4.17 Wildfire

This section addresses impacts associated with the 2045 General Plan related to wildfires.

4.17.1 Setting

a. Wildland Fire Hazards

Wildfire Fundamentals

A *wildfire* is an uncontrolled fire in an area of extensive combustible fuel, including vegetation and structures. Wildfires differ from other fires in that they take place outdoors in areas of grassland, woodlands, brushland, scrubland, peatland, and other wooded areas that act as a source of fuel, or combustible material. Buildings may become involved if a wildfire spreads to adjacent communities. The primary environmental factors that increase an area's susceptibility to wildfire include slope and topography, vegetation type and condition, and weather and atmospheric conditions. Additional factors that increase an urban area's susceptibility to wildfire are development patterns and density, building types, and building materials.

The indirect effects of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capacity to absorb moisture and support life. Regions of dense dry vegetation, particularly in canyon areas and on hillsides, pose the greatest potential for wildfire risks.

Wildfire has three basic elements: how and where its ignition occurred, how and why it moves across a landscape from its point of origin, and the fire's nature upon arrival at a location. In general, a fire's nature is defined by eight characteristics:

1. Direction of the advance of the fire front
2. Speed of the advance of the fire front (rate of spread)
3. Mechanism causing the advance
4. Duration at any one location
5. Structure-related consumption of fuels
6. Flame length
7. Intensity
8. Gaining control

A fire front's direction of travel is primarily determined by direction of prevailing winds, geographic aspect, and condition of the fuels in the advance direction. The speed of a fire front's advance is a result of conditions at the site of the currently burning material and of lands in the advance direction of the fire. As a fire advances, the overriding influences determining its speed are prevailing wind speed, terrain slope gradient, dominant fuel size classes, and fuel continuity.

Wildfires advance by two principal mechanisms: combustion resulting from radiant heating, and remote ignition resulting from ember production. Fire stays at one location primarily due to the size class of the material being consumed. Grass formations are dominated by low volumes of very "fine" fuels and, depending on the level of dryness, can be consumed, with the fire advancing, in a

matter of minutes. On the other hand, tree-dominated vegetation communities have significantly greater volumes of available fuel and a far greater amount of larger-sized fuel components. Fires can remain at these locations for days, often weeks, and sometimes months (on heavily wooded conifer sites).

Fires burn where fuels are available. Fires in grasslands burn at a level set by the height of the grass, while fires in brushlands can burn surface fuels and typically consume the stems and leafy crowns to the full height of the plants. Fires in tree-dominated vegetation have a much more complex pattern of movement based primarily on the continuity (or "connectedness") of the fuels. In these stands there are typically three distinct layers of fuels, arranged vertically: surface, stems and trunks, and the crown composed of branches, twigs and leaves. The continuity of fuels is important to consider in both horizontal and vertical directions. If a fire enters a stand and is advancing only as a surface fire it will continue this manner of advance if there is high horizontal fuel connectivity. However, if there is also a high degree of vertical continuity (provided by fuels referred to as "ladder fuels") then a fire can move into the crown, as well as forward across the surface, and fuels in the entire stand structure become involved.

Flame lengths are generally determined by the volume of fuels burning, the amount of time to total consumption, and the height of the species in the composition. Grassland produces flame lengths typically ranging from 1 to 3 feet as they are composed of low volumes of fine materials that are consumed quickly. Flame lengths are at their maximum when the material is dry. Stands of brush can produce flame lengths from 4 to 10 feet. Native oak-dominated hardwood stands can generate 20- to 40-foot flame lengths and stands of exotics, such as *Eucalyptus globulus* or *E. cinerea,* or dense conifer stands, over 100 feet. Flame length is important as it sets the distance over which radiant heating-related combustion can occur.

The temperature achieved in a wildfire is directly related to the amount of cellulosic material available for consumption. Grasslands have very low amounts and attain lower temperatures but fires in woodlands, characterized by large amounts of highly concentrated cellulosic material, can attain temperatures on the order of 1,800 degrees Fahrenheit.

Gaining control over a wildfire's behavioral character is the objective of response efforts. Grassland fires, burning in low-fuel volume, rapid consumption, and at a single level are the easiest to control. On the other end, fires that are burning in high-fuel volumes, full-spectrum size classes, and entire stand structure involvement, can require days, weeks, even months, to control completely.

Wildfire-Conducive Conditions

Vegetation

Vegetation is fuel to a wildfire, and it changes over time with seasonal growth and die-back. The relationship between vegetation and wildfire is complex, but generally some vegetation is naturally fire resistant, while some vegetation is extremely flammable. For example, cured grass is much more flammable than standing trees (CAL FIRE 2018). Grass is considered an open fuel, in which oxygen has free access to promote the spread of fire. Additionally, weather and climate conditions, such as drought, can lead to increasingly dry vegetation with low-moisture content and, thus, higher flammability.

Plant communities within Solvang include annual grasslands, coastal oak woodlands, coastal scrub, deciduous orchards, mixed chapparal, valley foothill riparian, and valley oak woodlands. Steep

hillsides to the south and west, and in the eastern corner of the city, have dense oak woodland and chaparral vegetation (City of Solvang 2021).

Slope, Elevation, and Aspect

Slope can determine how quickly a fire spreads. Fire typically burns faster uphill, because it can pre-heat the fuels above with rising hot air, and upward drafts are more likely to create fire spots. (NPS 2017). Areas containing steep, rugged terrain can also hinder access and the use of heavy firefighting equipment, posing additional difficulties for firefighting efforts (CAL FIRE 2022a). Following severe wildfires, sloping land is also more susceptible to landslide or flooding from increased runoff during substantial precipitation events. Landslides and surficial slope failure are most likely to occur in areas with more than 25 percent slope (hillside areas) and along steep bluffs.

Elevation affects fire behavior by influencing the timing and amount of precipitation, and exposure to prevailing winds. *Aspect* is the direction that a slope faces, which determines how much radiated heat the slope will receive from the sun. Slopes facing south to southwest will receive the most solar radiation; thus, they tend to be warmer and the vegetation drier than on slopes facing a northerly to northeasterly direction, creating a higher potential for wildfire ignition and spread (University of California Berkeley 2018).

