4.12 FIRE AND FUELS MANAGEMENT

This section presents the environmental setting and impact analysis of fuels management and the potential for wildfires resulting from the Proposed Project and its alternatives. This section addresses baseline conditions within transmission line corridors and work areas, wildland fire behavior model simulation results, applicable regulations, environmental impacts, and mitigation measures to reduce or avoid significant effects. Appendix I presents an SDG&E draft fire prevention plan for the Proposed Project.

4.12.1 Approach to Data Collection

Fire and fuels management resources in the Proposed Project area were evaluated by reviewing the following data sources:

- California Department of Forestry and Fire Protection (Cal Fire) Fire Hazard Severity Zone maps (Cal Fire 2012)
- Sunrise Powerlink EIR/EIS (BLM and CPUC 2008)
- LANDFIRE landscape fire and resource management planning tools (USFS 2015)
- Cal Fire Fire and Resource Assessment Program (FRAP) Fire Perimeters (Version 13.2) (Cal Fire 2015)

A comprehensive field inventory of wildfire fuels was conducted for the Sunrise Powerlink Project EIR/EIS (BLM and CPUC 2008). Portions of this study area overlap with segments of the Proposed Project; thus, data from this study were applicable to the Proposed Project and were used to determine the fire behavior and wildfire containment conflict in the overlapping areas.

Three firesheds[1] were identified along the Proposed Project transmission line alignment. The boundaries for two of the project firesheds (Poway and Peñasquitos) were defined by topography, vegetation cover, weather, and historic fire perimeters in the Sunrise Powerlink EIR/EIS. The boundary of the Black Mountain Fireshed was determined using land use, access, terrain and vegetation types, all of which influence landscape-level wildfire behavior.

[1] Firesheds are regional landscapes that are delineated based on fire history, fire regime, vegetation, topography, and potential wildfire behavior. Firesheds are useful assessment tools for identifying high fire risk areas and predicting future fire behavior with the objective of reducing fire risk and protecting communities.

4.12.2 Environmental Setting

4.12.2.1 Regional Setting

The potential for damaging wildfires in San Diego County is high. The County is dominated by a Mediterranean-type climate with mild, wet winters and hot, dry summers. This climate supports dense, drought-adapted shrublands that are highly flammable, especially in the fall as fuel moistures reach very low levels. Seasonal winds known as Santa Ana winds create extreme fire weather conditions characterized by low humidity, sustained high-speed winds, and extremely strong gusts. Santa Ana winds typically blow from the northeast over the Peninsular Range and are at their peak during fall and early winter months, which marks the height of fire season. Santa Ana winds have been the primary driver of most of California's catastrophic wildfires.

Figures 4.12-1 and 4.12-2 present maps of the Proposed Project overlain with Cal Fire fire hazard severity zones. Fire hazard severity zones represent a measurement of the likelihood that an area will burn, combined with the severity of burn behavior characteristics (such as intensity, speed, and embers produced). Although wildfires are a natural process in the chaparral ecosystems in San Diego County, wildfires can have damaging effects on both built communities and natural resources including air quality, biological resources, and water quality. These effects are exacerbated as the frequency of large wildland fires increases under human influence (Keeley 2010).

Fires Caused by Power Lines

Power lines are recognized for causing large and destructive fires in San Diego County. Fires can be started by power lines in the following ways:

- Vegetation contact with conductors
- Exploding hardware such as transformers and capacitors
- Floating or wind-blown debris contact with conductors or insulators
- Conductor-to-conductor contact
- Wood support poles being blown down in high winds
- Dust or dirt on insulators
- Bullet, airplane, and helicopter contact with conductors or support structures

There is a public perception that all power lines can be a direct cause of wildfire ignitions. In fact, power line-caused fires are much more prevalent for distribution and lower-voltage transmission lines compared with the higher-voltage transmission lines that are part of the Proposed Project. The energized conductors on distribution and lower-voltage transmission lines are much closer together (as close as 2 feet) compared with higher-voltage transmission lines (17 to 35 feet for 500-kV, depending on structure type; 18 to 21 feet for 230-kV, depending on structure type). Fallen or wind-blown tree limbs and debris can more easily come into

Figure 4.12-1 Fire Hazard Severity Zones for Proposed Project Transmission Alignment

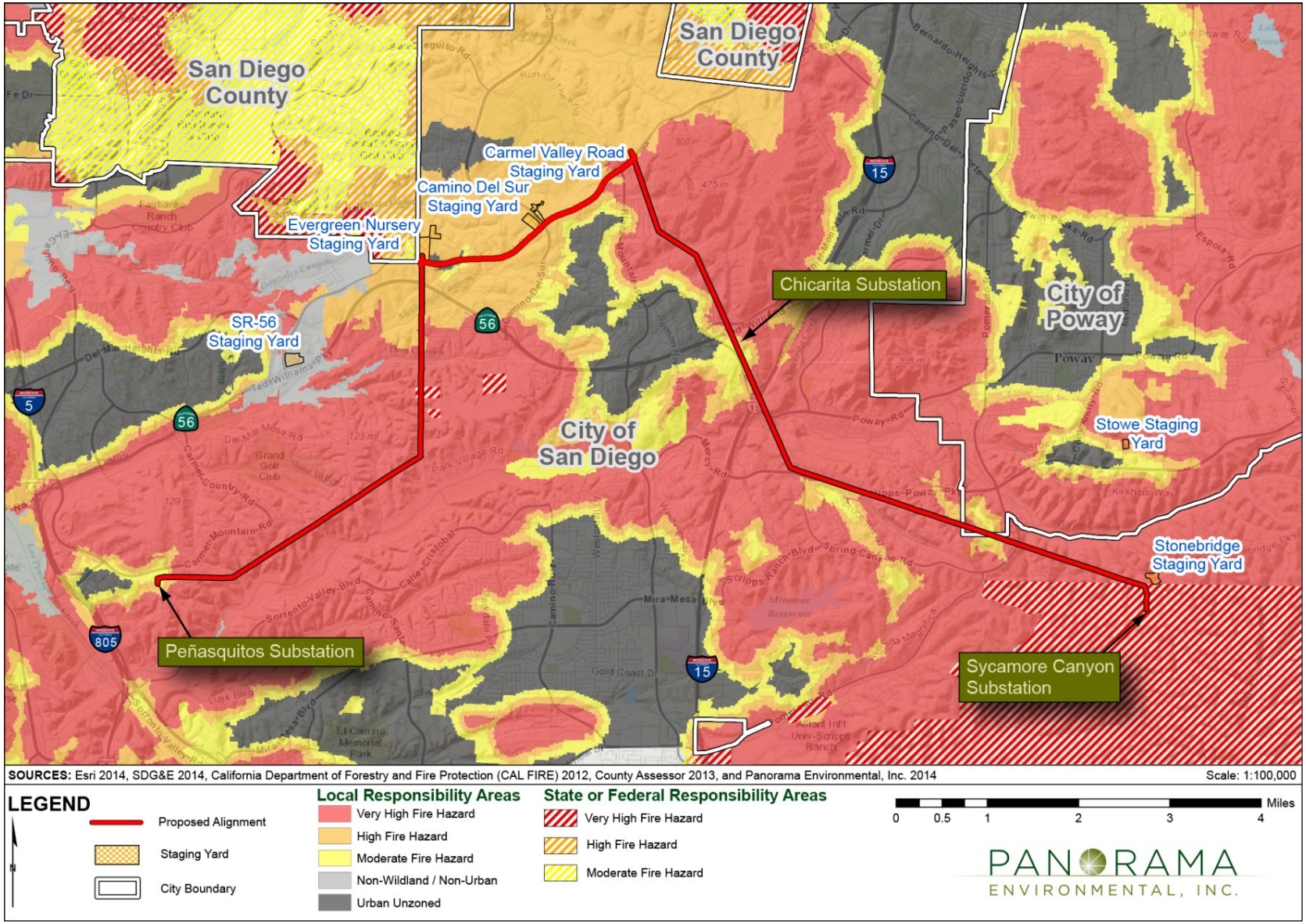
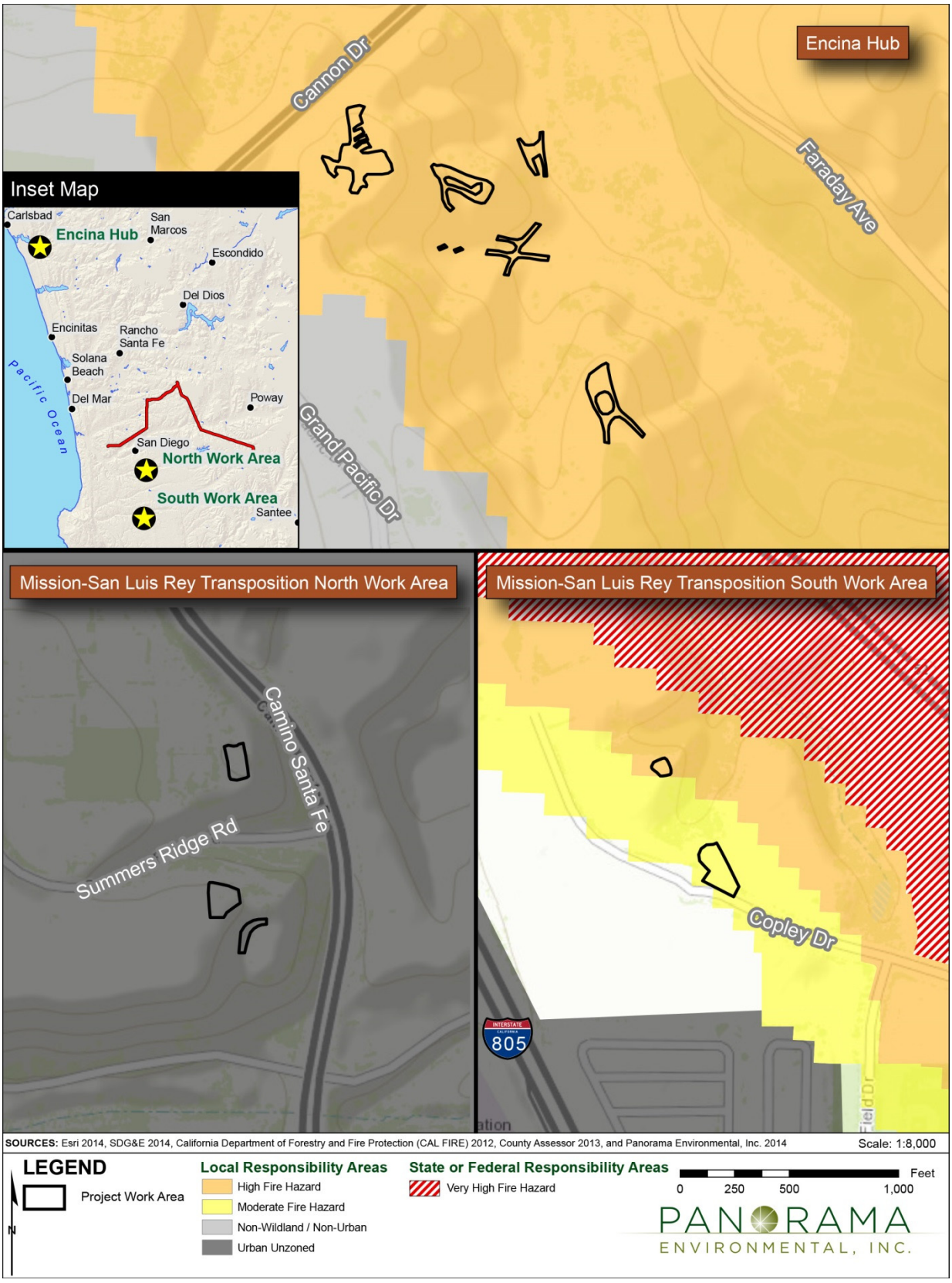


Figure 4.12-2 Fire Hazard Severity Zones for Other Proposed Project Areas



contact with and bridge two distribution conductor phases[2], which can cause electrical arcs[3] that can set fire to woody debris. Because higher voltage transmission line conductors are spaced much further apart, this phenomenon is extremely rare on 230-kV and 500-kV transmission lines. Arcing from a single conductor to ground through vegetation contact can also occur, but conductors are generally much further from the ground than they are from one another, and therefore arcing between conductor phases is more likely than between a conductor and the ground.

Transmission lines at voltages of 69-kV are subject to conductor-to-conductor contact, also known as a "mid-line slap" hazard, which occurs when extremely high winds force two conductors on a single pole to oscillate so excessively that they contact one another. This can result in sparks that can ignite nearby vegetation. Transmission lines at this voltage are often supported by wood poles, which can typically withstand a lower level of wind loading compared with steel monopoles and lattice steel towers. Wood poles have a higher potential for structural failure during extreme wind events like Santa Ana events.

Multiple wood pole failures on a single 69-kV line can result in conductors contacting the ground and igniting nearby vegetation or the wood poles themselves. Other transmission line-related ignition sources may include airborne debris (e.g., Mylar balloons, kites) coming into contact with conductors or insulators, dust or dirt on insulators, and accidents related to guns, airplanes, and helicopters coming into contact with conductors, poles, and towers.

