

## 4.19 WILDFIRE

This section evaluates wildfire impacts that would result from implementation of the proposed Plan.

### 4.19.1 EXISTING CONDITIONS

Wildfire, as defined in California Public Resources Code Sections 4103 and 4104, is any uncontrolled fire spreading through vegetative fuels that threatens to destroy life, property, or resources. In the last two decades, wildfires in California have increased in number of fires ignited, number of acres burned, and number of structures destroyed (California State Board of Forestry and Fire Protection and CAL FIRE 2018). Since 2015, the average annual cost of fire suppression in California in areas under State jurisdiction has averaged over \$550 million per year (CAL FIRE 2018a), and in 2016 (the most recent year reported) over four million dollars of wildfire-related damage occurred in San Diego County alone (CAL FIRE 2016). Of the top 20 largest California wildfires, three have been in San Diego County, including the 2003 Cedar Fire, which burned 273,246 acres, destroyed 2,820 structures, and resulted in the loss of 15 lives (CAL FIRE 2018b).

Several factors, including climate, native vegetation, topography, and development patterns make the San Diego region susceptible to wildfires. Extended droughts, characteristic of the region's Mediterranean climate and exacerbated by climate change, result in large areas of dry vegetation that provide fuel for wildland fires. Wildfire risk tends to be high in locations where dense vegetation occurs on a steep slope (CAL FIRE 2018c). As a result, high wildfire risk occurs in the hills and mountains of the eastern San Diego region where sparse development intermingles with fire-prone native vegetation. But urban areas can also be at risk where the unique mesa-canyon topography of coastal San Diego puts development in proximity to steep slopes and dense vegetation. After wildfire burns the vegetation that anchors soil to the hillside, chances increase that a flash flood, mudflow or landslide could occur in the event of heavy rains (CAL FIRE 2018d).

Development patterns contribute to wildfire risk in California as well. When communities are located in areas that burn frequently, wildfire smoke, which can travel for miles, has a negative effect on human health (Black et al. 2017). In addition, more wildfires are started near developed areas and near roadways (Syphard et al. 2007), and as development expands into wildland areas, more wildfires are ignited (Radeloff 2018). An estimated 80 percent of wildfires are ignited by humans (Balch et al. 2017). Humans start wildfires by leaving campfires unattended, burning debris, through equipment use and malfunctions, negligently discarding cigarettes, and intentional acts of arson (U.S. Forest Service 2017).

### FIRE HAZARD DESIGNATIONS

The California Department of Forestry and Fire Protection (CAL FIRE) defines and maps Fire Hazard Severity Zones (FHSZ) to identify the potential fire hazard severity expected in different areas within the state as required by California Public Resources Code Sections 4201-4205. FHSZ are determined based on an area's vegetation, topography (slope), weather (including winds), crown fire potential, and ember production and movement potential. FHSZ include the classifications Very High, High or Moderate in areas where the State is responsible for fire protection (State Responsibility Areas [SRA]) (CAL FIRE 2018e). The majority of the San Diego region is included in an SRA for fire prevention and suppression (Figure 4.19-1).

FHSZ also include the classification Very High in areas where local agencies are responsible for fire protection (Local Responsibility Areas [LRA]) (CBSC 2016). In the San Diego region, local fire protection is provided by Fire Protection Districts and county Service Areas in unincorporated parts of the County, and by city fire departments and joint powers agreements within city boundaries. Local fire protection is discussed in more