The City of Solvang is situated primarily along an alluvial plain formed by the Santa Ynez River and on the southeastern edge of the Purisima Hills. Solvang is surrounded by the Purisima Hills to the north, the upper Santa Ynez Valley to the east, the Santa Ynez Mountains to the south, and the lower Santa Ynez Valley to the west. The steepest slopes in the vicinity are located adjacent to Adobe Canyon Creek (within the northern portion of the City), the eastern edge of the City near Alamo Pintado Creek, and within the southern portion of the City on the south side of the Santa Ynez River.

Climate and Weather

Wind, temperature, and relative humidity are the most influential weather elements in fire behavior and susceptibility (NPS 2017). Fire moves faster under hot, dry, and windy conditions. Wind may also blow embers ahead of a fire, causing its spread. Drought conditions also lead to extended periods of excessively dry vegetation, increasing the fuel load and ignition potential. Solvang has a semi-arid climate, which is subject to drought conditions (City of Solvang 2021). The local climate in Solvang is characterized by warm summers and cool, wet winters. Table 4.17-1 presents data that includes average monthly temperatures and humidity in Solvang, indicating how the summer months hold the greatest potential for fire risk.

Table 4.17-1 Solvang Temperature and Humidity Data

	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	53	52.5	54.9	56.6	60.4	65.2	68.9	69.2	68.1	63.8	57.9	52.6
Humidity (%)	62	67	66	62	62	61	62	61	59	58	59	63

Source: Climate Data n.d.

Wind data is provided by weather stations at the Santa Ynez Airport, located approximately five miles east of city limits, and the Refugio Alert #2540 Station, located approximately 3.7 miles southeast of city limits. Table 4.17-2 presents data from the station and includes the primary wind source directions (PWD) and average wind speed (AWS). The data has been further broken-out into

two seasonal periods: March to October (which roughly corresponds to the fire season) and the wetter months between November and April.

Table 4.17-2 Solvang Wind Data

	Seasonal Period			
	March – October		November – April	
Station	PWD	AWS (mph)	PWD	AWS (mph)
Santa Ynez Airport (IZA Santa Ynez)	West-Southwest	5.7	Northwest to Southwest	4.6
Refugio Alert #2540	South	3.3	Southwest, East	6.1

PWD = wind source direction, AWS = average wind speed, mph = miles per hour

Source: Iowa State University Iowa Environmental Mesonet 2023

Power Lines

Above-ground power lines have the potential to contribute to wildfire risk, especially when they are near or traverse wilderness areas. In some instances, high winds can blow nearby trees and branches into powerlines, sparking fires. Wind can also snap wooden poles, causing live wires to fall onto nearby grass or other fuel, igniting it. While the California Public Utilities Commission (CPUC) estimates only about 10 percent of California's wildfires are triggered by power lines, the frequency and severity of these wildfires has spurred the agency to make new requirements for power line safety practices (Atkinson 2018).

Wildfire Hazard Designations

In California, State and local agencies share responsibility for wildfire prevention and suppression and federal agencies take part as well. Federal agencies are responsible for federal lands in Federal Responsibility Areas (FRA). The State of California has determined that some non-federal lands in unincorporated areas with watershed value are of statewide interest and have classified those lands as State Responsibility Areas (SRA). CAL FIRE manages SRAs. All incorporated areas and unincorporated lands not in FRAs or SRAs are classified as Local Responsibility Areas (LRA).

While nearly all of California is subject to some degree of wildfire hazard, there are specific features that make certain areas more hazardous. CAL FIRE is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors (PRC 4201-4204, California Government Code 51175-89). As described above, the primary factors that increase an area's susceptibility to fire hazards include slope, vegetation type and condition, and atmospheric conditions. CAL FIRE maps fire hazards based on zones, referred to as Fire Hazard Severity Zones (FHSZ). There are three levels of severity: 1) Moderate FHSZs; 2) High FHSZs; and 3) Very High FHSZs. Only the Very High FHSZs are mapped for LRAs in the currently adopted CAL FIRE FHSZ maps. As of January 2022, California State Law requires CAL FIRE to map the Moderate and High FHSZ in addition to the Very High FHSZ. Updates to the CAL FIRE FHSZ maps are in progress and are expected to be completed in early 2024.

Each of the zones influence how people construct buildings and protect property to reduce risk associated with wildland fires. However, none of the fire zones specifically prohibit development or construction. To reduce fire risk under State regulations, areas in Very High FHSZs must comply with specific building and vegetation management requirements intended to reduce property damage and loss of life in those areas.

The City of Solvang is an LRA and as illustrated in Figure 4.17-1, CAL FIRE's Fire and Resource Assessment Program (FRAP) has classified the areas surrounding Solvang as mostly Moderate and High FHSZ's in an SRA, with Very High FHSZ to the northwest and southwest of the City (CAL FIRE 2023). As shown in Figure 4.17-1, all of the sites considered for future development under the 2045 General Plan are within the City's LRA, and none of the sites are located within a Very High FHSZ. A majority of these sites are located within Moderate and High FHSZs, with the minority located within areas that are not a designated FHSZ.