Transmission line protection and control systems are designed to detect faults (such as arcing from debris contacting the line) and rapidly shut off power flow in 1/60 to 3/60 of a second. Distribution systems are designed to be more tolerant to line faults. In an effort to "keep the lights on," distribution line protection and control systems allow faults to last longer and are sometimes set to automatically reenergize a faulted line after a very brief delay (a second or so) in the event that the fault has cleared. If a fault is related to debris tangled in the conductors, immediate re-energizing can cause repeated sparks and ignite nearby vegetation. Because higher voltage lines are designed to be more sensitive to faults, they are typically mounted on very tall structures to provide adequate distance from vegetation.

Distribution lines are mounted with devices, such as transformers and capacitors that may fail in an explosive manner resulting in an ignition of nearby vegetation. Transmission lines are not mounted with these devices because transmission lines are not used to directly serve customer loads.

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[2] Multiple conducting wires on a single transmission or distribution line are clustered in groups of three wires that carry currents alternating at different phases. This arrangement has the safety effect of cancelling the electromagnetic field that would otherwise be created. See Chapter 2, Section 2.6 – Electric and Magnetic Fields for more on electromagnetic fields.

[3] Electrical arcing is an electric discharge that occurs when electrons are able to jump a gap in a circuit.

Both distribution and transmission systems are designed to withstand high winds, and it is extremely rare for higher-voltage transmission structures to blow over. When this rare event does occur, the protection system on a transmission line is designed to shut off power flow in a fraction of a second. Distribution structure failures are also infrequent but due to their placement in narrower corridors in close proximity to trees and other tall vegetation they may be pushed down in storms by wind-blown trees. Assisted by high winds, distribution line ignitions have caused three of the 20 largest wildfires (measured by acreage burned) in California's history from 1932 to 2006 (BLM and CPUC 2008).

Wildfires related to power lines can also be ignited by wildlife such as large birds. Bird caused flashovers[4] are possible on low-voltage distribution and transmission lines where conductors are closely spaced. Birds perched on power poles or flying between poles can simultaneously contact two conductors, causing an electrical flashover. This electrocutes the bird and occasionally causes the feathers to catch fire. The bird may fall to the ground and ignite nearby vegetation.

The primary ignition threats associated with higher-voltage transmission lines like the Proposed Project 230-kV transmission line are indirect, consisting of human-caused accidents during construction and maintenance activities. Construction and maintenance activities that may ignite fires include blasting, the use of equipment such as chainsaws, and the presence of personnel who may inadvertently ignite fires while smoking.

Failure to trim or remove trees located very close to transmission line conductors can result in wildfire ignitions when trees or branches are blown onto conductors. California law requires minimum clearances for high-voltage transmission lines; these clearance requirements are discussed in Section 4.12.3.2.

Fire Suppression and Firefighting

Wildfire control is dependent on a number of variables including weather, topography, fuel conditions (i.e., structure, volume, and moisture content), access, and timing of ignition. Most fires occur within early to middle afternoon hours when ambient temperature and fuel moisture levels are conducive to ignition. The first attempt at control and suppression is called the initial attack. If fires are not controlled within the first two or three hours, additional firefighting resources are usually called in, beginning the extended attack phase. With the onset of evening, fire intensity is typically reduced, assisting firefighters in containing the fire within a single burning period. When extended attack fails and thousands of acres burn, the incident is classified as a major event.

Fires controlled during either the initial or extended attack phase almost always occur during moderate fire weather conditions, often during the summer. Major events that involve

[4] Flashover is an unintended electric arc.

thousands of acres and do the most damage usually occur between October and January during severe weather conditions involving Santa Ana winds. Santa Ana winds can also peak in late February through early April. Wind-driven major events typically run their course until weather conditions change, as they are difficult to contain regardless of firefighting resources. Since wind-driven embers can travel a mile or more in front of the head of a fire, multiple spot fires can ignite and dramatically increase the rate of spread in high winds. Fire suppression activities during this time are usually only effective along the flanks, or sides, of the fire.

Wildland fire suppression operations are complex and expensive. Fire suppression typically involves a multi-agency firefighting response that involves hundreds of firefighters participating in coordinated air and ground operations. During the fire season, the availability and response time for these resources may vary according to the number of other emergencies in the area and the availability of volunteer firefighters.

Where overhead power lines are present, aerial and ground attacks are restricted. Aerial operations are complicated by the risk of aircrafts and/or water buckets colliding with towers or conductors during smoky, reduced-visibility conditions. Conditions are especially hazardous when transmission lines are placed on ridge tops, reducing the proximity of fire retardant and water drops that aerial firefighting crews can achieve safely.

Wildland firefighters working around energized power lines are exposed to electrical shock hazards including:

- Direct contact with downed power lines;
- Contact with electrically charged materials and equipment due to broken lines;
- Contact with smoke that can conduct electricity between lines; and
- The use of solid-stream water applications around energized lines.

During a wildland fire, it is recommended that ground attacks not be made within at least 500 feet of a power line conductor and ground-based firefighters maintain a clearance from downed, energized power lines equal to the distance between two towers (NIOSH 2002). This is a firefighting safety rule of thumb across all jurisdictions to ensure firefighter safety (BLM and CPUC 2008). Maintaining a minimum 500-foot safety buffer greatly reduces the risk of electrical structure contact, but also reduces the effectiveness of ground-based frontal attacks.

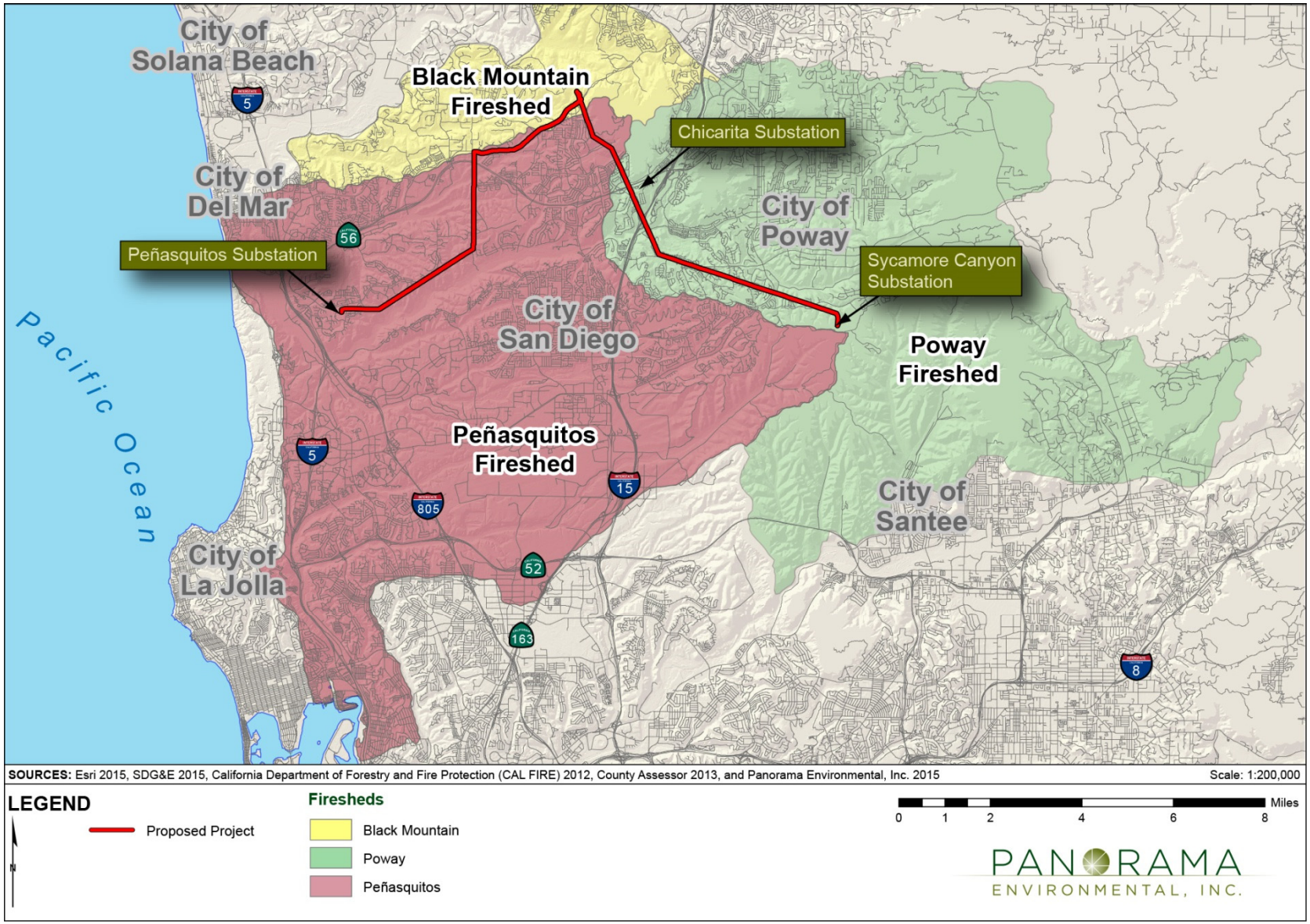
4.12.2.2 Proposed Project Setting

The environmental setting for the Proposed Project area is contained within three firesheds (Poway, Peñasquitos, and Black Mountain). Figure 4.12-3 shows the boundaries of the firesheds relative to the Proposed Project.

Poway Fireshed

The majority of the proposed new 230-kV overhead transmission line along Segment A, the Sycamore Canyon Substation, and two staging yards (Stowe and Stonebridge) are located within the Poway Fireshed.

Figure 4.12-3 Fireshed Boundaries



The humid coastal influence has a slight presence within this fireshed but it lessens as the elevation increases from the Coastal Plain into the west slope of the Peninsular Ranges. The fireshed receives between 12 and 18 inches of rainfall annually. With the slight humidity and rainfall, there is enough moisture to support chaparral and coastal sage scrub communities. The Santa Ana winds create a potential for severe to extreme fire weather in this fireshed early fall through spring.

Much of this region has been developed over the past 40 years, especially the northern portion (Sabre Springs Community and the City of Poway). Prior fire history is not as helpful in predicting future events as in other firesheds, due to the more recent residential development. However, wildland exists within the Sycamore Canyon Preserve and Marine Corps Air Station (MCAS) Miramar, near the eastern end of Segment A. Areas around and within the Sycamore Canyon Preserve have burned multiple times over the past 20 years. The 2003 Cedar Fire that burned nearly all of the wildlands within the Poway Fireshed, including the area where Segment A terminates at the Sycamore Substation.

This fireshed has experienced periodic extreme fire events (see Figure 4.12-4) and is characterized by heavy fuel loading, which presents a high possibility of future ignitions leading to catastrophic events. Development at the wildland urban interface is also high in this fireshed, placing numerous assets at risk from ignitions.

Black Mountain Fireshed

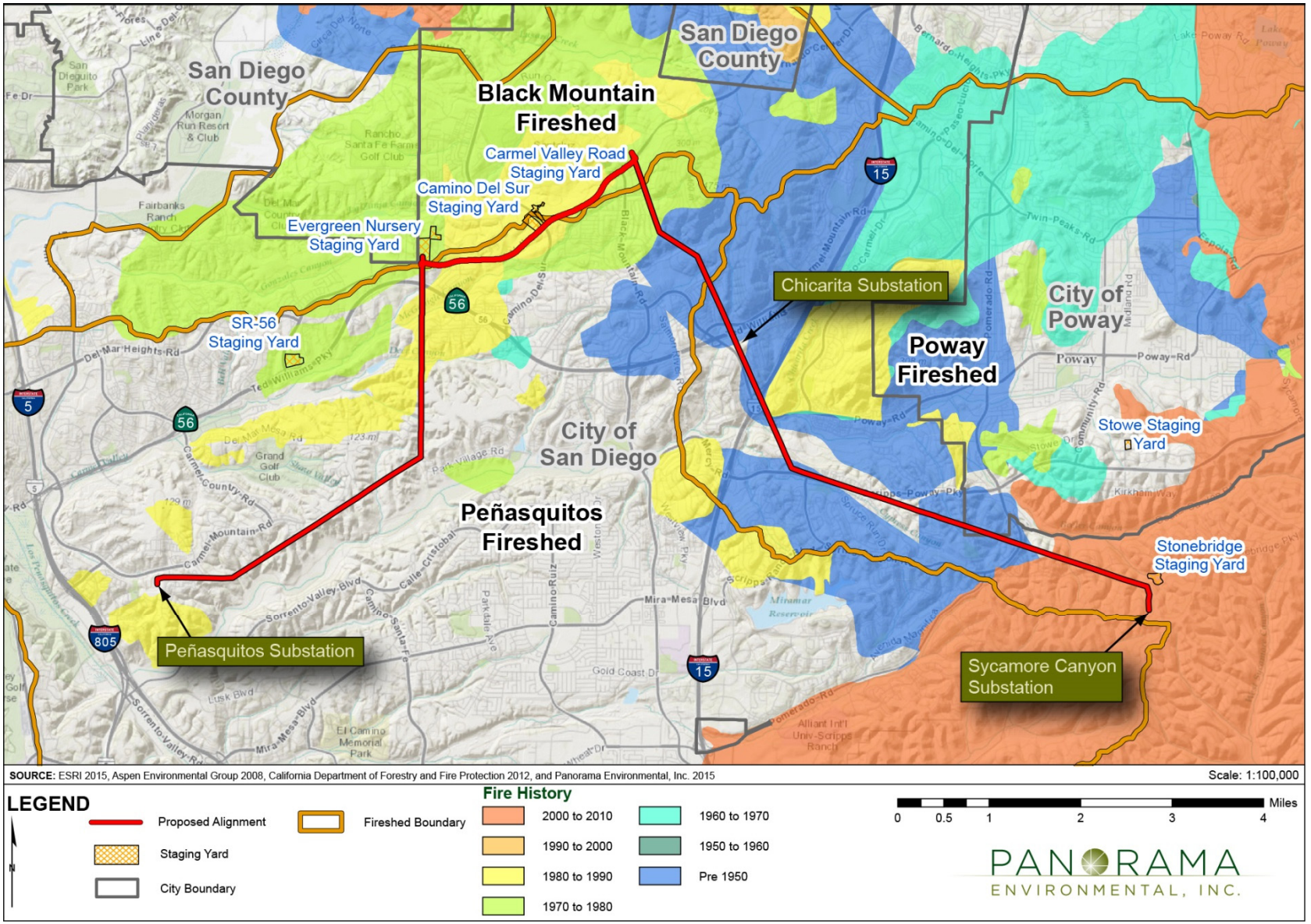
The Black Mountain Fireshed is the smallest of the three firesheds, with approximately half the acreage of the Poway Fireshed. Approximately one half of the proposed Segment B 230-kV underground duct bank, the northern end of the proposed Segment A 230-kV overhead transmission line, and the Evergreen Nursery staging yard would be within the Black Mountain Fireshed.

