementation:** Project applicant.

**Timing:** *Fire services financing plan:* Before the project is energized.  
*Fall protection and rescue plan:* Before issuance of construction permits or initiation of construction activity.

**Enforcement:** Humboldt County Planning & Building Department.

Application of the procedures identified in the O&M plan, implementation of Mitigation Measures 3.13-1a and 3.13-1b, and continuation of existing countywide policy on fire protection services would avoid a substantial increase in calls for service that require the physical construction of new facilities. Implementing these mitigation measures would reduce the potential impact from increased demand for fire protection to **less than significant**.

The Bridgeville Substation expansion would not increase the demand for fire services beyond what is already required to service the site. This impact would be **less than significant**.

<b>IMPACT 3.13-2</b>	<b>Increased Risk of Wildland Fires.</b> <i>The project area is located on land considered to be a State Responsibility Area with a high fire hazard severity rating. Project construction and operation would include activities that may create sparks or flames, representing a potential hazard that would exacerbate the risk of wildfire. This impact would be <b>potentially significant</b>.</i>
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As discussed above, CAL FIRE has identified the project area as an area with a high and very high fire hazard severity rating. The wind energy generation area is in a remote area, covered in grass and scattered trees, where high winds occur regularly.

During project construction, heavy equipment and passenger vehicles driving on vegetated areas before clearing and grading could increase the fire danger. Construction equipment or heated mufflers could throw sparks, or oils, lubricants, and other combustible materials could accidentally ignite, resulting in a fire. Construction activities such as steel cutting and welding are also potential sources of ignition.

During project operation, up to 60 wind turbine generators and an on-site electrical substation would be maintained on-site. The presence of these facilities would increase the potential for accidental ignition of a wildland fire caused by a malfunction or mechanical failure, such as turbine overload or overheating of moving parts, or a structure fire associated with the substation. Sparks could be fueled by oils, lubricants, and other combustible materials, resulting in a fire.

The project would connect to the transmission system at the Pacific Gas and Electric Company Bridgeville Substation via an approximately 25-mile overhead transmission line or gen-tie (see Figure 2-9 in Chapter 2, “Project Description”). The overhead, 115-kilovolt transmission interconnect lines would be constructed on wooden H-frames, wood poles, or metal monopole structures (see Figure 2-10 in Chapter 2), which would be placed within a 100-foot-wide transmission corridor. Potential sources of fire associated with transmission lines

include downed lines, bird strikes, contact with vegetation, apparatus failures (e.g., switches, insulators, transformers), and arc flashes.<sup>5</sup>

The project site is subject to HRC's logging and silviculture operations. These activities lower fuel loads and understory compared to nonmanaged lands, thus serving as a method of wildfire management. HRC meets annually with CAL FIRE battalion chiefs and engineers. This coordination allows CAL FIRE personnel to become familiar with all primary roads that provide access to HRC property, including the project site. HRC annually prepares a fire plan that is submitted to CAL FIRE. The fire plan is considered part of the management plan and contains a "call-down" list of critical HRC employees and their emergency phone numbers that is used to report fires on the property.

HRC also provides funding for a countywide aerial fire patrol. Aerial fire patrol operations occur daily during peak fire season to monitor and report observations of wildfire in the region. Using aerial patrols promotes the early detection of a wildfire, providing incident commanders more time to assess conditions and implement provisions of the Humboldt County EOP that engage mutual-aid agreements. This system allows the commander to call upon other agencies to support the effort by sending firefighters and equipment.

Access is another element in wildfire protection and prevention. All primary access roads on HRC forestlands are maintained regularly and kept open for fire truck access. HRC employees are provided firefighting equipment in their vehicles and are trained to efficiently direct fire response traffic. A companywide communication system provides for an effective and quick response. Important helicopter landings have been inventoried and Global Positioning System coordinates recorded for emergency response. Where access to available water for road watering and firefighting tenders is limited, HRC is developing water systems with holding tanks.

Access throughout the project site would be improved as a result of project-related activity, which would upgrade dirt logging roads to compacted gravel all-weather roads. Upon completion of construction, access roads would be returned to HRC and managed according to the overall HRC management plan. Roads would be constructed, reconstructed, and removed using specifications and best management practices described in the plan. Typical measures for ensuring proper site maintenance include identifying access and evacuation routes at the project site; clearing dry, flammable vegetative growth, thereby limiting vegetation fuel sources; and designing firebreaks (by, at minimum, adhering to established setback distances).

Measures for addressing fire safety provided in the project's O&M include compliance with NERC Standard FAC-003, "Transmission Vegetation Management," and remote monitoring of wind turbine generator operations through the Supervisory Control and Data Acquisition system. (See Chapter 2, "Project Description," for further discussion.)