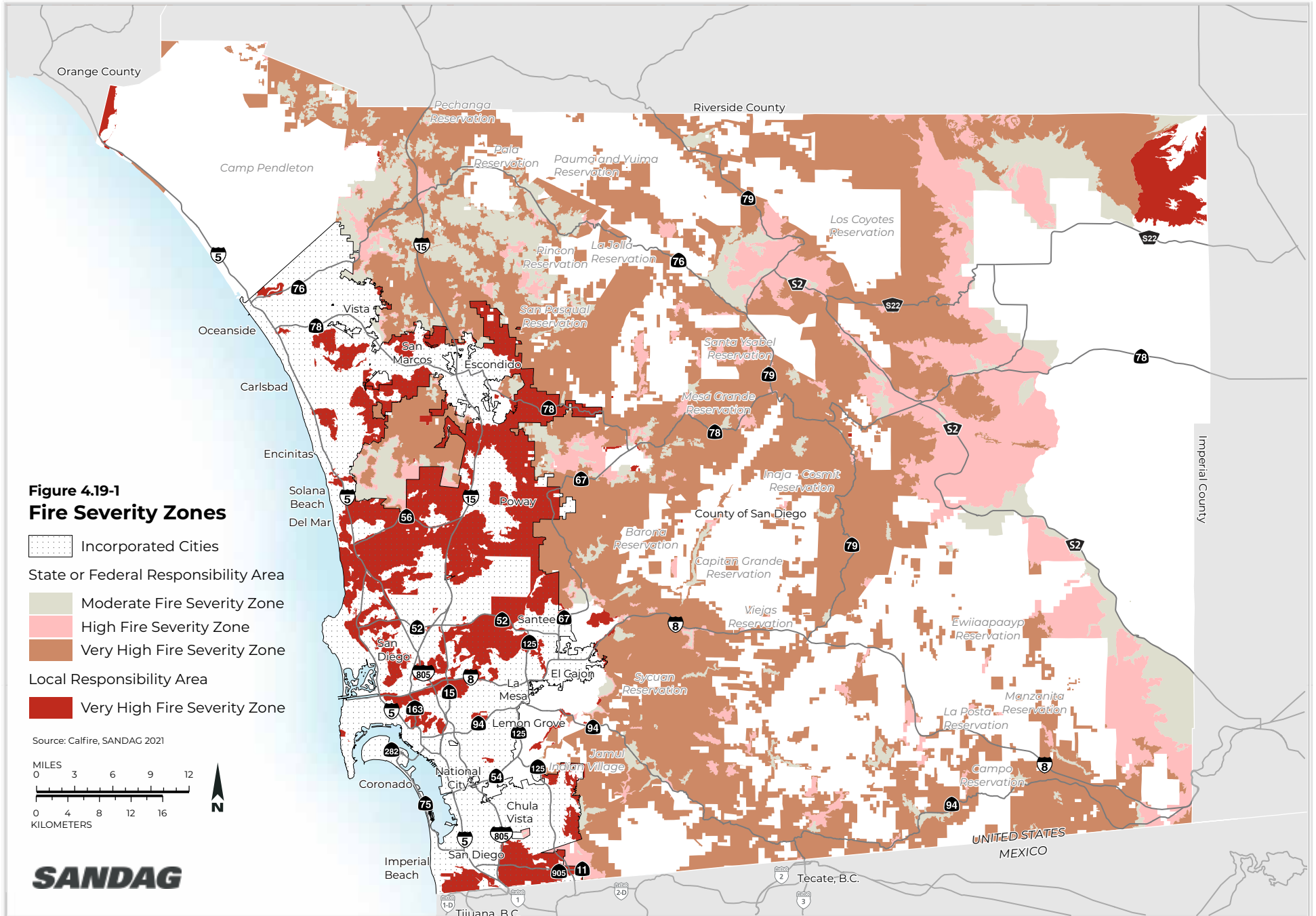
detail in Section 4.15, *Public Services and Utilities*. Approximately 32 percent of the San Diego region consists of areas that are designated as a Very High FHSZ (Table 4.19-1).