The eastern third of the Black Mountain Fireshed consists of the Black Mountain Open Space Preserve. The center part of the fireshed is comprised of single-family residential development interspersed with golf courses.

The land use in the western third is characterized by single-family residential development on ridgetops and privately-owned open space in a steep-sided canyon that runs west-east. The Black Mountain Fireshed is several miles from the coast, and temperatures can be as much as 10 degrees higher than coastal temperatures. The area rarely experiences fog and Santa Ana winds are frequent. Strong eastern winds with hot, dry air from the inland deserts often occur in September and October, producing what are usually the highest temperatures of the year. The winter wet weather season occurs from November to March and typically accounts for 85 to 90 percent of the annual rainfall.

The fire history records in and around the Black Mountain Fireshed indicate a relatively high frequency of wildfire events. In the last 75 years, seven fires have burned within the fireshed boundaries while two others have originated offsite and moved into the fireshed (Figure 4.12-4).

Figure 4.12-4 Wildfire Events in Proposed Project Area Since 1940



The most recent large fire that impacted nearly the entire fireshed occurred in 1979. Since 1979 several small fires have occurred in the fireshed. Over the last 50 years, 9,465 acres have burned, including the entire extent of the Proposed Project transmission line alignment that occurs within the Black Mountain Fireshed.

Peñasquitos Fireshed

The Peñasquitos Fireshed encompasses more than half of the Proposed Project area. It includes approximately half of the Segment B underground 230-kV transmission duct bank, almost all of the overhead 230-kV transmission line along Segment C, the entire Segment D overhead 230-kV transmission line, the Peñasquitos Substation, the Mission—San Luis Rey Phase Transposition work areas, and three staging yards (SR-56, Camino Del Sur, and Carmel Valley Road).

The San Diego coast receives a significant amount of its moisture from coastal fog and humidity. The western half of the Peñasquitos Fireshed receives average annual rainfall of 11 to 13 inches. Coastal weather patterns have an influence on vegetative fuels, as demonstrated when the 2003 Cedar Fire diminished as it burned into the moister shrub communities and interacted with the marine air mass influences within this fireshed.

Nearly all of the fires that have burned within the Peñasquitos Fireshed have occurred in the northern portion of the fireshed, specifically within the northern Los Peñasquitos and Del Mar Mesa region where the last remnants of native open space exists. The total recorded fire history for this area includes several small fires that burned in 1971, 1982, 1983, 1986, 1987, and a large 1,483-acre fire that burned in 1989. The southern portion contains MCAS Miramar and the westward boundary of the 2003 Cedar Fire.

Reflecting the urbanized nature of this fireshed, its relatively small wildland area, and its proximity to moister coastal influences, only five wildfire ignitions occurred between 1995 and 2008 (BLM and CPUC 2008). This fireshed experiences periodic extreme fire weather events, but fuel loads are patchy and enclosed by developments, so the overall risk of ignitions leading to catastrophic events is moderate. Development at the wildland urban interface is high in this fireshed, placing numerous assets at risk from ignitions during extreme fire weather.

Encina Hub

Given its distance from the Proposed Project transmission line segments, the Encina Hub does not lie within one of the three previously established firesheds. An additional fireshed was not formally assessed and created for this Proposed Project component given the limited nature of the proposed work at this location. Firesheds allow linear work areas to be analyzed as broadly based on landscape characteristics and fire history of the area. The type of work to be completed at the Encina Hub is not linear and is very localized in nature. The work activities at the Encina Hub, therefore, do not fit the characteristics for fireshed analysis. Instead, localized fire threat at the Encina Hub can be analyzed by considering the immediate environmental setting using the same fire behavior prediction software and the same fuels and weather data sources.

The Encina Hub work area vegetation and climate differ from that of the Proposed Project transmission line segments. The fuels immediately surrounding the Encina Hub are generally

classified as coastal sage scrub and landscaping. Vegetation that is present is largely a mixture of grass and scrub. Large areas of grass are common south of the Encina Hub site.

The Encina Hub experiences coastal climate conditions with typical temperatures around 80 degrees. Fog is common, especially in the summer months. The area experiences frequent winds from the west and southwest carrying moisture from the Pacific Ocean. Winds from the northeast are rare. The Encina Hub work areas receive an average of about 10 inches of precipitation annually, averaging from 1 to 2 inches of rain per month from November to March.

There have been no fires larger than 100 acres recorded by Cal Fire in the area around the Encina Hub; however, in May 2014, a 400+ acre fire burned approximately 3 miles to the southeast of the Encina Hub site.

4.12.3 Applicable Regulations, Plans, and Standards

4.12.3.1 Federal

No federal regulations related to fire and fuels management apply to the Proposed Project. Several entities develop codes and standards, but the state or the local government must adopt those codes and standards in order to apply to a specific area. Entities such as the North American Electric Reliability Council, or Institute of Electrical and Electronics Engineers, which develops the National Electrical Safety Code are not federal regulators.

The Sycamore Substation and a portion of the Proposed Project transmission line are located within MCAS Miramar. SDG&E has a Grant of Easement with the Department of the Navy for all utility facilities within MCAS Miramar; however, no specific fire and fuels management requirements are specified in the easement.

4.12.3.2 State

California Public Resources Code

The PRC includes fire safety regulations that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors[5] on construction equipment that use 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 on site for various types of work in fire-prone areas. These regulations include the following measures.

- Earth-moving and portable equipment with internal combustion engines shall be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC §4442)

[5] A spark arrestor is a device that prevents the emission of flammable debris from the exhaust of an internal combustion engine where they could cause a spark.

- Appropriate fire suppression equipment shall be maintained during the highest fire danger period from April 1 to December 1 (PRC §4428)
- On days when a burning permit is required, flammable materials shall be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor shall maintain the appropriate fire suppression equipment (PRC §4427)
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines shall not be used within 25 feet of any flammable materials (PRC §4431)

The PRC presents the following guidelines for minimum clearance requirements around utility poles and transmission lines (PRC §4296).

- Create and/or maintain a 10-foot clearance of any tree branches or ground vegetation from around the base of power poles carrying more than 110-kV
- Clear 10 foot by 8 foot cylinder around the base of subject poles and transmission structures
- Remove dead, diseased, or dying vegetation that could fall into lines, and dead, diseased, or dying vegetation up through the primary conductor level on poles
- Maintain 10-foot clearance between trees and all transmission lines carrying 115-kV and above

The required firebreak clearances are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached and surrounding each dead-end or corner pole.

CPUC General Order 95: Rules for Overhead Electric Line Construction

General Order 95 was adopted in 1941 and updated most recently in 2014. General Order 95 governs the design, construction, operation, and maintenance of overhead electric lines in California. It sets safety standards for overhead electric lines, including minimum clearance between conductors, and between conductors and ground as well as standards for calculating maximum sag, and minimum distances between conductors and vegetation. Rule 35 of General Order 95 specifies minimum radial vegetation clearance distances for power lines. Rule 35 guidelines require:

- 4 feet radial clearances for any conductor of a line operating at voltages from 2,400 to 72,000. Radial distances are increased to 6.5 feet in Extreme or Very High Fire Threat Zones.
- 6 feet radial clearances for any conductor of a line operating at voltages from 72,000 to 110,000 Volts. Radial distances are increased to 10 feet in Extreme or Very High Fire Threat Zones.
- 10 feet radial clearances for any conductor of a line operating at voltages between 10,000 and 300,000 Volts (this would apply to the Proposed Project). Radial distances are increased to 20 feet in Extreme or Very High Fire Threat Zones.

4.12.3.3 Local

City of San Diego Local Community Wildfire Protection Plans
Local communities commonly collaborate on identification of risks and projects to reduce potential losses from wildfire. These plans guide actions on a local and regional scale, and are often used to help prioritize funding from granting entities and government agencies. The Proposed Project area is covered by the Rancho Peñasquitos Community Wildfire Protection Plan, which is a draft plan pending approval.

City of Poway General Plan
The City of Poway General Plan (1991) identifies strategies that should be implemented to minimize the risk of injury, loss of life and damage to property resulting from fire hazards. The following strategies are applicable to the Proposed Project:

Public Safety Element
Policy B – Fire Protection

Strategy 5:	All proposed development shall satisfy the minimum structural fire protection standards contained in the adopted editions of the Uniform Fire and Building Codes however where deemed appropriate the City shall enhance the minimum standards to provide optimum protection.
Strategy 9:	Enforce the fire control requirements of the City s landscape standards.
Strategy 12:	The construction of public facilities and transportation corridors shall be consistent with the adopted standards of the Uniform Building Code and Uniform Fire Code.

City of Carlsbad General Plan
There are no goals or policies related to fire and fuels management that apply to the Proposed Project.

4.12.4 Applicant Proposed Measures

SDG&E has proposed measures to reduce environmental impacts. The significance of the impact is first considered prior to application of APMs and a significance determination is made. The implementation of the APMs is then considered as part of the Proposed Project when determining whether impacts would be significant and thus would require mitigation. These APMs would be incorporated as part of any CPUC project approval, and SDG&E would be required to adhere to the APM as well as any identified mitigation measures. The APMs are included in the MMRP for the Proposed Project (refer to Chapter 9 of this EIR), and the implementation of the measures would be monitored and documented in the same manner as mitigation measures. The APMs that are applicable to the fire and fuels management analysis are provided in Table 4.12-1.

Table 4.12-1 Applicant Proposed Measures for Fire and Fuel Management Impacts

APM Number	Requirements
APM FIRE-1: Wildland Fire Prevention and Fire Safety Practices	A project-specific fire prevention plan has been drafted for the Proposed Project consistent with Electric Standard Practice 113.1 and the SDG&E Fire Prevention Plan. Electric Standard Practice 113.1 outlines practices and procedures for SDG&E activities occurring within areas of potential wildland fire threat within SDG&E's service territory. The Proposed Project design includes replacement of wood poles with steel poles, increased conductor spacing to maximize line clearances, installation of steel poles to withstand an extreme wind loading case and known local conditions, and undergrounding of a portion of the power line. These design components of the Proposed Project minimize the fire risk through enhanced safety and reliability of the power line system, particularly during extreme weather conditions. The standard practices in Electrical Standard Practice 113.1 include avoidance and minimization measures to comply with state and local fire ordinances. The project-specific fire plan identifies project-specific risk-related activities as well as measures (including tools and procedures) to address said risks.
APM PS-6: Fire Prevention Plan and Monitoring	At the completion of each work day, construction crews will lock up and secure each worksite to prevent theft or vandalism associated with work equipment or supplies. SDG&E will also implement its project-specific fire plan, which will include private fire patrol monitoring as appropriate. Furthermore, SDG&E may have private security personnel monitoring construction sites where materials are stored, which may include the substations, staging yards and ROW.