Fire History

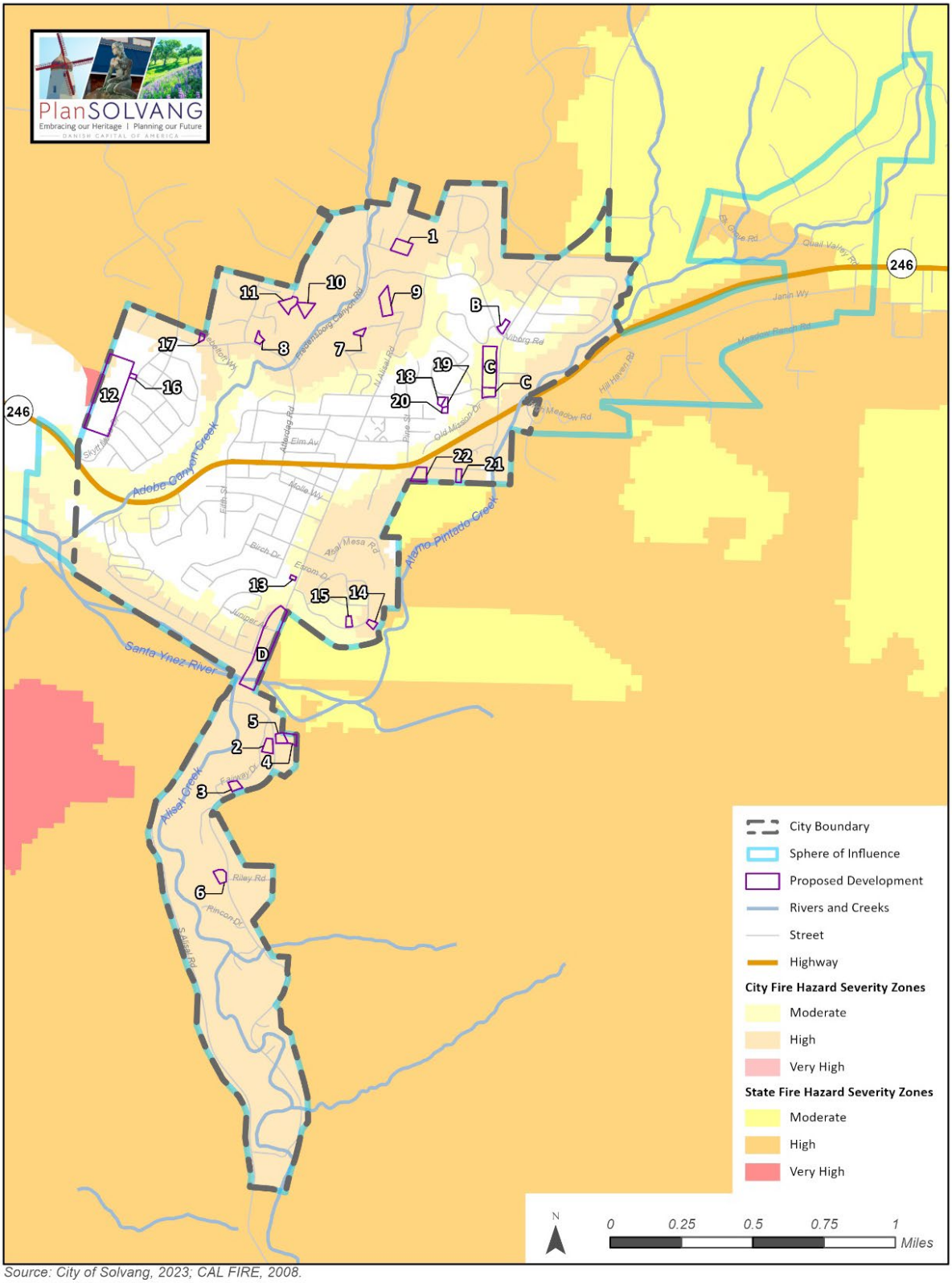
Since the 1950's, the greater Santa Barbara area has averaged one large fire per decade, with large wildfires (in excess of 50,000 acres) occurring every 20 to 30 years (SB Fire Safe Council 2020). In 1917, an approximately 312-acre burned within city limits on the south side of Solvang, along the creek and South Alisal Road. Table 4.17-3 shows the details of fire history within Santa Barbara County.

Table 4.17-3 Santa Barbara County Fire History (1955-2017)

Fire Name	Date	Acres Burned	Miles from Solvang
Refugio	Sep-55	79,428	10
Coyote	Sep-64	65,338	35
Romero	Oct-71	14,538	38
Sycamore	Jul-77	806	35
Wheeler	Jul-85	119,361	20
Painted Cave	Jun-90	4,270	29
Marre	Sep-93	43,822	20
Gaviota	Jul-04	7,440	15
Perkins	Jul-06	14,998	10
Zaca	Jul-07	240,207	17
Gap	Jul-08	9,443	20
Tea	Nov-09	1,940	33
Jesusita	May-09	8,773	33
La Brea	Aug-09	91,622	10
Sherpa	Jun-16	7,474	13
Rey	Aug-16	32,606	18
Canyon	Sep-16	12,742	21
Whittier	Jul-17	18,430	3
Thomas	Dec-17	281,893	4

Source: City of Solvang, 2021

Figure 4.17-1 Fire Hazard Severity Zones and Proposed Development



Source: City of Solvang, 2023; CAL FIRE, 2008.
Date: August 14, 2023

Post-fire Slope Instability and Drainage Pattern Changes

Fires in wildland areas can destroy vegetation and wildlife, and threaten urban areas located on the fringe of wildland areas. Wildland fires can also have serious impacts on downstream development and water supplies. Vegetation loss from wildfire scarring of the landscape can result in slope instability in the form of more intensive flooding and landslides. These post-fire slope soils and altered drainage patterns can result in soil creep on downslope sides of foundations and reduce lateral support. Consequently, mudslides and landslides can threaten downhill development as a result of wildland fires. Solvang, like much of Santa Barbara County, is at risk from wildland fires due to the combination of dry, windy conditions and woodlands, brushlands, chaparral, and grasslands that burn readily (City of Solvang 2021).

Fire Protection Services

The Santa Barbara County Fire Department (SBCFD) provides fire protection services in Solvang. Station 30, located at 1644 Oak Street, serves Solvang and portions of unincorporated Santa Ynez Valley. Station 30 is staffed by four personnel: one Captain, one Engineer, one Firefighter/Paramedic, and one Firefighter (SBCFD 2022). Additional firefighting support in the Santa Ynez Valley is provided by Station 31, located in Buellton, and Station 32, located in Santa Ynez.

Santa Barbara County is also a "Contract County" under CAL FIRE, meaning the County provides initial attack response to fires, while CAL FIRE provides funding for fire protection services, including salaries and wages, maintenance of firefighting facilities, pre-fire management positions, special repairs, and administrative services (CAL FIRE 2022a).

4.17.2 Regulatory Setting

a. Federal Regulations

Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 provided a new set of mitigation plan requirements for State and local jurisdictions that encourage them to coordinate disaster mitigation planning and implementation. States are encouraged to complete a "Standard" or an "Enhanced" Natural Mitigation Plan. Enhanced plans demonstrate increased coordination of mitigation activities at the State level and, if completed and approved, increase the amount of funding through the Hazard Mitigation Grant Program. The State of California Multi-Hazard Mitigation Plan (SHMP), as discussed below, complies with this act.