The project applicant would comply with all laws, plans, policies, and regulations related to fire safety and wildfire suppression identified in Section 3.13.2, "Regulatory Setting." The applicant would comply with the following requirements identified in the California Public Resources Code:

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<sup>5</sup> An arc flash, as known as a flash-over, is defined as an electrical discharge that flows through an air gap between conductors or to the ground, leading to a rapid rise in air temperature and pressure and resulting in an explosion. Arc flashes can be caused by sparks as a result of breaks or gaps in insulation, equipment failure, dust, and corrosion.

- ▶ PRC Section 4427, which identifies appropriate fire suppression equipment and stipulates removal of flammable materials to a distance of 10 feet from any equipment that could produce a spark, fire, or flame on days when burning permits are required;
- ▶ PRC Section 4428, which identifies additional firefighting equipment requirements during the period of highest fire danger (April 1–December 1); and
- ▶ PRC Section 4431, which prohibits the use of portable tools powered by gasoline-fueled internal combustion engines within 25 feet of flammable materials when burning permits are required.

The project applicant would be required to prepare a detailed vegetation management plan that incorporates the requirements established in the following additional sections of the Public Resources Code:

- ▶ PRC Section 4290, which requires a firebreak around and adjacent to buildings and structures by removing and clearing away all brush, flammable vegetation, or combustibles for a distance of 100 feet;
- ▶ PRC Section 4292, which requires clearing of flammable fuels for a minimum 10-foot radius from the outer circumference of poles and towers; and
- ▶ PRC Section 4293, which sets basic requirements for clearances around electrical conductors.

Furthermore, the project applicant would meet vegetation clearance requirements outlined in Title 14, Section 1104.1(d) of the California Code of Regulations for single overhead facilities, and in CPUC General Order 95 requirements for overhead utility lines in high-fire-threat areas. Figure 3.13-3 illustrates vegetation clearance requirements.

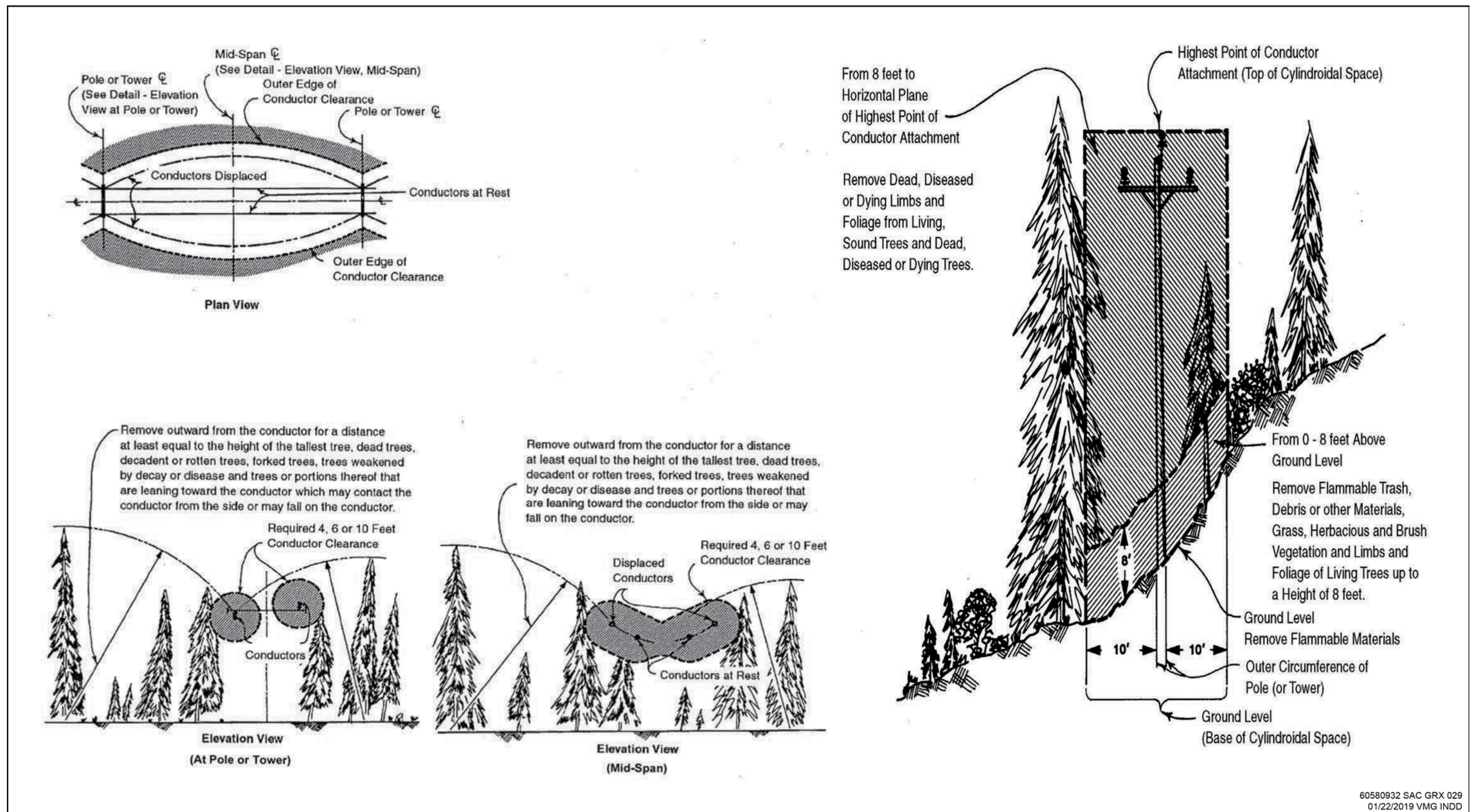
As discussed above, increased fire risks associated with wind turbine generators include construction accidents, turbine malfunctions or mechanical failure, and hardware and conductor failures of power collection lines. Ongoing wildfire management on the project site by HRC and compliance by the project applicant with all state and Humboldt County laws, plans, policies, and regulations regarding wildfire prevention and suppression would reduce the potential risk of wildfires. However, the proposed project would introduce new energy production facilities and activities that may create sparks or flames, representing a potential hazard that would exacerbate the risk of wildfire. This **direct** impact would be **potentially significant**. CAL FIRE does not support development in areas where there is no local agency fire service for structure fires and emergency response, but does provide recommendations for reducing the risks related to wildland fire. These recommendations are memorialized in Mitigation Measures 3.13-2a and 3.13-2b.