4.12.5 CEQA Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 *et seq.*) provides guidance on assessing whether a project would have significant impacts on the environment. Consistent with Appendix G, the Proposed Project would have a significant fire and fuels management impact if it would:

1. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.12.6 Approach to Impact Analysis

This impact analysis considers whether implementation of the Proposed Project or alternatives would result in significant fire and fuels management impacts. The analysis focuses on reasonably foreseeable effects of the Proposed Project and alternatives as compared with baseline conditions. The analysis uses significance criteria based on the CEQA Appendix G Guidelines. The potential direct and indirect effects of the Proposed Project and alternatives are addressed; cumulative effects are addressed in Chapter 5: Cumulative Impacts. Effects that would result from operation and maintenance of the Proposed Project and alternatives are also addressed. Applicable APMs are identified and mitigation is defined to avoid or reduce significant fire and fuels management impacts.

Fire and fuels management impacts are analyzed using supporting data, information, model results for each fireshed, and screening results for non-linear Proposed Project elements. The analysis assesses impacts based on whether the Proposed Project or its alternatives would directly or indirectly increase potential damage from wildfire or increase the chance of a wildfire. The potential reduction in the effectiveness of firefighting and the potential for introduction of plant species that could contribute to increased ignition potential and rate of fire spread are also considered in the impact analysis.

Fire behavior and wildfire containment conflicts were assessed for transmission line segments using modeling methods similar to those in the Sunrise Powerlink Project EIR/EIS with updated data for residential development and vegetative fuels. A model called "FlamMap (Version 3.0)" fire behavior software, which simulates wildfire dynamics, was used to assess the potential of the Proposed Project and its alternatives to affect wildfire movement and impact surrounding communities, firefighter safety and tactics, and the environment (Finney 2015a). FARSITE (Version 4.0), a fire growth simulation modeling system that uses spatial information on topography and fuels along with weather, wind, and fire history data, was also used to assess potential impacts of the Proposed Project (Finney 2015b).

4.12.6.1 Fire Behavior Trend Model

The primary objective of fire behavior trend modeling is to determine the potential area of impact as a result of Project-related ignitions. The model identifies communities that would be at risk of damage from a wildfire ignited within the transmission line segments. Because construction and maintenance activities within these transmission corridors can cause fires, the transmission line segments are simulated to be the ignition source for a wildfire. The model produces simultaneous ignition points every 500 feet along the transmission line segment. Simultaneous ignitions are modeled in order to analyze the results of multiple ignitions within transmission line segments. This simulates a worst-case ignitions scenario that could result from hazardous construction practices, accidents involving heavy equipment, or electrical facility faults from wind-blown debris. Inputting normal or extreme fire weather and fuel data over a specified burn period, the FlamMap model provides information on the direction, rate of spread, flow paths, and predicted burn behavior over the landscape during normal and extreme weather conditions. Potentially damaging impacts to communities are assessed for each fireshed.

4.12.6.2 Wildfire Containment Conflict Model

A spatial model is used to determine areas of significant firefighting conflicts created by the presence of anthropogenic and biophysical attributes of the Proposed Project area. Model inputs are a suite of factors that restrict or conflict with firefighting efforts, weighted according to the severity of conflict. Areas determined to present significant conflicts to firefighting efforts are those with a minimum of 1.5 consecutive miles with a criteria ranking of Very High. Distances shorter than 1.5 consecutive miles may present conflicts for firefighters but would not be significant (even if they scored a Very High ranking) because shorter distances are not anticipated to greatly impact firefighting efforts.

Wildfire control is dependent on a number of variables including weather, access, topography, fuel conditions (i.e., structure, volume, and moisture content), and timing of ignition. The Wildfire Containment Conflict criteria analyzed are presented in Table 4.12-2. Wildfire history is used to identify historical wildfire boundaries, indicating areas of successful containment that would be compromised by the presence of an overhead high-voltage transmission line. This criterion is weighted more heavily for transmission line segments where the Proposed Project or its alternatives would introduce a transmission line to the landscape, and less heavily where the Proposed Project or its alternatives would be collocated with an existing, lower-voltage transmission line. The access roads criterion identifies those locations where there is sufficient access for ground-based firefighters to make a stand against a fire.

Topography influences firefighting tactical approach: steep slopes and canyons are areas where firefighters will not attempt to suppress a wildfire because fires tend to burn at high intensities and rates of spread on steep slopes. The model assumes that a transmission line at the base of a steep slope would not present a firefighting conflict due to the indefensible nature of this topography. A transmission line at the crest of a hill would present a conflict for aerial fire suppression. The wildfire fuels criterion requires that wildfire fuels (based on Scott and Burgan Fuel Models) be present within at least 30 percent of the fireshed polygon to carry a wildfire through the landscape. No conflict is created where insufficient fuels are present.

Table 4.12-2 Wildfire Containment Conflict Index

Parameter	Conflict	Weight
Wildfire history	Segment within 50-year wildfire history footprint	Yes = 1 No = 0
Access roads	Roads intersect or parallel the proposed transmission line within the polygon	Yes = 1 No = 0[a]
Topography	Transmission line is higher than the surrounding topography	Yes = 0.5 No = 0
Wildfire fuels	More than 30 percent of groundcover is made up of wildfire fuels	< 30% = 0 > 30% = 0.5, 1[b]
Communities	Private parcels present within polygon	Yes = 0.5 No = 0
Existing transmission line	An existing aboveground transmission line is present within the ROW or parallels the polygon	Yes = 1 No = 0

Conflict Index Ranking[c]	Low	Moderate	High	Very High
Total Criteria Weight	0-1.5	2-2.5	3-3.5	4-5.5

Notes:

[a] Underground transmission lines are scored a weight of 0.

[b] Scott-Burgan customized fuel model codes of 1-140 carry a weight of 0.5; codes of 141-204 carry a weight of 1

[c] Results of the application of the containment conflict index on Proposed Project areas are shown in Table 4.12-4.

Ignition data provided by CALFIRE are used to identify locations with high ignition potential. Historic ignitions in an area indicate a high likelihood of subsequent ignitions, and introducing a transmission line to a location with a high ignition potential would create an obstacle to future initial attack operations. Communities are high priorities for protection during wildfire suppression. Firefighting resources can be expected to be diverted from wildfire containment efforts to protecting residences as a possible outcome of a larger fire. The introduction of a transmission line would create an obstacle to community protection efforts.

4.12.6.3 Screening of Other Project Components

The fire behavior trend model and wildfire containment model are based on the vegetation, topography, fire history, and development parameters of the firesheds. These models were not applicable to the Mission—San Luis Rey Phase Transposition work areas or staging yards because work at these locations is very small and localized compared to the relatively long transmission line corridor that comprises the Proposed Project elsewhere. The fire behavior trend model was used for the Encina Hub work area, but the wildfire containment conflict model was not, again due to the localized nature of the work. The Encina Hub work area, Mission—San Luis Rey Phase Transposition work areas, and staging yards were screened using the following criteria to establish the risk potential and containment challenges for each location:

1. **Site flammability.** The location or context of the site is an important consideration regarding the potential for an ignition, to cause damage from wildfire, or for the possibility of changing conditions to a more flammable vegetation type comprised of invasive plants. If the site is surrounded by 100 feet of non-flammable land or 100 feet of defensible space, an ignition is less likely to occur and a fire is far less likely to spread from a point of ignition off the work site. Flammable vegetation near an ignition location makes containment in the early stages of the fire more difficult because the flammable vegetation could burn quite rapidly and the initial attack often involves a smaller fire suppression response.
2. **Access.** Nearby access enhances the ability for emergency responses to intervene before impacts are significant. Fire suppression or containment is more attainable when a site can be accessed from the entire perimeter. Alternatively, a work site with access to only one point of entry could experience a higher fire containment challenge. Work areas with a major access corridor nearby are less likely to cause significant fire impacts. Access does not impact the potential for ignitions because this screening factor pertains to response after a fire has ignited.
3. **Proximity to wildland vegetation or open space.** Adjacent land use can influence the risk of ignition and wildfire containment due to the presence of fuel loading in wildland areas. A site near a residential neighborhood with irrigated landscaping or surrounded by a parking lot has a lower potential for significant fire impacts (both ignition risk and fire containment) than a site adjacent to wildland vegetation. Work areas adjacent to wildlands pose two potential threats:
   a. Risk of ignition: Areas with a high proportion of grass cover would pose a high potential for ignitions after vegetation dries in the spring or summer.

b. Containment challenge: The abundance of vegetation such as chaparral would decrease effectiveness of fire response because of its high fire intensity and difficulty of control.

4. **Existing facility.** An existing facility indicates a lesser concern because it is likely to be in a fire-safe environment with access, vegetation treatments, and established safety protocols (e.g., a fire prevention plan) already in place. Safety protocols, such as smoking restrictions and fire response procedures, as well as worker familiarity with the site help to reduce both the risk of ignition and containment challenge.
5. **Project height (work site elevated or at ground level).** Activities that occur off of the ground have a reduced potential for ignition, even if the site itself is flammable. This is because the work itself is isolated from flammable vegetation. A possibility of ignition may occur during construction but the chance is less than if the work was above ground. Ground disturbance associated with underground work, however, may support the growth of flammable invasive weeds.
6. **Presence and height of transmission lines (above or underground).** The presence of aboveground transmission lines poses a threat for fire ignitions and containment challenges during and after construction. During construction, work on transmission lines has the possibility to produce sparks, which may ignite a fire. After construction, the transmission lines may experience high winds or contact with vegetation that may result in an ignition. The presence of transmission lines poses an additional challenge for fire containment. Where overhead power lines are present, aerial and ground attacks are restricted. Aerial operations are complicated by the risk of aircrafts and/or water buckets colliding with towers or conductors during smoky, reduced-visibility conditions. Conditions are especially hazardous when transmission lines are placed on ridge tops, reducing the proximity of fire retardant and water drops that aerial firefighting crews can achieve safely.

4.12.7 Proposed Project Impacts and Mitigation Measures

Table 4.12-3 provides a summary of the significance of impacts from fire and fuels management prior to application of APMs, after application of APMs and before implementation of mitigation measures, and after the implementation of mitigation measures.

Table 4.12-3 Summary of Proposed Project Impacts to Fire and Fuels Management

Significance Criteria	Project Timing	Significance Prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Fire-1: Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	Construction	Significant	Significant	Less than significant MM Fire-1 MM Fire-2 MM Fire-3 MM Fire-4 MM Biology-1 MM Biology-4
	Operation and Maintenance	Less than significant	---	---

Impact Fires-1: Would the Proposed Project have the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (*Less than significant with mitigation*)

Fire Behavior Model Results in Proposed Project Firesheds

In the event of a wildfire within the Proposed Project, damaging impacts would likely occur because the area experiences severe Santa Ana wind conditions that can rapidly propel a wildfire through the landscape. The magnitude of fire damage would be expected to increase during severe fire weather conditions and within regions with dense vegetative fuel sources, as seen in Figure 4.12-5.

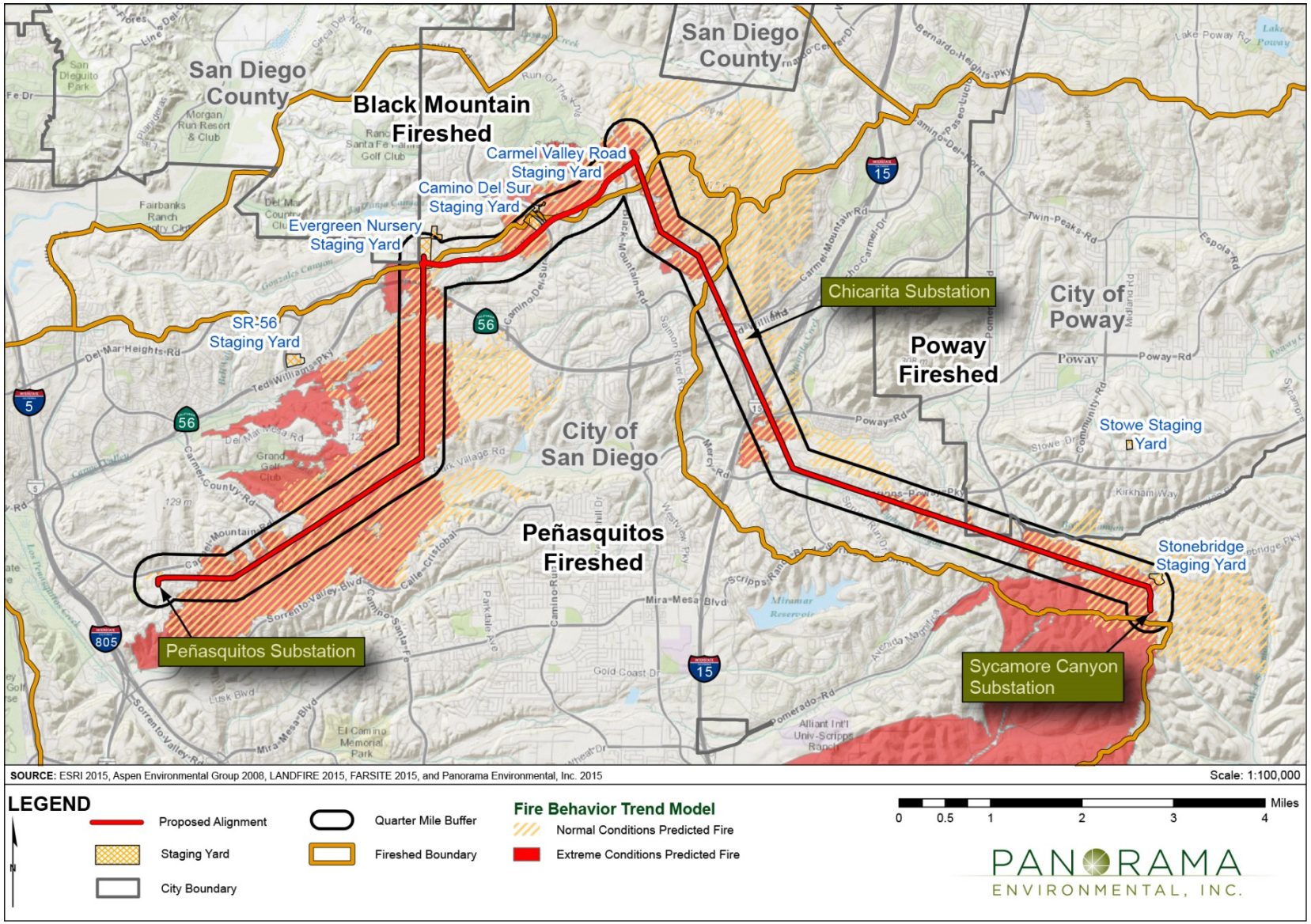
Normal Conditions

A wildfire originating along the transmission line under normal weather conditions would be predicted to grow in three areas: on the southwest portion of the transmission line alignment, on the northern-most corner of the transmission line alignment, and on the extreme eastern portion of the Proposed Project.