National Fire Plan

The National Fire Plan was developed under Executive Order 11246 in August 2000, following a historic wildland fire season. Its intent was to establish plans for active response to severe wildland fires and their impacts to communities, while ensuring sufficient firefighting capacity. The plan addresses firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability. The program promotes close coordination among local, State, Tribal, and federal firefighting resources by conducting training, purchasing equipment, and providing prevention activities on a cost-share basis. To help protect people and their property from potential catastrophic wildfire, the National Fire Plan directs funding to be provided for projects designed to reduce the fire risks to communities (United States Department of Agriculture [USDA], United States Department of the Interior [DOI] 2000). High-risk communities identified in the wildland-urban

interface, the area where homes and wildlands intermix, were published in the Federal Register in 2001. At the request of Congress, the Federal Register notice only listed those communities neighboring federal lands (USDA, DOI 2002).

b. State Regulations

California Fire Code

The California Fire Code (CFC) is Chapter 9 of CCR Title 24 and is a fully integrated code based on the International Fire Code. The CFC establishes the minimum requirements consistent with nationally recognized good practices to safeguard public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structure, and premises, and to provide safety and assistance to firefighters and emergency responders during emergency operations. The CFC uses a hazard classification system to determine what protective measures are required to ensure fire safety and protect lives. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the CFC employs a permit system based on hazard classification.

More specifically, CFC Chapter 8 addresses fire related Interior finishes; CFC Chapter 9 addresses fire protection systems; and CFC Chapter 10 addresses fire-related means of egress. CFC Chapter 49 also contains regulations for vegetation and fuel management to maintain clearances around structures. These requirements establish minimum standards to protect buildings in FHSZs in SRAs, LRAs, and wildland-urban interface fire areas.

California Strategic Fire Plan

The 2019 Strategic Plan prepared by CAL FIRE and the California Natural Resources Agency lays out central goals for reducing and preventing the impacts of fire in the state. The goals are meant to establish, through local, State, federal, and private partnerships, a natural environment that is more resilient and human-made assets that are more resistant to the occurrence and effects of wildland fire.

In addition to the 2019 Strategic Plan for California, individual CAL FIRE units develop fire plans, which are strategic documents that establish a set of tools for each CAL FIRE unit for its local area. Updated annually, unit fire plans identify wildfire protection areas, initial attack success, assets and infrastructure at risk, pre-fire management strategies, and accountability in their unit's geographical boundaries. The unit fire plan identifies strategic areas for pre-fire planning and fuel treatment as defined by the people who live and work locally. The unit fire plans include contributions from local collaborators and stakeholders and are aligned with other plans applicable to the area.

California Multi-Hazard Mitigation Plan

The California Office of Emergency Services (CalOES) prepares the SHMP, which identifies hazard risks and includes a vulnerability analysis and a hazard mitigation strategy (CalOES 2018). The SHMP is required under the Disaster Mitigation Act of 2000 for the State to receive federal funding. The Disaster Mitigation Act of 2000 requires a SHMP as a condition of disaster assistance. The SHMP represents the State's primary hazard mitigation guidance document, providing an updated analysis of the state's historical and current hazards, hazard mitigation goals and objectives, and hazard mitigation strategies and actions. The SHMP represents the State's overall commitment to supporting a comprehensive mitigation strategy to reduce or eliminate potential risks and impacts of disasters in order to promote faster recovery after disasters and, overall, a more resilient state.

SHMPs are required to meet the elements outlined in the Federal Emergency Management Agency (FEMA) State Mitigation Plan Review Guide (revised March 2015, effective March 2016).

CalOES is responsible for the development and maintenance of the State's plan for hazard mitigation. The State's SHMP was last approved by FEMA as an Enhanced State Mitigation Plan in 2018. The plan is designed to reduce the effects of disasters caused by natural, technological, accidental, and adversarial/human-caused hazards. The SHMP sets the mitigation priorities, strategies, and actions for the state. The plan also describes how risk assessment and mitigation strategy information is coordinated and linked from local mitigation plans into the SHMP and provides a resource for local planners of risk information that may affect their planning area. The State of California is required to review and revise its mitigation plan and resubmit for FEMA approval at least every 5 years to ensure continued funding eligibility for certain federal grant programs.

State Emergency Plan

The foundation of California's emergency planning and response is a statewide mutual aid system, designed to ensure that adequate resources, facilities, and other support is provided to jurisdictions whenever their own resources prove to be inadequate to cope with an emergency situation.

The California Disaster and Civil Defense Master Mutual Aid Agreement (California Government Code Sections 8555–8561) requires signatories to the agreement to prepare operational plans to use in their jurisdiction and outside their area. These operational plans include fire and non-fire emergencies related to natural, technological, and war contingencies. The State of California, all State agencies, all political subdivisions, and all fire districts signed this agreement in 1950.

Section 8568 of the California Government Code, the California Emergency Services Act, states that "the State Emergency Plan shall be in effect in each political subdivision of the state, and the governing body of each political subdivision shall take such action as may be necessary to carry out the provisions thereof." The act provides the basic authorities for conducting emergency operations following the proclamations of emergencies by the Governor or appropriate local authority, such as a City Manager. The provisions of the act are further reflected and expanded on by appropriate local emergency ordinances. The act further describes the function and operations of government at all levels during extraordinary emergencies, including war.

All local emergency plans are extensions of the State of California Emergency Plan. The State Emergency Plan conforms to the requirements of California's Standardized Emergency Management System (SEMS), which is the system required by Government Code 8607(a) for managing emergencies involving multiple jurisdictions and agencies. The SEMS incorporates the functions and principles of the Incident Command System (ICS), the Master Mutual Aid Agreement, existing mutual aid systems, the operational area concept, and multi-agency or inter-agency coordination. Local governments must use SEMS to be eligible for funding of their response-related personnel costs under State disaster assistance programs. The SEMS consists of five organizational levels that are activated as necessary, including: field response, local government, operational area, regional, and State. CalOES divides the state into several mutual aid regions (CalOES 2017).