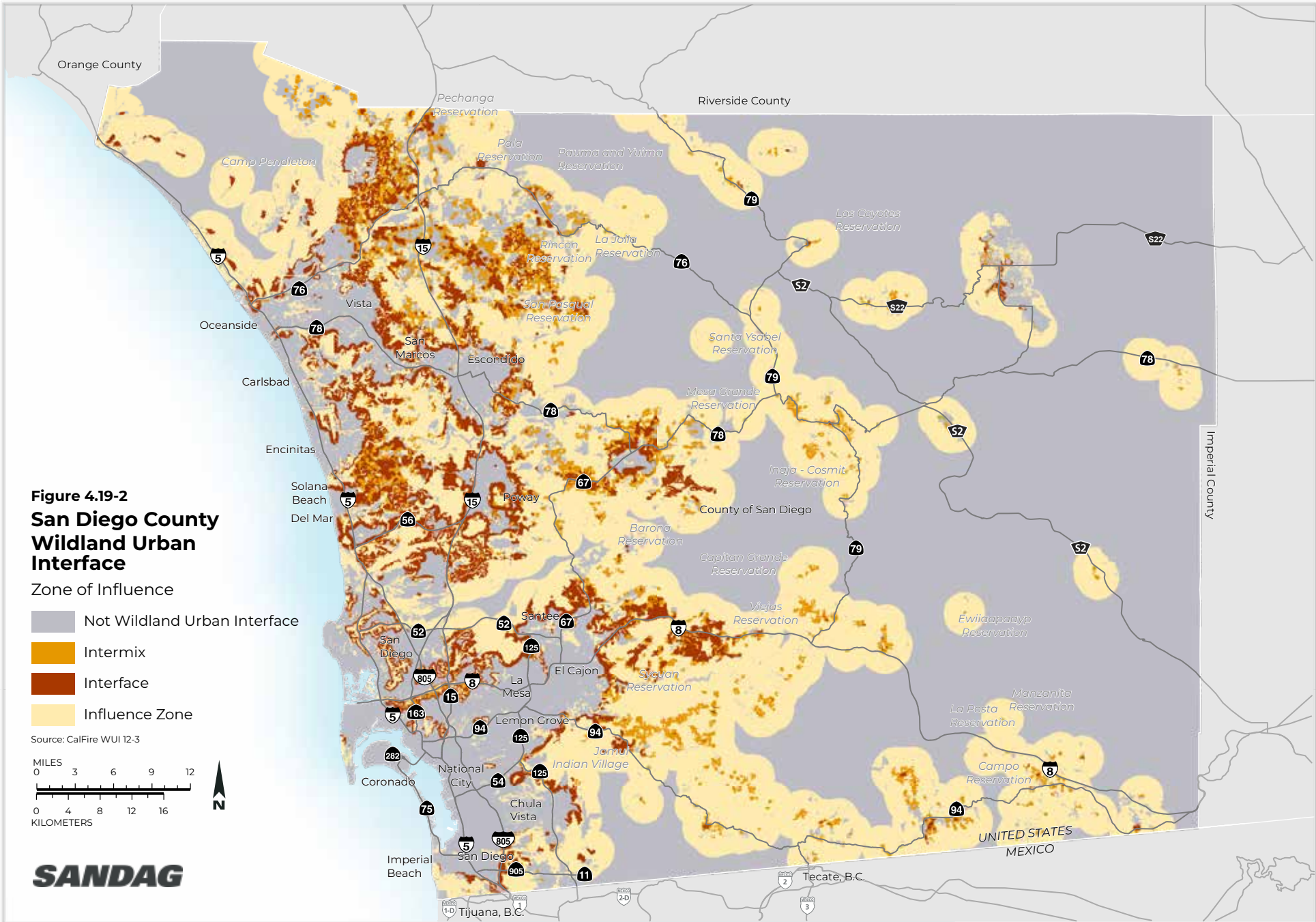
**Table 4.19-1  
Fire Risk in the San Diego Region**

<b>Threat</b>	<b>Acres</b>	<b>Percent of San Diego Region</b>
Very High	867,162	32
High	121,577	4
Moderate	124,719	5
Little or no Hazard	23,793	1
Total	1,137,251	42

Source: CAL FIRE 2018a

The California Fire Code (California Code of Regulations [CCR] Title 24, Part 9), includes requirements for building construction and vegetation management within areas designated as Wildland Urban Interface (WUI) areas. WUI areas occur where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels (USDA and USDOJ 2001a) and occur in areas designated by CAL FIRE as a FHSZ. A WUI is defined as a buffer around areas of residential density greater than 0.05 dwelling units per acre. Two additional classes are mapped, as shown in Figure 4.19-2, including Wildland Urban Intermix and Wildfire Influence Zone. Wildland Urban Intermix are areas of more sparsely populated development than WUI, but are interspersed in areas dominated by wildland vegetation subject to wildfire. A Wildfire Influence Zone includes all areas up to 1.5 miles from WUI for Wildland Urban Intermix with wildfire susceptible vegetation (CAL FIRE 2018f).







## ANTICIPATED EFFECTS OF CLIMATE CHANGE

Due to its semi-arid climate, shrubland, and the nearby presence of the Santa Ana winds, the San Diego region experiences wildfire, and the high temperatures and droughts caused by climate change could increase wildfire intensity or frequency. By 2050, the fire season in the San Diego region may be longer and less predictable, with larger and more catastrophic fires (CEP and SDF 2015), and climate change may drive factors that may worsen wildfires, such as more frequent and intense dry Santa Ana winds, drier autumns, and increased development and presence of dead fuels.

The annual average of acres burned in the San Diego region was 21,042 between 1950 and 2005. Under a high-emissions scenario, the Cal-Adapt wildfire tool anticipates an annual average 20,972 acres of burned land by 2050 (a negligible decrease) and 29,499 acres by 2100 (a 40 percent increase). Under a low-emissions scenario, the tool estimates an annual average of 17,971 acres burned by 2050 (a 14.6 percent decrease) and 24,546 acres by 2099 (a 16.6 percent increase) (County of San Diego 2018). Thus, climate change is expected to increase wildfire occurrence in the San Diego region over the long term, with risks increasing over time.