Westerly winds tend to foster fire growth to the east of ignition locations. This is evident in the northern tip of the Proposed Project area where fire would be expected to spread into the Black Mountain Open Space Preserve and the eastern end of the transmission line. The pattern of fire growth would generally follow areas of wildland vegetation, such as through Los Peñasquitos Canyon, the San Diego National Wildlife Refuge, and Sycamore Canyon. Fire growth is generally constrained by residential development; however, the fringes of these developments could be affected by fires that may start on the transmission line alignment.

Ignitions would have the largest impact in Del Mar Mesa and Los Peñasquitos Canyon Preserves because of existing dense vegetative fuel sources. Communities adjacent to these areas would have the highest risk of damage from wildfire.

Figure 4.12-5 Fire Behavior Trend Model Results for the Proposed Project



Extreme Conditions

During extreme weather conditions, ignitions along the transmission line would be expected to create a more serious risk to urban communities within the vicinity of the Proposed Project. Due to extreme weather conditions, the methodology used in the model assumes firefighting efforts would not be effective (BLM and CPUC 2008). The lower humidity, high temperatures, and faster winds from the northeast associated with extreme conditions combine to support larger fires.

The pattern of fire growth would again be expected to follow areas of wildland vegetation, but the wind direction spreads the fires in a predominantly different direction. Expected fire growth along the western half of the transmission line corridor during these conditions is in nearly the same location as the normal conditions, but would not extend as far to the east. The fire growth at the northern segment of the transmission line would likely be minimal because the fuels to the south and west of the transmission line are nearly absent.

The expected fire spread near the southeast terminus of the transmission line would extend south of Scripps Ranch to I-15, and comprise the largest area of fire spread under extreme conditions.

In extreme conditions, it is predicted that the greatest acreage would burn in the northeast portion of MCAS Miramar continuing into the Peñasquitos Fireshed. A fire would likely move continuously through this area because it consists of mostly open wildlands. Therefore, a fire in the Peñasquitos Fireshed poses a serious threat due to the densely populated urban areas surrounding wildlands that supply ignition and fuel sources.

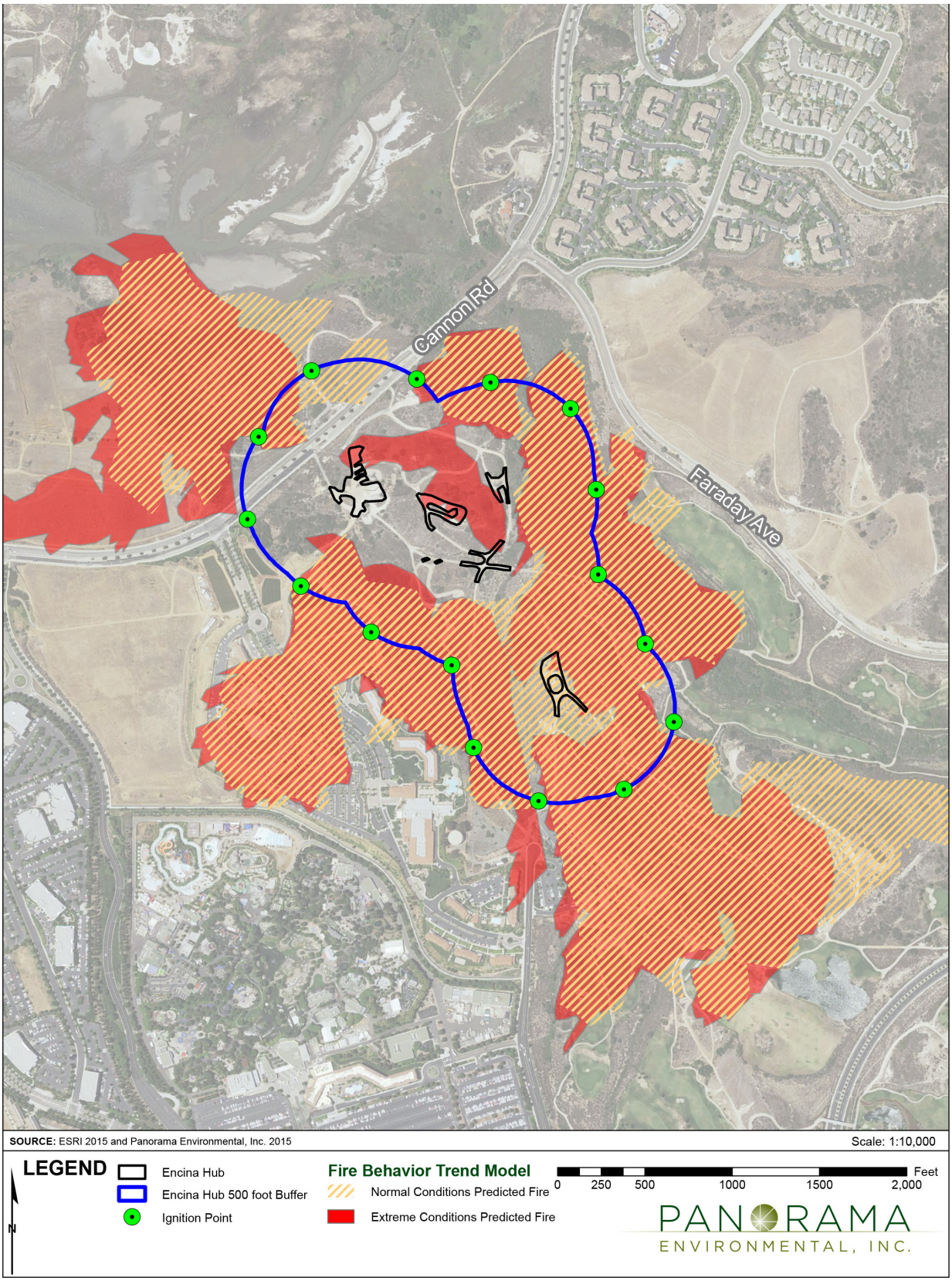
Fire Behavior at the Encina Hub

The Fire Behavior Trend model at the Encina Hub uses the same weather conditions as the simulations in other portions of the Proposed Project area. Unlike Fire Behavior Trend model simulations for the transmission line, the Encina Hub model tests the results of an ignition every 500 feet along the perimeter to estimate the area of impact from construction and maintenance associated with the project. Ignitions are spaced every 500 feet for this analysis due to the very localized nature of the work. Figure 4.12-6 shows the ignition locations used in the Wildfire Behavior Trend model for the Encina Hub.

Normal Conditions

Under normal conditions, wildfire would be expected to burn most of the vegetation, constrained on the west by non-flammable vegetation surrounding an apartment complex. The predicted fire burned through the apartment complex because the fuels data used in the model was mapped prior to development. The model assumed the land was wildland vegetation; however, the predicted fire would be stopped by a parking lot on the southwest corner. Based on the complete lack of fuels in a parking lot, the assumption that the fire would be constrained in that location is reasonable. Because modeled ignitions were placed north of Cannon Road, the predicted fire spread through the shrubby wildland vegetation north of this corridor to marsh lands and wetlands in both the normal and extreme scenarios.

Figure 4.12-6 Fire Behavior Trend at Encina Hub



The short-range spotting distance (i.e., the maximum distance at which a potential spot fire could be expected due to Proposed Project activities) allows these relatively narrow firebreaks to be effective. The more narrow breaks of golf fairways would not be expected to stop the wildfire on the southern portion of the burn area, but would stop it on the northern flank of the predicted wildfire. Only the southernmost work area is expected to be contained in the fire perimeter. The western and eastern portions of the Proposed Project work areas would not be expected to burn.

Extreme Conditions

The fire footprint under extreme conditions (i.e., higher wind speeds from the northeast, higher temperatures, lower humidity, and a longer simulated fire duration) is almost the same as under normal conditions (i.e., winds from the west, lower temperatures, higher humidity, and a shorter simulated fire duration). The predicted fire spread is constrained by relatively nonflammable vegetation, regardless of weather conditions. A portion of the western and eastern portions of the Proposed Project work areas at the Encina Hub are within the fire perimeter under extreme conditions.

Proposed Project Wildfire Containment Conflict Model Results

Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model was used to identify areas along the Proposed Project transmission line where significant conflicts with wildfire suppression efforts would be created by overhead transmission line construction.

The Wildfire Containment Conflict Model for the entire Proposed Project transmission line indicates that less than 20 percent (2.4 miles) of the transmission line length is categorized as very high conflict with firefighting efforts (Figure 4.12-7). Approximately 13.1 miles of the length are classified as high conflict and 1.5 miles are classified as a moderate conflict. The segment of the Proposed Project transmission line that is classified as very high (the northern end of Segment A and eastern end of Segment B) is located near dense vegetation, within the perimeter of a recent fire, and adjacent to high at-risk values in the form of a residential area. All of these factors combine to create a high to very high rating for wildfire containment conflict. However, these factors are not influenced by the Proposed Project and indicate very high fire containment conflicts prior to construction of the Proposed Project. Furthermore, the proposed overhead transmission line would be located in existing SDG&E ROWs where 69-kV and 230-kV transmission lines already exist. The addition of the proposed 230-kV transmission line would not increase conflicts to firefighting efforts.

Project Components Outside of Modeled Firesheds

The Mission—San Luis Rey Phase Transposition work areas and staging yards were analyzed using the criteria described in Section 4.12.6.3. The anticipated fire behavior trend under normal and extreme weather conditions was modeled for the Encina Hub work areas, above.

Table 4.12-4 shows the screening results for the Encina Hub, Mission—San Luis Rey Phase Transposition, and staging yards.