California Building Code

Wildland-Urban Interface Building Standards

On September 20, 2007, the building Standards Commission approved the Office of the State Fire Marshal's emergency regulations amending the CCR, Title 24, Part 2, known as the 2007 California Building Code (CBC). The provisions of the CBC apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout California. These codes include provisions for ignition-resistant construction standards in the wildland-urban interface (WUI) and use a hazard classification system to determine what protective measures are required to ensure fire safety and protect lives. Specifically, CBC (Part 2), Chapter 7A addresses materials and construction methods for exterior wildfire exposure.

California Public Resource Code

The California Public Resource Code (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 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:

- Earthmoving and portable equipment with internal combustion engines would be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC Section 4442)
- Appropriate fire suppression equipment would be maintained during the highest fire danger period—from April 1 to December 1 (PRC Section 4428)
- On days when a burning permit is required, flammable materials would be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor would maintain the appropriate fire suppression equipment (PRC Section 4427)
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines would not be used within 25 feet of any flammable materials (PRC Section 4431)

California PRC Section 4290

The California PRC Section 4290 was adopted to establish minimum wildfire protection standards in conjunction with building, construction, and development in SRAs, and as of July 1, 2021 within the LRA Very High FHSZs. Under PRC Section 4290, the future design and construction of structures, subdivisions, and developments in SRAs must provide for basic emergency access and specified perimeter wildfire protection measures. These measures provide for road standards for emergency access, signing and building numbering, water supply reserves, and fuel breaks and greenbelts and are contained within California Government Code of Regulations, 14 CCR, Division 1.5, Chapter 7 Fire Protection, Subchapter 2, Articles 1-5, and known as the State Minimum Fire Safe Regulations.

Executive Order N-05-19

On January 9, 2019, Governor Gavin Newsom issued Executive Order N-05-19 to address wildfire in California. Executive Order N-05-19 directs CAL FIRE, in consultation with other State agencies and departments, to recommend immediate-, medium-, and long-term actions to help prevent destructive wildfires. In response, CAL FIRE created the Community Wildfire Prevention and Mitigation Report which contains recommendations to reduce the damage from wildfires across the state. Specifically, they focus on reducing wildfire fuel (such as vegetation clearing), long-term community protection (creating defensible space in communities), wildfire prevention, and forest health (CAL FIRE 2019).

Government Code Section 51182

According to Government Code Section 51182 (amended by AB 3074 and AB 63, which created a new 0- to 5-foot ember resistant zone and new definitions and requirements for defensible space, respectively), a person who owns, leases, controls, operates, or maintains an occupied dwelling or occupied structure in, upon, or adjoining a mountainous area, forest-covered land, brush-covered land, grass-covered land, or land that is covered with flammable material, or land that is in a Very High FHSZ shall at all times do all of the following:

1. Maintain defensible space of 100 feet from each side and from the front and rear of the structure.
2. Remove that portion of a tree that extends within 10 feet of the outlet of a chimney or stovepipe.
3. Maintain a tree, shrub, or other plant adjacent to or overhanging a building free of dead or dying wood.
4. Maintain the roof of a structure free of leaves, needles, or other vegetative materials.
5. Prior to constructing a new dwelling or structure that will be occupied or rebuilding an occupied dwelling or occupied structure damaged by a fire in that zone, the construction or rebuilding of which requires a building permit, obtain a certification from the local building official that the dwelling or structure, as proposed to be built, complies with all applicable State and local building standards.

SB 1241 (Kehoe) of 2012

SB 1241 requires cities and counties in SRAs and Very High FHSZs to address fire risk in the safety element of their general plans. The bill also resulted in amendments to the CEQA Guidelines to include questions related to fire hazard impacts for projects located in or near lands classified as SRAs and Very High FHSZs.

AB 2911 (2018)

Following the devastating 2017 fire season, AB 2911 was adopted to improve fire safety in subdivision developments. AB 2911 requires the State Board of Forestry and Fire Protection, in consultation with the State Fire Marshal, to survey local governments including counties, cities, and fire districts to identify existing subdivisions located in SRAs or Very High FHSZs that are without a secondary means of egress route and are at significant fire risk. Through this Subdivision Review Program, the Board, in consultation with the State Fire Marshal and local governments, would develop recommendations to create secondary access to the subdivision, improvements to existing access roads, and other fire safety measures.

California Public Utilities Commission General Orders

General Order 95

The California Public Utilities Commission (CPUC) General Order 95 applies to construction and reconstruction of overhead electric lines in California. The replacement of poles, towers, or other structures is considered reconstruction and requires adherence to all strength and clearance requirements of this order. The CPUC has promulgated various Rules to implement the fire safety requirements of General Order 95, including:

- Rule 18A requires utility companies take appropriate corrective action to remedy Safety Hazards.
- General Order 95 nonconformances requires that each utility company establish an auditable maintenance program.
- Rules 31.2 requires that lines be inspected frequently and thoroughly.
- Rule 35 requires that vegetation management activities be performed in order to establish necessary and reasonable clearances. These requirements apply to all overhead electrical supply and communication facilities that are covered by General Order 95, including facilities on lands owned and maintained by California State and local agencies.
- Rule 38 establishes minimum vertical, horizontal, and radial clearances of wires from other wires.
- Rule 43.2.A.2 requires that for lines located within Tier 2 or Tier 3 zones, the wind loads required in Rule 43.2.A.1 be multiplied by a wind load factor of 1.1. (CPUC 2018)

General Order 165

General Order 165 establishes requirements for the inspection of electric distribution and transmission facilities that are not contained in a substation. Utilities must perform “Patrol” inspections, defined as a simple visual inspection of utility equipment and structures and designed to identify obvious structural problems and hazards, at least once per year for each piece of equipment and structure. “Detailed” inspections, where individual pieces of equipment and structures are carefully examined, are required every 5 years for all overhead conductor and cables, transformers, switching/protective devices, and regulators/capacitors. By July 1 of each year, each utility subject to this General Order must submit an annual report of its inspections for the previous year under penalty of perjury (CPUC 2017a).

General Order 166

General Order 166 Standard 1.E requires that investor-owned utilities develop a fire prevention plan that describes measures that the electric utility will implement to mitigate the threat of power-line fires generally. Additionally, this standard requires that investor-owned utilities outline a plan to mitigate power-line fires when wind conditions exceed the structural design standards of the line during a Red Flag Warning in a high fire threat area. Fire prevention plans created by investor-owned utilities are required to identify specific parts of the utility’s service territory where the conditions described above may occur simultaneously. Standard 11 requires that utilities report annually to the CPUC regarding compliance with General Order 166 (CPUC 2017b).