#### **Mitigation Measure 3.13-2a: Prepare and Implement a Fire Safety and Management Plan to Minimize the Potential for Wildland Fires.**

Before any construction permits are issued or construction activity begins, the project applicant shall develop a fire protection plan. The plan is subject to review and approval by the Humboldt County Planning & Building Department in consultation with CAL FIRE and shall be implemented during construction and throughout the lifetime of project operations. The scope of the plan shall apply to all property, buildings, structures, operations, and facilities associated with the project. The plan shall include identified helicopter landing zones, special rescue equipment to be kept on-site, a training plan for first

responders, and suitable areas for the installation and maintenance of wildland fire control features. The fire safety and management plan shall do all of the following:

- Require that all internal combustion engines, stationary and mobile, be equipped with spark arresters. Spark arresters shall be in good working order.
- Require that light trucks and cars with factory-installed (type) mufflers be used only on roads where the roadway is cleared of vegetation. Said vehicle types shall maintain their factory-installed (type) muffler in good condition.
- Specify that fire rules shall be posted on the project bulletin board at the contractor's field office and in areas visible to employees.
- Ensure that equipment parking areas and small stationary engine sites are cleared of all extraneous flammable materials.
- Specify that personnel must be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- Prohibit smoking in wildland areas, with smoking limited to paved areas or areas cleared of all vegetation.
- Require consultation with CAL FIRE regarding the need to install water or dip tanks within the project site.
- Implement measures developed to address fire prevention on Red Flag Warning days issued by the National Weather Service for the project site. All nonemergency construction and maintenance activities shall cease, or implementation measures to address fire hazards on Red Flag Warning days shall be approved as part of construction plans and or within the operation plan, allowing certain limited activities to proceed.
- Describe the preventive strategies and programs adopted to minimize the risk of electrical lines and equipment causing catastrophic wildfires.
- Describe protocols for identifying the potential for fire, including providing meteorological data collected by meteorological towers to CAL FIRE to help reporting on local conditions, and actions to verify fire and CAL FIRE contact information to report a potential fire.
- Identify protocols for disabling re-closers and deenergizing portions of the electrical distribution system, considering the associated impacts on public safety.
- Describe plans for inspections of electrical infrastructure.
- Prepare a list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks associated with project operation and transmission to the point of interconnection.



Source: Adapted by AECOM in 2019

**Figure 3.13-3. Vegetation Clearance Requirements**

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### Mitigation Measure 3.13-2b: Prepare an Emergency Response Plan.

Before any construction permits are issued or construction activity begins, the project applicant shall prepare an emergency response plan for operations. The plan is subject to review and the Humboldt County Planning & Building Department in consultation with CAL FIRE. The emergency response plan shall address potential accidents or emergencies involving fires or explosions at the wind energy facility, and shall provide key names and addresses of contacts in case of emergency, as well as a description of processes and general information about facility hazards. The emergency response plan shall describe how to identify an emergency, how to alert someone and whom to alert if an emergency occurs, roles during an emergency, how the emergency will be controlled, and how to terminate the incident.

**Implementation:** Project applicant.

**Timing:** *Fire safety and management plan:* Plan preparation before issuance of construction permits or initiation of construction activity; plan implementation during construction and throughout the lifetime of project operations. The plan is to be updated and submitted to the Humboldt County Planning & Building Department and CAL FIRE annually. *Emergency response plan:* Before issuance of construction permits or initiation of construction activity.

**Enforcement:** Humboldt County Planning & Building Department in consultation with CAL FIRE.

Implementing these mitigation measures would reduce the potential impact from exposure to wildland fires to **less than significant**.

Implementing these mitigation measures would also reduce risk of wildland fires associated with the Bridgeville Substation expansion to **less than significant**.

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