Figure 4.12-7 Wildfire Containment Conflict Model

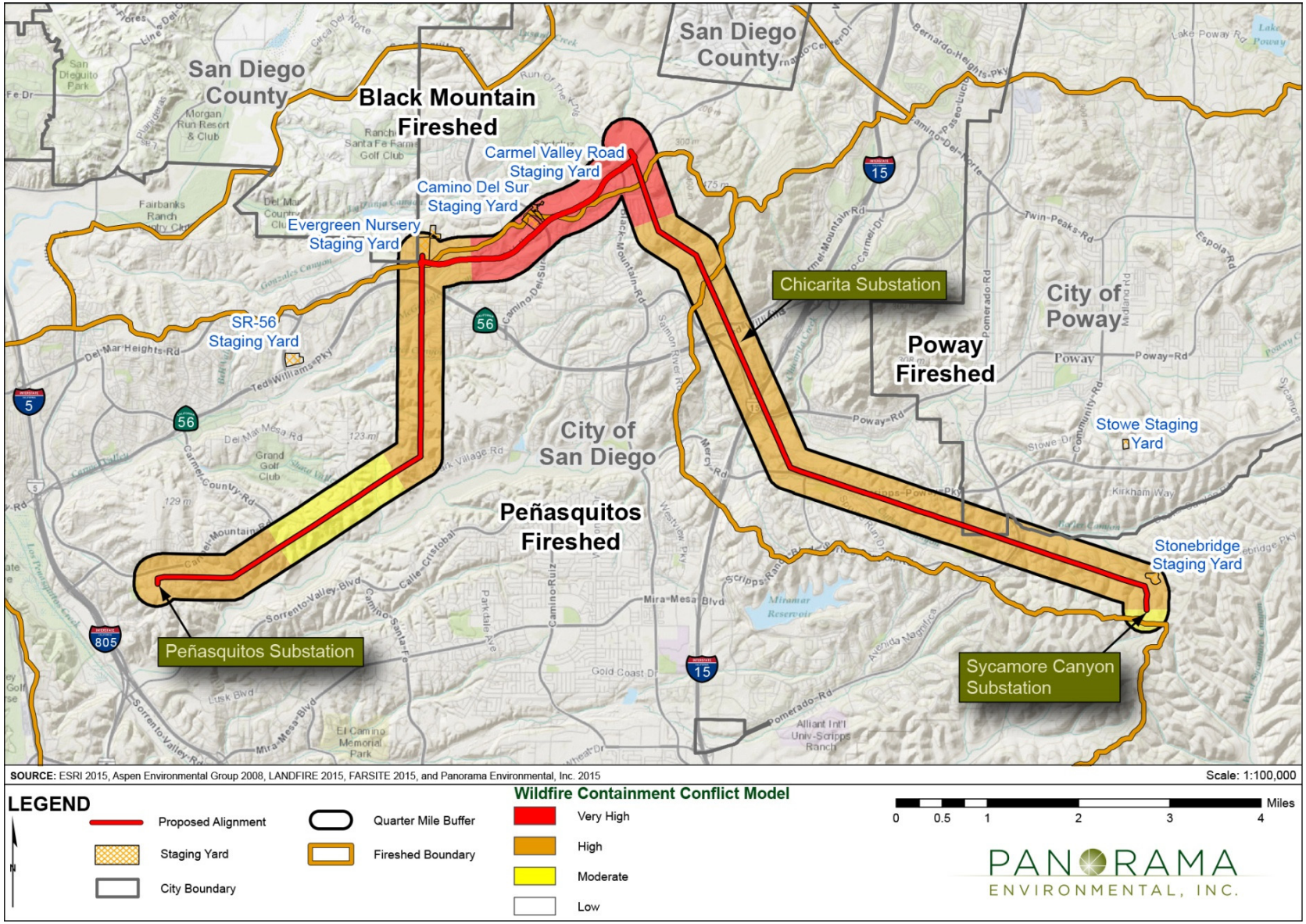


Table 4.12-4 Wildfire Risk and Containment Screening of Project Components Outside of Modeled Firesheds

Project Element		Site Flammability	Emergency Access	Adjacent to Wildlands	Existing SDG&E Facility	Project Height	Aboveground Transmission Line	Risk Rating	Containment Challenge Rating
Encina Hub		Flammable	Yes	Yes	Yes[2]	Elevated	✓	High Risk	High
Mission — San Luis Rey Phase Transposition	North Work Area	Flammable	Yes	Yes	Yes	Elevated	✓	High Risk	High
	South Work Area	Flammable	No	Yes	Yes	Elevated	✓	High Risk	High
Staging Areas[1]	Evergreen Nursery	Nonflammable	Yes	Yes	Yes[3]	Ground Level		Moderate Risk	Moderate
	Mission Substation	Nonflammable	Yes	Yes	Yes	Ground Level	✓	Moderate Risk	Moderate
	San Luis Rey Substation	Nonflammable	Yes	Yes	Yes	Ground Level	✓	Low Risk	Low
	SR-56	Nonflammable	Yes	Yes	Yes	Ground Level		Moderate Risk	Moderate
	Stowe	Nonflammable	Yes	No	Yes	Ground Level		Low Risk	Low

[1] Camino Del Sur, Carmel Valley Road, and Stonebridge staging yards are within the footprint of the Proposed Project and 0.25-mile buffer that was analyzed in the models prepared for the Proposed Project alignment. Therefore, they are not included in this table.

[2] Encina Hub is an existing facility; however, the beneficial conditions that would be expected from an existing SDG&E facility (i.e., defensible space beyond immediate work site) are not present. For this reason, the rating is assigned as if it were not an existing facility.

[3] The Evergreen Nursery staging yard is currently an existing plant nursery; however, the beneficial conditions that would be expected from an existing SDG&E facility (i.e., utility fire safety protocols included in a Fire Safety Plan) are not present. For this reason, the rating is assigned as if it were not an existing facility.

Construction

All Project Components

Based on wildfire history, the presence of flashy, easily-ignited fuels, and the occurrence of periodic severe fire weather, the Peñasquitos Fireshed, which encompasses Segments B through D of the Proposed Project, is a high risk fireshed. The Poway Fireshed, which encompasses Segment A, is an extremely high risk fireshed. The Black Mountain Fireshed is a fireshed of moderate fire risk because much of the Proposed Project would be underground. The risk of a construction-related ignition in all three firesheds, as well as at the Encina Hub, is high due to the close proximity of flashy fuels.

Construction activities that could result in a wildland fire include:

- Vegetation clearing and grading with heavy equipment (e.g., earthmovers, chainsaws)
- Overland vehicle/equipment movement on dry vegetation
- Grading for road maintenance and structure foundations
- Hazard reduction with mowers and weed eaters
- Existing wood structure removal
- Excavation for new foundation steel pole/tower placement
- Blasting for excavation
- Digging and setting direct bury new steel structures
- Erection of new structures
- Micro-pile foundations
- Operation of generators, compressors, and other internal combustion engines
- Operation of backhoes, augers, and other rock striking equipment
- Welding, grinding, and cutting of steel
- Conductor stringing
- Reconductoring
- Cable pull operations
- Helicopter operations and fueling
- Construction parking on dry vegetation
- Environmental monitoring
- Equipment fueling and maintenance
- Transport of fuels to staging yards and work sites
- Worker smoking and cigarette disposal

Vegetation clearing within all existing easements would meet all state and CPUC clearance requirements (CPUC GO 95). Vehicles and equipment would use existing paved and dirt roads to access work areas. Where necessary, access routes would be cleared of intruding vegetation along the road shoulder to minimize fire hazards. Vegetation removal may also occur along new access ways and passing locations as necessary for fire prevention purposes. These practices would reduce but not eliminate the potential construction-related ignition sources for a wildland fire as equipment and vehicles used during construction or worker behavior such as

smoking and disposing of cigarettes or parking vehicles on dry vegetation could create sparks and ignite a fire.

Construction-related ignitions within the Proposed Project transmission line segments in the Peñasquitos, Poway, and Black Mountain Firesheds have the potential to escape initial attack containment and become catastrophic fires. Areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape. Wildfire spread would most likely be limited to wildlands in the vicinity of the Proposed Project (Los Peñasquitos Canyon Preserve, Black Mountain Open Space, and MCAS Miramar) except during extreme fire weather conditions, during which fire suppression efforts would likely not be as effective and the fire may spread to residential areas. Construction-related fire ignitions that escape initial fire prevention efforts and create large-scale fires would be a significant impact.

SDG&E would implement APM FIRE-1 and APM PS-6 as part of the Proposed Project to reduce impacts. APM FIRE-1 requires adherence to a draft Project-specific Fire Prevention Plan (See Appendix I) that identifies fire risks and fire prevention measures including: (a) regular watering to reduce fire risk; (b) smoking, welding, and fueling of equipment in designated areas with appropriate fire protection (e.g., shovels, pulaskis, water tanks or tenders); (c) limited or restricted work during critical fire declaration periods; (d) wildland fire prevention and safety training of construction personnel prior to construction; (e) work site fire safety compliance inspections; and (f) establishment of an emergency contact and communication plan. APM PS-6 requires securing work sites at the end of the work day and includes private security and fire patrol monitoring. Potential wildlife impacts would still be significant with APMs because a APM FIRE-1 requires adherence to a draft Project-specific Fire Prevention Plan and a final Project-specific Fire Prevention Plan addressing all necessary fire prevention measures has not yet been prepared.

Mitigation Measure Fire-1 requires SDG&E to finalize and adhere to the Project-specific Fire Prevention Plan, which would be reviewed and approved by the CPUC prior to construction. SDG&E would also coordinate with fire protection and emergency service providers in the Proposed Project area prior to construction and ensure that construction equipment and personnel would not create obstructions to firefighting equipment or crews per Mitigation Measure Fire-2. Mitigation Measure Fire-3 requires water trucks and/or water tanks to be available for fire suppression during construction. Mitigation Measure Fire-4 requires SDG&E to establish adequate conductor clearances prior to energizing the Proposed Project through vegetation removal from within 15 radial feet of new and relocated overhead conductors under maximum sag and sway. Implementation of Mitigation Measures Fire-1 through Fire-4 would minimize the risk of fire ignition and spread due to Proposed Project activities. Mitigation measures would reduce impacts from wildland fires to less than significant.

Sufficient fire stations are located in the Proposed Project area that would be available to service the Proposed Project components in the event of a fire. The potential for the Proposed Project to conflict with firefighting efforts and cause impacts to emergency vehicle response times is

discussed further in Section 4.17: Utilities and Service Systems and Section 4.7: Transportation and Traffic.

Invasive Plant Ignition Sources. An indirect effect of construction is the increased potential for vegetation clearing and grading activities to result in the introduction and spread of non-native, invasive plants in open space wildlands. The proliferation of certain invasive plants such as cheatgrass (*Bromus tectorum*), medusahead (*Taeniatherum caput-medusae*), and Sahara mustard (*Brassica tournefortii*) can contribute to changes in wildfire frequency, timing and spread (Cal-IPC 2015). Cheatgrass and medusahead, for example, dry out earlier in the season than native grasses and create fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased frequency of fire recurrence. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs, which allows wildfires to expand further into otherwise sparsely vegetated wildlands (Keeley 2010). The introduction and spread of specific invasive plants with an increased ignition potential within the Proposed Project area could adversely influence fire behavior by increasing fire frequency, and fire spread. This would be a significant impact.

APMs FIRE-1 and PS-6 do not address invasive plant species introduction; therefore, this impact would remain significant following APM implementation. Implementation of Mitigation Measures Biology-1 and Biology-4 would reduce the impacts associated with introduction and spread of invasive non-native plant species to a less than significant level by requiring protocols to monitor and prevent invasive species introductions and spread, and by requiring revegetation of temporarily impacted areas with appropriate native species.

Operation and Maintenance

During the operational phase the transmission lines would be unattended and operated remotely. Aerial and ground inspections of the new transmission lines would be performed in conjunction with inspections of existing lines within the transmission corridor and would not increase the potential for wildland fire generation that could expose people or structures to a significant risk of loss, injury, or death. The Proposed Project also would not create additional conflicts to firefighting efforts. Maintenance activities for the transmission lines would be similar in scope to current maintenance activities for the existing power lines in the transmission corridor. Vehicles used for maintenance activities would use existing and new unvegetated access routes, which would reduce the potential for ignition of dry vegetation during vehicle trips. Impacts from maintenance would be less than significant. No mitigation is required.

SDG&E protocols for fire prevention during transmission line operation would be implemented. Work spaces around poles would be cleared of shrubs and other obstructions for inspection and maintenance purposes, consistent with SDG&E's current vegetation management practices (CPUC General Order 95, and PRC Sections 4292 and 4293). Vegetation around poles fitted with specific non-exempt hardware (e.g., fuses, switches) would be cleared to a radius of 10 feet from the base of the pole. Vegetation around poles with external grounds would be cleared to a radius of 5 feet from the pole base. The risk of wildfire from the operation

of an additional transmission line in the transmission corridor would not increase measurably from existing conditions with SDG&E implementation of standard operational restrictions to reduce wildfire risk. Impacts from operation of the transmission lines would be less than significant. No mitigation is required.

Arcing (sparking) between conductor phases is more likely than between a conductor and the ground. Arcing could potentially ignite nearby vegetation and cause a wildfire. System component failures and accidents during maintenance activities can result in line faults that result in arcing on transmission lines. Transmission lines are potentially subject to conductor-to-conductor contact, which can occur when very high winds force two conductors on a single pole to oscillate in such a way that they contact one another. This contact can result in arcing. It is rare for transmission line structures to blow over in high winds. The new transmission line structures would be designed to withstand high winds. However, if a transmission line structure were to be blown over, the protection system would shut off power flow in a fraction of a second. The risk of ignition and damage from wildfires would therefore be very low from downing of a transmission line structure. Vegetation clearing requirements discussed above would reduce the risk of wildfire ignition if arcing or downing of a transmission line structure occurs. SDG&E's proposed annual inspections would allow for identification of corrosion, equipment misalignment, loose fittings, and other common mechanical problems that could contribute to arcing. The Proposed Project would not measurably increase the risk of arcing and associated wildfires in the transmission corridor because there are existing electrical lines in the corridor with similar risks and associated impacts. Operational impacts of new transmission lines would be less than significant. No mitigation is required.

Mitigation Measures: Fire-1, Fire-2, Fire-3, Fire-4, Biology-1, and Biology-4 (refer to Section 4.1: Biological Resources)

Mitigation Measure Fire-1: Final Fire Prevention Plan. SDG&E shall prepare and adhere to a Final Fire Prevention Plan (a.k.a. "Fire Plan") specifically tailored for the Proposed Project. The Final Fire Plan shall include, among other provisions, requirements for carrying emergency fire suppression equipment on all construction and employee or contractor vehicles and equipment, restricting smoking and idling vehicles, and restricting construction during red flag warnings. The Final Fire Plan shall be submitted to CPUC for approval at least 30 days prior to construction. The Final Fire Plan shall, at a minimum, include all of the provisions of the Preliminary Draft Fire Plan (Appendix I) and the elements listed below:

- During Project construction, SDG&E shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods.
- During Red Flag Warning events, as issued daily by the National Weather Service, all construction and maintenance activities shall

cease, with an exception for transmission line testing. A transmission line may be tested if the loss of another transmission facility could lead to system instability or cascading outages.