SB 1028

SB 1028 (2016) requires each electrical corporation to construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those components, and makes a violation of these provisions by an electrical corporation a crime under State law. The bill also requires each electrical corporation to annually prepare a wildfire mitigation plan submitted to CPUC for review. The plan must include a statement of objectives, a description of preventive strategies and programs that are focused on minimizing risk associated with electric facilities, and a description of the metrics that the electric corporation uses to evaluate the overall wildfire mitigation plan performance and assumptions that underlie the use of the metrics.

c. Local Regulations

Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan

The Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan (HMP) contains goals and objectives that are intended to reduce loss of life and property from natural disasters. The HMP was comprehensively updated in 2023, and the City is a participating agency. During the planning process, this plan used FEMA tools to determine the most likely possible threats would be wildfire, earthquakes, drought and water shortage, pandemic/public health emergency, energy shortage and resiliency, extreme heat and freeze, and flooding. The HMP identifies mitigation action items that aim to meet objectives and reduce the impacts of these hazards. The Santa Barbara County Office of Emergency Management leads the responsibility for overseeing the Plan implementation and maintenance strategy. Plan implementation and evaluation will be a shared responsibility among all planning partnership members and agencies identified as lead agencies in the mitigation action plans.

City of Solvang Emergency Management Plan

The City's Emergency Management Plan (EMP) addresses the planned response to extraordinary emergency situations associated with natural disasters, technological and intentional incidents, and national security emergencies in or affecting the City. The EMP addresses emergency management coordination, procedures required to protect the health and safety of the residents and property within Solvang, and emergency management organization required to respond to and mitigate emergencies or disasters within Solvang. The EMP integrates with Santa Barbara County's Operational Area response for area wide emergencies such as fire (City of Solvang 2013).

4.17.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

This section describes the potential environmental impacts of the proposed project relevant to wildfire. The impact analysis is based on an assessment of baseline conditions in Solvang, including the risk of exposure to wildland fires and wildfire hazards. This analysis identifies potential impacts based on the predicted interaction between the affected environment and construction, operation, and maintenance activities related to the predicted development that would occur under the proposed project. This section describes wildfire impacts in terms of location, context, duration, and intensity.

Significance Thresholds

California Environmental Quality Act (CEQA) Guidelines Appendix G provides the following significance thresholds to determine if a project would have a potentially significant impact on wildfires. For the purposes of this EIR, implementation of the proposed project may have a significant adverse impact if it would be located in or near state responsibility areas or lands classified as very high fire hazard severity zones, and:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan;
2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
3. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

b. Project Impacts and Mitigation Measures

Threshold 1:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Impact W-1 THE 2045 GENERAL PLAN INCLUDES POLICES TO ADDRESS EMERGENCY ACCESS, RESPONSE, AND PREPAREDNESS. THEREFORE, THE PROPOSED PROJECT WOULD NOT SUBSTANTIALLY IMPAIR AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Solvang, due to its rural surroundings, is a wildland-urban interface, which includes areas where homes or other structures are built near or among lands prone to wildland fire. The majority of Solvang is within a FHSZ, including the portion of the city south of the Santa Ynez River, as well as the perimeter of the City limits. In addition, Solvang's SOI is within a FHSZ. The central portion of Solvang with concentrated development, as shown in Figure 4.17-1, is not designated as a FHSZ.

Development within a FHSZ is unsafe when fire suppression activities would be impeded by lack of water, rugged terrain, or delayed response times. One SBCFD fire station, Station 30, serves Solvang and portions of unincorporated Santa Ynez Valley. In Solvang, the average response times from SBCFD are between three to five minutes (City of Solvang 2021).

The 2045 General Plan includes the following policies and programs to ensure safe and efficient evacuation and emergency response:

- **Policy PFS-5.2: Defensible Space.** The City shall coordinate with County Fire Department to work with residents and businesses to provide "defensible space" around structures to provide fire fighters with sufficient room to defend structures and maneuver.
- **Policy SAF-1.2: Community Education and Organization.** The City shall develop and support preparedness programs that educate and organize the community, especially vulnerable populations, to respond appropriately to disasters.

- **Policy SAF-1.4: Law Enforcement and Fire Protection Services.** The City shall continue to work with Santa Barbara County to maintain local law enforcement and fire protection services in a state of readiness to ensure adequate protection for the citizens of Solvang.
- **Policy SAF-1.5: Standardized Emergency Management System.** The City shall continue to support efforts to ensure local agency compliance with the State's Standardized Emergency Management System.
- **Policy SAF-1.9: Communication and Media Protocols.** The City shall continue to maintain emergency communication resources, protocols, and improve information transfer to the media and public during emergencies.
- **Policy SAF-6.2: Mutual Aid Agreements.** The City shall continue to maintain mutual aid agreements among fire protection and emergency service providers to ensure residents and property are adequately served and to facilitate the efficient use of available resources.
- **Safety Element Program U: Evacuation Plan and Emergency Response Procedures.** The City shall prepare and regularly update an evacuation plan and emergency response procedures, including evacuation routes, for different types of disasters, including dam failure, within the Emergency Management Plan.
- **Safety Element Program V: Roadway Capacity Evaluation.** The City shall periodically evaluate existing roadways, particularly along evacuation and emergency access routes, to ensure roads will have adequate capacity during times of emergency.

The City's EMP helps maintain the City's ability to prepare, respond, and recover from a variety of emergency incidents. The 2045 General Plan would not conflict with the EMP or otherwise impair evacuation; implementation of 2045 General Plan policies would enhance SBCFD's ability to respond to emergencies and existing evacuation routes through implementation of policies listed above. Additionally, development impact fees, as required under AB 1600, would fund the provision of fire protection services in Solvang so that the city may accommodate increased development without a subsequent decrease in fire protection efficiency or emergency response. Any development proposed in FHSZs would be subject to site plan review of the Solvang Emergency Services Coordinator and Fire Marshal during the City's site plan review process (City of Solvang 2021). During this process, the City would be required to confirm that individual development site plans adequately provide emergency access. Because the Solvang Emergency Services Coordinator and Fire Marshal would review development facilitated by the proposed project to ensure emergency access meets City standards, impacts related to impairing an adopted emergency response plan or emergency evacuation plan would be less than significant.

Mitigation Measures

No mitigation measures are required because this impact would be less than significant.

Threshold 2:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Impact W-2 THE 2045 GENERAL PLAN INCLUDES POLICIES TO MINIMIZE WILDFIRE RISK. DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD ADHERE TO THE CALIFORNIA FIRE CODE AND

BE REVIEWED BY THE SANTA BARBARA COUNTY FIRE DISTRICT TO ENSURE WILDFIRE RISK WOULD NOT BE EXACERBATED. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the proposed project would occur in urbanized areas of Solvang, as well as more rural areas where fire fuels (i.e., vegetation) are more continuous and abundant. These areas are susceptible to wildfire. Solvang contains a combination of dry, windy conditions, woodlands, brushlands, chaparral, and grasslands that burn readily (City of Solvang 2021).

Plant communities within Solvang include annual grasslands, coastal oak woodlands, coastal scrub, deciduous orchards, mixed chapparal, valley foothill riparian, and valley oak woodlands. Steep hillsides to the south and west, and in the eastern corner of the city, have dense oak woodland and chaparral vegetation (City of Solvang 2021).

Grasslands are capable of generating dangerous fuel behavior, while woody fuel types, such as tree and brush formations, are generally associated with rapid fire front advance, high burn intensities, longer duration at a given location, and generation of airborne embers, especially under extreme fire weather conditions. While existing urban development provides a barrier to the uncontrolled spread of wildfire, undeveloped and open space areas would be susceptible to exacerbated fire conditions. These conditions provide the potential to push wildfire and wildfire smoke through areas of low-fuel volumes and to areas of substantial development, thereby exposing residents to pollutant concentrations associated with wildfire. However, the 2045 General Plan includes policies to enhance the City's ability to respond to wildfire risk listed in Impact W-1. In addition, the 2045 General Plan includes policies that would minimize risk to project occupants, including:

- **Policy SAF-5.1: Protect New Development.** The City shall require new development be designed to protect life and property from the effects of wildfires and structural fires relative to the identified level of risk.
- **Policy SAF-5.5: Fire Safety Improvements.** The City shall encourage fire safety improvements for existing homes and commercial buildings.

SBCFD enforces fire and building codes related to development in FHSZs. Development facilitated by the proposed project would be required to comply with SBCFD development standards that reduce wildfire risk. Standards include, but are not limited to, implementation of a 100-foot minimum defensible space barriers around all buildings or structures, removal of combustible vegetation within 30 feet of a building or structure, prohibition of trees located within 10 feet of a chimney or stovepipe, and removal of combustible vegetation at a minimum of 10 feet from both shoulders of a roadway or driveway. (SBCFD 2010).

Development facilitated by the proposed project would also be required to adhere to State and federal regulations related to reducing wildfire risk. This includes approval of site-specific design plans to verify compliance with applicable codes including, but not limited to, the following:

- Title 24, CCR, Building Regulations
- Uniform Fire Code
- National Fire Codes of the National Fire Protection Association
- Title 19, CCR, Public Safety
- Title 8, CCR, Occupational Safety
- California Health and Safety Code

The CFC includes safety measures that minimize the threat of fire, including ignition-resistant construction with exterior walls of noncombustible or ignition resistant material from the surface of the ground to the roof system and sealing any gaps around doors, windows, eaves and vents to prevent intrusion by flame or embers. Development would also be required to meet California Building Code requirements, including CCR Title 24, Part 2, which includes specific requirements related to exterior wildfire exposure. CCR Title 14 sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent loss of structures or life by reducing wildfire hazards risk. Compliance with these regulations and building standards would reduce the potential for development facilitated by the proposed project to contribute to the exposure to pollutants of persons in or near these developments. Additionally, implementation of the 2045 General Plan would include policies intended to minimize potential wildfire risks. Therefore, this impact would be less than significant.

Mitigation Measures

No mitigation measures are required because this impact would be less than significant.

Threshold 3:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Impact W-3 IMPLEMENTATION OF THE 2045 GENERAL PLAN WOULD NOT REQUIRE THE INSTALLATION OR MAINTENANCE OF SUBSTANTIAL INFRASTRUCTURE THAT MAY EXACERBATE FIRE RISK OR RESULT IN TEMPORARY OR ONGOING IMPACTS TO THE ENVIRONMENT ASSOCIATED WITH FIRE RISK. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Minimal additional infrastructure, such as roads, fuel breaks, emergency water sources, power lines, or other utilities, would be required to accommodate development facilitated by the proposed project. Primarily, development facilitated by the proposed project would require lateral infrastructure connection to existing utilities, resulting in negligible temporary or ongoing environmental impacts. Electrical lines pose the greatest potential wildfire risk. Existing electrical lines are maintained in accordance with California Public Utilities Commission (CPUC) requirements. In accordance with Title 8, Chapter 6 of the Municipal Code, in the event the City determines an overhead electric line(s) pose a risk to public safety, the City Council can mandate the overhead electric lines be replaced with underground electric infrastructure. Accordingly, development facilitated by the proposed project would not exacerbate fire risk from electric line installation.

To minimize risks associated with emergency water sources and availability, the 2045 General Plan includes the following policies and programs:

- **Policy PFS-1.1: Water Supply Sources**. The City shall continue to maintain a water supply program consisting of multiple sources of water, water conservation and groundwater management to accommodate projected water demand and provide for reliable water supply.
- **Policy PFS-1.2: Adequate Fire Flows**. The City shall insure the provision of water supply, storage, and adequately sized pipelines to provide fire flows to meet the recommendations of the Fire Chief, City Engineer, and Utilities Director.
- **Policy PFS-1.3: Water Supply and Infrastructure.** The City shall ensure there is adequate water supply and infrastructure in place or that will be available in place and prior to approving any

new development. The City will consider existing and future water supply and demand prior to project approval.