- All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational in all Proposed Project work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.
- All construction personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction personnel shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards shall be updated and redistributed to all construction personnel, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect.

Mitigation Measure Fire-2: Maintain Emergency Access. SDG&E and/or its contractors shall have fire suppression equipment on all construction vehicles. Construction personnel shall be required to park vehicles away from dry vegetation. SDG&E and/or its contractors shall contact and coordinate with the MCAS Miramar Fire Department and applicable local fire departments (i.e., City of San Diego and City of Poway) prior to construction to determine the appropriate amounts of fire equipment to be carried on construction vehicles and to coordinate fire suppression activities. SDG&E shall submit verification of its consultation with MCAS Miramar and local fire departments to CPUC at least 30 days prior to construction.

SDG&E shall ensure that construction personnel, construction equipment, and aerial operations do not create obstructions to firefighting equipment or crews. Emergency ingress and egress to access roads shall remain unobstructed at all times. Construction in the work area shall cease in the event of a fire within 1,000 feet of the work area. The work area includes the transmission line right-of-way (ROW), construction laydown and staging areas, pull sites, access roads, parking pads, and any other sites adjacent to the ROW where construction personnel are active or where equipment is in use or stored. Should a wildfire occur within 1 mile of a work area, helicopters in use by SDG&E shall

immediately cease construction activities and not restart aerial operations until authorized by the appropriate fire agency.

Mitigation Measure Fire-3: Water Tanks. SDG&E and/or its contractors shall have water tanks and/or water trucks sited/available at active Project sites for fire protection during Project construction. Prior to construction, SDG&E and its contractors shall contact and coordinate with the MCAS Miramar Fire Department and applicable local fire departments (i.e., City of San Diego and City of Poway) to determine the appropriate minimum capacity and locations for the water tanks if water trucks are not used. SDG&E shall submit verification of its consultation with MCAS Miramar and local fire departments to CPUC at least 30 days prior to construction.

Mitigation Measure Fire-4: Conductor Clearance. SDG&E shall establish adequate conductor clearances prior to energizing the Project by removing all vegetation from within 15 radial feet of new and relocated overhead conductors under maximum sag and sway. Only trees and vegetation with a mature height of 15 feet or less shall be permitted within the ROW. In addition, tree branches that overhang the ROW within 15 horizontal feet of any conductor shall be trimmed or removed, as appropriate, including those on steep hillsides that may be many vertical feet above the facility. Cleared vegetation shall either be removed or chipped and spread onsite in piles no higher than 6 inches.

During Project construction, SDG&E shall maintain adequate conductor clearances by inspecting the growth of vegetation along the entire length of the overhead transmission line at least once each spring and documenting the survey and results in a report submitted to the CPUC before June 1 of each year. Conductor clearance of 15 radial feet under maximum sag and sway shall be maintained at all times. Maximum sag and sway shall be computed based on ambient temperatures of no less than 120 degrees Fahrenheit and wind gusts of no less than 100 miles per hour.

Significance after mitigation: Less than significant.

4.12.8 Alternative 1: Eastern Cable Pole at Carmel Valley Road (Avoids Cable Pole in Black Mountain Ranch Community Park)

Alternative 1 would involve installation of a new cable pole immediately south of and adjoining Carmel Valley Road within existing SDG&E ROW, transitioning the Segment A overhead transmission line directly into the proposed Carmel Valley Road Segment B underground alignment. Alternative 1 would avoid installation of a cable pole and underground duct bank within the Black Mountain Ranch Community Park. This alternative is described in more detail in Chapter 3: Alternatives.

4.12.8.1 Alternative 1 Environmental Setting

Alternative 1 is located in the Black Mountain Fireshed, as shown in Figure 4.12-8. This fireshed is comprised mostly of open space and residential development. The Black Mountain Fireshed experiences a warm climate with frequent Santa Ana winds. The fireshed has a history of wildfire.

4.12.8.2 Alternative 1 Environmental Impacts and Mitigation Measures

Table 4.12-5 summarizes the impacts to fire and fuels management from Alternative 1.

Table 4.12-5 Summary of Alternative 1 Impacts to Fire and Fuels Management

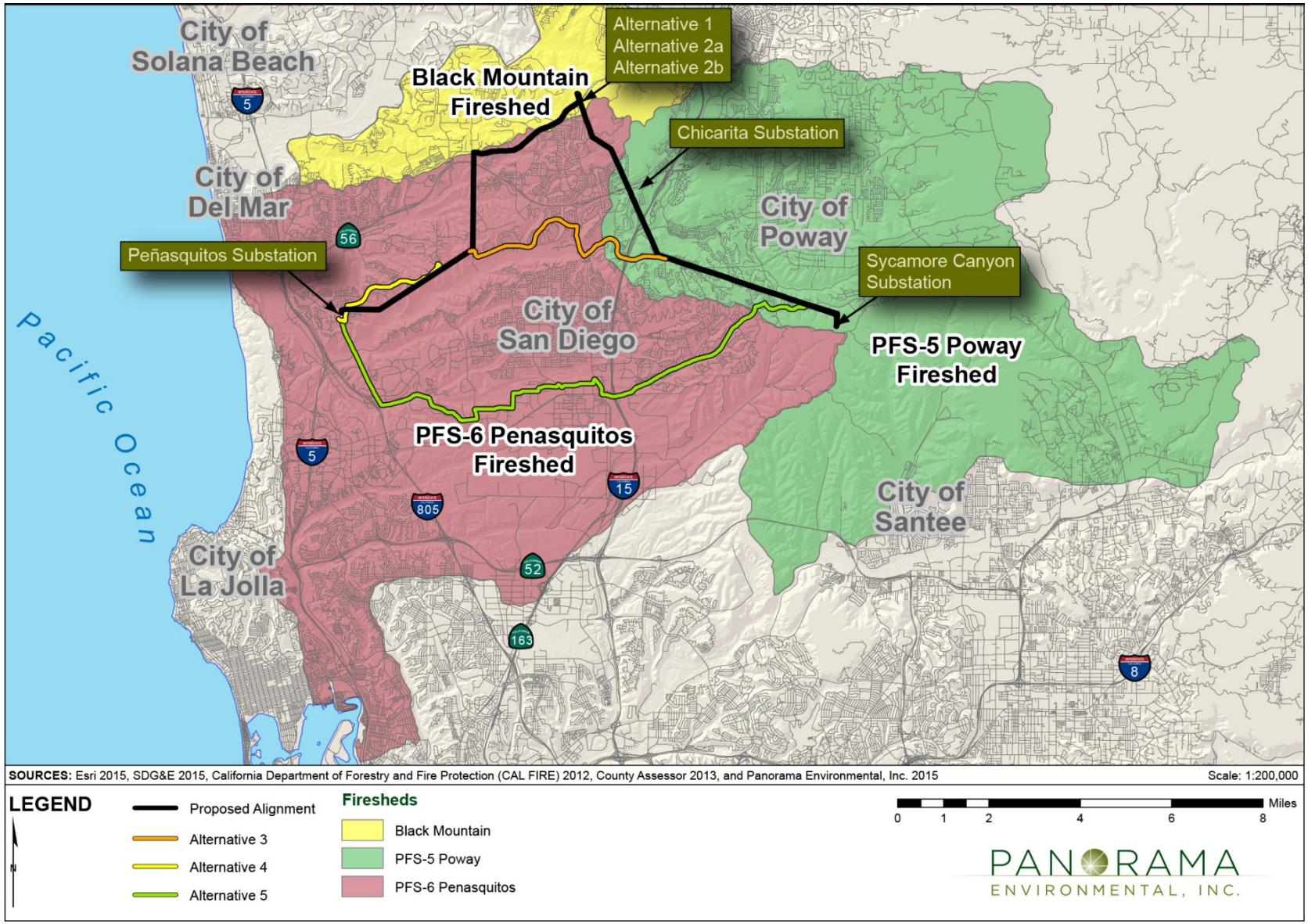
Significance Criteria	Project Phase	Significance Prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Fire-1: The project would have the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands	Construction	Significant	Significant APM FIRE-1	Less than significant MM Fire-1 MM Fire-2 MM Fire-3
	Operation and Maintenance	Less than significant	---	---

Impact Fires-1: Would Alternative 1 have the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (*Less than significant with mitigation*)

Construction

Equipment and vehicles used in construction of Alternative 1 would have the potential to ignite fires if the equipment is operated or parked in dry vegetation. Worker behavior such as smoking in areas of dry vegetation would also have the potential to start wildfires. These construction-related fire ignitions could escape initial fire prevention efforts and create large-scale fires, which would be a significant impact. Implementation of APM FIRE-1 would reduce impacts through wildland fire prevention and fire safety practices; however, impacts would still be significant after implementation of APM FIRE-1. Mitigation Measures Fire-1, Fire-2, and Fire-3 would reduce impacts from fire ignition through preparation of a Final Fire Prevention Plan that addresses the ignition sources in the area, maintaining emergency access for fire personnel, and keeping water tanks on site. Impacts would be less than significant with mitigation.

Figure 4.12-8 Firesheds for the Proposed Project Alternatives



Operation and Maintenance

The potential fire-related impacts during operation and maintenance of Alternative 1 are negligible because inspection and maintenance vehicles would access the cable pole via a paved roadway where there are no fuel sources. SDG&E would implement standard maintenance procedures to reduce the potential for ignition of wildfires during the inspection, maintenance and repair of the cable pole. Impacts would be less than significant. No mitigation is required.

Mitigation Measures: Fire-1, Fire-2, and Fire-3 (refer to Section 4.12.7)

Significance after mitigation: Less than significant.

4.12.9 Alternatives 2a and 2b: Eastern Cable Pole at Pole P40 and Underground Alignment through City Open Space or City Water Utility Service Road (Avoids Cable Pole in Black Mountain Ranch Community Park)

Alternative 2 would involve installation of a new cable pole in the same location for both Alternatives 2a and 2b, approximately 300 feet south of Carmel Valley Road within existing SDG&E ROW, transitioning the Segment A overhead transmission line into the proposed Carmel Valley Road Segment B underground alignment via one of two underground alignment options. Alternative 2a would locate the underground duct bank west of SDG&E ROW through City of San Diego open space and into Carmel Valley Road. Alternative 2b would locate the underground duct bank east of SDG&E ROW through a City of San Diego water utility service road and into Carmel Valley Road. Both Alternative 2a and 2b would avoid installation of a cable pole and underground duct bank within the Black Mountain Ranch Community Park. This alternative is described in more detail in Chapter 3: Alternatives.

4.12.9.1 Alternative 2 Environmental Setting

The Alternative 2 cable pole and underground alignment through open space or the City water utility access road would be located in the Black Mountain Fireshed, as shown in Figure 4.12-8. The Black Mountain Fireshed is prone to Santa Ana winds and has a history of wildfire.

4.12.9.2 Alternative 2 Environmental Impacts and Mitigation Measures

Table 4.12-6 summarizes the impacts to fire and fuels management from Alternative 2.

Table 4.12-6 Summary of Alternative 2 Impacts to Fire and Fuels Management

Significance Criteria	Project Phase	Significance Prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Fire-1: Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands	Construction	Significant	Significant APM FIRE-1	Less than significant MM Fire-1 MM Fire-2 MM Fire-3
	Operation and Maintenance	Less than significant	---	---

Impact Fires-1: Would Alternative 2 have the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (*Less than significant with mitigation*)

Construction

Alternative 2 construction of the cable pole south of Carmel Valley Road and underground transmission line in either City of San Diego open space or the City water utility service road would require heavy equipment and vehicles including trucks, cranes, and excavators. Equipment and vehicles would have the potential to ignite fires if operated or parked in dry vegetation. Worker behavior such as smoking in areas of dry vegetation would also have the potential to start wildfires. These construction-related fire ignitions could escape initial fire prevention efforts and create large-scale fires, which would be a significant impact. Implementation of APM FIRE-1 would reduce impacts through wildland fire prevention and fire safety practices; however impacts would still be significant after implementation of APM FIRE-1. Mitigation Measures Fire-1, Fire-2, and Fire-3 would reduce impacts from fire ignition through preparation of a Final Fire Prevention Plan that addresses the ignition sources in the area, maintaining emergency access for fire personnel, and keeping water tanks on site. Impacts would be less than significant with mitigation.

Operation and Maintenance

The potential for fire-related impacts during operation and maintenance of Alternative 2 is low. Maintenance vehicles would access the cable pole and underground vaults on either paved service roads or unpaved dirt access roads in City MSCP open space. SDG&E would implement standard maintenance procedures to reduce the potential for ignition of wildfires during inspection, maintenance, and repair of the cable pole and underground vault structures. Impacts would be less than significant. No mitigation is required.

Mitigation Measures: Fire-1, Fire-2, and Fire-3 (refer to Section 4.12.7)

Significance after mitigation: Less than significant.

4.12.10 Alternative 3: Los Peñasquitos Canyon Preserve – Mercy Road Underground (Avoids Overhead in Northern Half of Segment A, Underground in Segment B, and Overhead in Segment C)

Alternative 3 would include installing an underground alignment starting at a new cable pole where the existing SDG&E ROW crosses Ivy Hill Road and ending at a new cable pole approximately 550 feet west of the Peñasquitos Junction (i.e., where Proposed Project Segments C and D meet). The underground alignment would follow Scripps Poway Parkway, Mercy Road, Black Mountain Road, and finally Park Village Road. Alternative 3 would bypass the northern half of Proposed Project Segment A and all of Proposed Project Segments B and C. This alternative is described in more detail in Chapter 3: Alternatives.

4.12.10.1 Alternative 3 Environmental Setting

Alternative 3 would travel through urban developments and wildlands and would cross the Peñasquitos Fireshed (Figure 4.12-8). The fireshed contains densely populated residential development at the wildland urban interface, as described in Section 4.12.2. Wildlands occur in the Los Peñasquitos Canyon Preserve. The wildfire history within the Peñasquitos Fireshed is minimal due to the coastal climate and limited amount of wildlands.

4.12.10.2 Alternative 3 Environmental Impacts and Mitigation Measures

Table 4.12-7 summarizes the impacts to fire and fuels management from Alternative 3.

Table 4.12-7 Summary of Alternative 3 Impacts to Fire and Fuels Management

Significance Criteria	Project Phase	Significance Prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Fire-1: Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands	Construction	Significant	Significant APM FIRE-1	Less than significant MM Fire-1 MM Fire-2 MM Fire-3
	Operation and Maintenance	Less than significant	---	---

Impact Fires-1: Would Alternative 3 have the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (*Less than significant with mitigation*)

Construction

Alternative 3 would be constructed primarily within roadways in residential and commercial land uses where flammable vegetation is minimal. The cable poles and a short segment of the underground transmission line would be constructed in unpaved access roads. The risk of ignition at the western cable pole in Los Peñasquitos Canyon Preserve would be high. Underground construction within roadways would generally reduce the risk of ignition of a wildfire because there is fewer fuel sources (less vegetation) along roadways that could catch and spread a wildfire, with the exception of Mercy Road and Scripps Poway Parkway which border wildlands. Underground construction equipment (such as the concrete saw) have the potential to create sparks that may be carried by high winds into nearby vegetation and ignite fires in work areas near wildlands. Equipment and vehicles for construction of the western cable pole have the potential to ignite wildfires. Worker behavior, like smoking, also has the potential to start fires. These construction-related fire ignitions could escape initial fire prevention efforts and create large-scale fires, which would be a significant impact. Implementation of APM FIRE-1 would reduce impacts through wildland fire prevention and fire safety practices; however, impacts would still be significant after implementation of APM FIRE-1. Mitigation Measures Fire-1, Fire-2, and Fire-3 would reduce risk or wildfire during Alternative 3 construction through preparation of a Final Fire Prevention Plan that addresses

the ignition sources in the area, maintaining emergency access for fire personnel, and keeping water tanks on site. Impacts would be less than significant with mitigation.

Operation and Maintenance

The potential for fire-related impacts during operation and maintenance of Alternative 3 is negligible because Alternative 3 would be located underground and inspection and maintenance vehicles would access the vaults via paved roadways where there are no fuel sources. There would be no impact from operation and maintenance of Alternative 3.

Mitigation Measures: Fire-1, Fire-2, and Fire-3 (refer to Section 4.12.7)

Significance after mitigation: Less than significant.

4.12.11 Alternative 4: Segment D 69-kV Partial Underground Alignment (Reduces New TSPs in Segment D)

Alternative 4 would include the installation of a double 69-kV underground alignment starting at two new cable poles (P48AA and P48BB) in Proposed Project Segment D near existing lattice tower E17. The underground alignment would follow Carmel Mountain Road and East Ocean Air Drive, ending at the Peñasquitos Substation. Within Proposed Project Segment D, an existing 69-kV line would be removed from the existing steel lattice towers, and a second 69-kV power line on existing H-frame structures would be de-energized and left in place. Construction within Proposed Project Segment D would be reduced under Alternative 4. The 230-kV transmission line would be installed on the existing steel lattice towers similar to the Proposed Project; however, the H-frame structures would not be removed, and no new TSPs would be installed between lattice tower E17 and the Peñasquitos Substation. This alternative is described in more detail in Chapter 3: Alternatives.

4.12.11.1 Alternative 4 Environmental Setting

Alternative 4 would be located within the Peñasquitos Fireshed which is described in Section 4.12.2. The underground 69-kV power lines would be constructed in paved roadways and unpaved disturbed areas used for SDG&E ROW access (at the cable poles).

4.12.11.2 Alternative 4 Environmental Impacts and Mitigation Measures

Table 4.12-8 summarizes the impacts to fire and fuels management from Alternative 4.

Table 4.12-8 Summary of Alternative 4 Impacts to Fire and Fuels Management

Significance Criteria	Project Phase	Significance Prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Fire-1: Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands	Construction	Significant	Significant APM FIRE-1	Less than significant MM Fire-1 MM Fire-2 MM Fire-3
	Operation and Maintenance	Less than significant	---	---

Impact Fires-1: Would Alternative 4 have the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (*Less than significant with mitigation*)

Construction

Alternative 4 requires installation of two cable poles P48AA and P48BB in Los Peñasquitos Canyon and the 69-kV power lines would be installed in underground duct banks within Carmel Mountain Road and East Ocean Air Drive. The risk of igniting a wildfire during construction in roadways is less than the risk during overhead construction because there are fewer fuel sources along the roadways; however, equipment could produce sparks that could ignite nearby vegetation. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with the personnel required to construct the underground transmission duct bank introduces the potential for a variety of wildfire ignition sources. These construction-related fire ignitions could escape initial fire prevention efforts and create large-scale fires, which would be a significant impact. Implementation of APM FIRE-1 would reduce impacts through wildland fire prevention and fire safety practices; however, impacts would still be significant after implementation of APM FIRE-1. Mitigation Measures Fire-1, Fire-2, and Fire-3 would reduce impacts from fire ignition through preparation of a Final Fire Prevention Plan that addresses the ignition sources in the area, maintaining emergency access for fire personnel, and keeping water tanks on site. Implementation of these mitigation measures would reduce impacts from wildland fires to a less-than-significant level.

Operation and Maintenance

The potential for fire-related impacts during operation and maintenance of Alternative 4 is negligible because Alternative 4 would be located underground and inspection and maintenance vehicles would access the vaults via paved roadways where there are no fuel sources. There would be no impact from operation and maintenance of the Alternative 4.

Mitigation Measures: Fire-1, Fire-2, and Fire-3 (refer to section 4.12.7)

Significance after mitigation: Less than significant.

4.12.12 Alternative 5: Pomerado Road to Miramar Area North Combination Underground/Overhead (Avoids All Proposed Project Segments)

Alternative 5 would include underground installation of the transmission line with the exception of the east and west ends where the transmission line would be installed in an overhead within existing SDG&E ROWs. Under this alternative, the alignment would exit the Sycamore Canyon Substation at MCAS Miramar an overhead line and travel westerly within an existing SDG&E ROW toward Stonebridge Parkway. The transmission line would transition to underground beneath Stonebridge Parkway in the vicinity of Greenstone Court, then continue underground on Pomerado Road, Miramar Road, Kearny Villa Road, Black Mountain Road, Activity Road, Camino Ruiz, Miralani Drive, Arjons Drive, Trade Place, Camino Santa Fe, Carroll Road/Carroll Canyon Road and Scranton Road. The transmission line would

temporarily transition to an overhead alignment via two new cable poles and two new interset poles, where it would cross I-15. At the western end of the underground portion, the line would transition back to overhead structures located within an existing SDG&E ROW heading northward into the Peñasquitos Substation. Alternative 5 would avoid construction within the Proposed Project alignment with the exception of approximately 3,400 feet of existing SDG&E ROW in Segment A connecting to the Sycamore Canyon Substation. This alternative is described in more detail in Chapter 3: Alternatives.

4.12.12.1 Alternative 5 Environmental Setting

Alternative 5 would cross the Poway and Peñasquitos Firesheds. These firesheds are described in Section 4.12.2. The underground segment of Alternative 5 would be constructed within existing roadways through open space, residential, and commercial land uses.

4.12.12.2 Alternative 5 Environmental Impacts and Mitigation Measures

Table 4.12-9 summarizes the impacts to fire and fuels management from Alternative 5.

Table 4.12-9 Summary of Alternative 5 Impacts to Fire and Fuels Management

Significance Criteria	Project Phase	Significance Prior to APMs	Significance after APMs and before Mitigation	Significance after Mitigation
Impact Fire-1: Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands	Construction	Significant	Significant APM FIRE-1	Less than significant MM Fire-1 MM Fire-2 MM Fire-3 MM Fire-4
	Operation and Maintenance	Less than significant	---	---

Impact Fires-1: Would Alternative 5 have the potential to expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (*Less than significant with mitigation*)

Construction

Construction of Alternative 5 would have the potential to ignite wildfires. The overhead portion of Alternative 5 between Carroll Canyon Road and Peñasquitos Substation would require the use of construction equipment such as earth movers, generators, vehicles, or chainsaws and personnel that would introduce wildfire ignition sources. Construction of the underground transmission duct bank could also ignite wildfires through worker behavior, such as smoking, and the use of construction equipment in roadways that border wildlands (e.g., along Pomerado Road) if a spark were to carry from the underground work area to the wildlands in high winds. Construction of the overhead transmission line could ignite nearby vegetation if proper conductor clearances are not implemented prior to energizing the overhead line. These construction-related fire ignitions could escape initial fire prevention efforts and create large-scale fires, which would be a significant impact. Implementation of APM FIRE-1 would reduce

impacts through wildland prevention and fire safety practices; however, impacts would still be significant after implementation of APM FIRE-1. Mitigation Measures Fire-1, Fire-2, and Fire-3, and Fire-4 would reduce impacts from fire ignition through preparation of a Final Fire Prevention Plan that addresses the ignition sources in the area, maintaining emergency access for fire personnel, keeping water tanks on site, and maintaining proper conductor clearances. Impacts would be less than significant with mitigation.

Operation and Maintenance

The overhead portion of Alternative 5 could ignite wildfires through arcing or if a conductor comes in contact with debris or vegetation. SDG&E would implement standard maintenance procedures to reduce the potential for ignition of wildfires. Alternative 5 overhead transmission would not increase the potential for arcing and wildfires in the area relative to existing conditions because there is an existing overhead transmission line corridor that is currently maintained. Impacts from the overhead transmission line would be less than significant. No mitigation is required.

The potential for fire-related impacts during operation and maintenance of the underground line is negligible because inspection and maintenance vehicles would access the vaults via paved roadways where there are no fuel sources. There would be no impact from the underground segment.

Mitigation Measures: Fire-1, Fire-2, Fire-3, and Fire-4 (refer to Section 4.12.7)

Significance after mitigation: Less than significant.

4.12.13 No Project Alternative

The No Project Alternative would involve construction of the CAISO approved Mission—Peñasquitos 230-kV transmission line and Second Poway—Pomerado 69-kV power line. The No Project Alternative would also involve installation of a series reactor at Sycamore Canyon Substation. This alternative is described in more detail in Chapter 3: Alternatives. The No Project Alternative would result in greater impacts on fire and fuels than the Proposed Project because the No Project Alternative would require more miles of overhead transmission and power line construction in proximity to wildlands/fuel sources.

4.12.12.3 Mission—Peñasquitos 230-kV Transmission Line and Second Poway—Pomerado 69-kV Power Line

Construction of the Mission—Peñasquitos 230-kV transmission line and Second Poway – Pomerado 69-kV power line would require equipment and vehicles to install approximately 17.6 miles of new conductor, including 10.6 miles of new poles/structures. These facilities would be constructed in wildland areas where construction activities such as grading and replacing/installing poles could ignite a wildfire, resulting in a significant impact to fire and fuels management. Impacts from fire could also occur from introduction of highly flammable non-native species as a result of vegetation clearing and grading of work areas. These impacts

would be significant. These impacts could be reduced to less than significant through implementation of mitigation measures similar to those defined for the Proposed Project.

As with the Proposed Project, operation of the transmission and power lines would introduce the potential for arcing between conductors, which could also spark a wildfire. Because the new transmission line and power line would be located within corridors that already contain transmission and power lines, there would be a *de minimis* increase in the risk of fire from arcing of the new lines. Impacts during operation and maintenance would be less than significant.

4.12.12.4 Series Reactor at Sycamore Canyon Substation

Installation of a series reactor at Sycamore Substation would have a less than significant impact on fire and fuels because all work would be conducted within a gravel pad where there is no vegetation and a low potential for a fire to escape containment.

4.12.13 References

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