- **Public Facilities, Services and Infrastructure Element Program A: Water System Master Plan.** The City shall update every five-years or as needed the Water System Master Plan to address the development of multiple sources of water, water conservation and groundwater management to accommodate projected water demand and provide for water supply security.
- **Policy SAF-6.3: Peak Fire-Flow.** The City shall continue to ensure that adequate peak load water fire-flows are maintained throughout the city and shall regularly monitor fire-flows to ensure adequacy.
- **Safety Element Program X: Fire Flow Evaluation.** The City shall continue to regularly evaluate fire-flows to ensure they are adequate to serve the community.

Applicable 2045 General Plan policies and SBCFD requirements would ensure development would minimize fire risk through adherence to defensive space requirements, development standards, fire management best practices, and wildfire resilience standards. During site plan review of individual projects, the City's Emergency Services Coordinator and the Fire Marshal would ensure new development provides adequate fuel breaks or buffer zones that minimize fire risk. The creation of fuel breaks or buffer zones would reduce the potential for severe or catastrophic wildfires, rather than exacerbate them.

Development impact fees, as required under AB 1600, would fund the provision of fire protection services in Solvang. Development facilitated by the proposed project would generally require minimal additional utility infrastructure, and CPUC and SBCFD requirements and policies included in the 2045 General Plan would ensure development facilitated by the proposed project would not result in substantial fire risk or temporary or ongoing impacts to the environment. Therefore, this impact would be less than significant.

Mitigation Measures

No mitigation measures are required because this impact would be less than significant.

Threshold 4:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Impact W-4 THE 2045 GENERAL PLAN INCLUDES POLICIES TO ENSURE DEVELOPMENT WOULD NOT EXACERBATE RISKS FROM FLOODING OR LANDSLIDES DUE TO WILDFIRE. THEREFORE, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Vegetation on hillsides helps stabilize soil, slow water flow, and support percolation into the soil. Severe wildfires damage trees, the shrub canopy, vegetation, and soil. Once vegetation burns, a greater surface area of soil is exposed to the elements, and the lack of roots decreases the structural integrity of the soil. As a result, wildfire burn areas typically experience increased runoff after intense rainfall, which can put residences and structures downslope of a burned area at risk of localized floods and landslides. Landslide risk in Solvang is highest adjacent to Adobe Canyon Creek. This area as well as others concentrated throughout the eastern and southern portions of Solvang, are classified as a very high landslide risk. There are several flood-prone areas in Solvang, which are

generally located adjacent to the Santa Ynez River, Alamo Pintado Creek, Alisal Creek, and Adobe Creek. These areas are primarily adjacent to open space and residential uses.

As described in Section 4.6, *Geology and Soils*, development would be required to adhere to the standards of the California Building Code to minimize the potential development to result in a landslide. The 2045 General Plan includes the following policies to minimize potential for landslides:

- **Policy SAF-2.3: Geotechnical Reports.** The City shall continue to require the preparation of geotechnical reports and impose appropriate mitigation measures for new development in areas of potential seismic or geologic hazards to ensure, within the limits of technical and economic feasibility, that new structures are able to withstand the effects of seismic activity, including liquefaction, slope instability, expansive soils or other geologic hazards.
- **Policy SAF-3.1: Landslide and Slope Instability Hazard Mitigation.** The City shall continue to require development to avoid and/or mitigate any potential impacts a project contributes to landslides and slope instability hazards on neighboring property, appurtenant structures, utilities, and roads.
- **Policy SAF-3.2: Expansion of Development in Areas of Landslide Activity.** The City shall prohibit the expansion of existing structures or developments in areas of known landslide activity except when the project will incorporate measures to reduce the potential for loss of life and property.
- **Policy SAF-3.3: New Development in Areas of Landslide Activity.** The City shall prohibit new development in areas of known landslide activity unless development plans indicate that the hazard can be reduced to a less than significant level prior to beginning development.

As described in Section 4.9, *Hydrology and Water Quality*, development in a flood hazard zone would be required to adhere to the standards of the California Building Code and Municipal Code which provide design guidelines, construction standards, and encroachments. Development would also be required to comply with State and City regulations for controlling stormwater, including implementation of BMPs to minimize stormwater flows and adverse impacts of flooding following a wildfire. The 2045 General Plan includes the following policies to minimize flood-related impacts:

- **Policy SAF-4.1: Development in Floodplains.** The City shall not approve new development in areas subject to a 100-year flood event, based on Federal Emergency Management Agency (FEMA) mapping or on other updated mapping acceptable to the City, unless and until the flood hazard has been mitigated.
- **Policy SAF-4.2: Mitigate Flooding.** The City shall require new development and redevelopment to incorporate flood reduction measures into the project design in areas known to be prone to flooding.
- **Policy SAF-4.4: Reducing Flood Impacts.** The City shall require mitigation to less than significant levels for new development with the potential to increase flooding impacts.
- **Policy SAF-4.5: 100-Year Flood Plains.** The City shall require development on land subject to a 100- year flood event, based on Federal Emergency Management Agency (FEMA) mapping or on other updated mapping acceptable to the City, to conform to National Flood Insurance Program (NFIP) standards.

Development facilitated by the proposed project would be required to adhere to these State and City regulations and 2045 General Plan policies, which would ensure the proposed project would not expose people or structures to substantial flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. This impact would be less than significant.

Mitigation Measures

No mitigation measures are required because this impact would be less than significant.

4.17.4 Cumulative Impacts

The analysis in this section examines cumulative impacts involving wildfires throughout the cumulative impact analysis area, and the 2045 General Plan's potential contribution to cumulative wildfire impacts.

A combination of federal, State, and local regulations limit or minimize the potential for exposure to wildfires by reducing the amount of development in wildland urban interface areas, ensuring new development is developed according to California Building Code and California Fire Code, and incorporating requirements for fire-safe construction into the land use planning. Cumulative development may occur in designated FHSZs; however, project construction would adhere to respective SBCFD fire codes designed to provide minimum standards to increase fire-resiliency in buildings, prevent the occurrence of fires, and to provide adequate fire-protection facilities to control the spread of fire which might be caused by recreational, residential, commercial, industrial or other activities conducted in a wildland urban interface area. Adherence to the SBCFD regulations would ensure that California Fire Code standards including automatic sprinkler systems are incorporated into project design and permit requirements. Therefore, the cumulative impact related to wildfire exposure risk would be less than significant.

For the reasons stated above, potential impacts associated with wildfires would not be cumulatively considerable, and cumulative impacts would be less than significant.