Wildfire risk could also interact with other climate hazards to create cascading events. Flooding (which is also expected to increase in the San Diego region due to an increase in extreme precipitation events) that occurs after a wildfire may result in mudslides due to excess runoff that washes away soils destabilized from wildfire (Bedsworth et al. 2018). These mudslides could also pose a hazard to people and structures in high fire-risk areas.

### 4.19.2 REGULATORY SETTING

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

##### International Fire Code

Published by the International Code Council, the International Fire Code (ICC 2017) is a model upon which the current California Fire Code (24 CCR 9) is based. The IFC is the underlying nationally recognized code that sets standards and requirements to safeguard against the threat fires may pose to public health, safety, and the environment. The IFC, when adopted by a jurisdiction, regulates the planning, construction, and maintenance of development in all areas.

##### National Fire Plan

The Department of the Interior's National Fire Plan (USDOI 2000) is intended to guarantee an appropriate federal response to severe wildland fires, reduce fire impacts on rural communities, and ensure sufficient firefighting capacity in the future. The plan's Rural Fire Assistance program called for enhancing the fire protection capabilities of rural fire districts and safe and effective fire suppression in the "wildland-urban interface," which led to the further definition and identification of WUIs in the *Federal Register* (USDA and USDOI 2001b), and the use of the term in other federal and state plans. 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-shared basis. As such, CAL FIRE incorporates concepts from this plan into local fire planning efforts.

## **The Disaster Mitigation Act of 2000**

The Disaster Mitigation Act of 2000 (DMA 2000) (Public Law 106-390) provides the legal basis for Federal Emergency Management Act mitigation planning requirements for state, local and Indian Tribal governments as a condition of receiving national post-disaster Hazard Mitigation Grant Program (HMGP) funding. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by repealing the previous mitigation planning provisions and replacing them with a new set of requirements that emphasize the need for state, local, and Indian Tribal entities to closely coordinate mitigation planning and implementation efforts. Section 322 of DMA addresses mitigation planning at the state and local levels. It identifies requirements that allow HMGP funds to be used for planning activities and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to a disaster. States and communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds.

## **U.S. Geological Survey Landslide Hazard Program**

The U.S. Geological Survey created the Landslide Hazard Program (LHP) under the requirements of Public Law 106-113. The primary objective of the LHP is to reduce long-term losses from landslide hazards by improving the understanding of the causes of ground failure and suggesting mitigation strategies. The federal government takes the lead role in funding and conducting this research, whereas the reduction of losses due to geologic hazards is primarily a state and local responsibility.

## **Executive Order 13855**

On December 2018, Executive Order (EO 13855) was issued, directing the U.S. Department of Agriculture (USDA) and U.S. Department of the Interior (DOI) to implement policies to improve forest management practices by reducing hazardous fuel loads, mitigating fire and post-fire risks and ensuring the safety of local communities. The Departments were directed to collaborate with state, tribal and local entities in creating a comprehensive wildfire strategy prioritizing the highest-risk lands. The EO contained acreage targets for fuel reduction and directives regarding the quantities of lumber to be thereby produced. Acreage targets were also provided for post-fire treatments to maintain water quality and prevent erosion. The order also prioritizes proper maintenance of public roads vital to conducting management activities.

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

### **CAL FIRE Strategic Plan**

CAL FIRE's Strategic Plan (CAL FIRE 2019) is intended to provide CAL FIRE with appropriate guidance for adequate statewide fire protection of State Responsibility Areas, in accordance with Public Resources Code (PRC) Section 4130. The plan addresses both wildfire prevention and suppression activities, and management of the state's forests to help meet California's climate change goals. The goals of the plan include improving CAL FIRE's core capabilities, enhancing internal operations, ensuring employee health and safety, and building an engaged, motivated, innovative workforce.

### **California Public Resources Code 4125-4137 (Responsibility for Fire Protection)**

This statute requires the State Board of Forestry and Fire Protection to classify all State lands for the purpose of determining areas in which the financial responsibility of preventing and suppressing fires is primarily the responsibility of the State, or SRAs, and therefore under the jurisdiction of CAL FIRE. All State lands that are not classified as a SRA are considered to be the responsibility of local or federal agencies. SRAs include lands

capable of producing forest products; lands covered by timber, brush, undergrowth, or grass that protect the soil from erosion; and lands used for range or forage purposes.

### **SRA Fire Safe Regulations**

CCR Title 14, Division 1.5, Section 1270 et seq. establishes CAL FIRE’s basic wildland fire protection standards for new development and is applicable in all SRAs in California—areas where CAL FIRE is responsible for wildfire protection. Title 14 establishes minimum standards required for fire protection for emergency access, fuel modification (including a defensible space of 100 feet around structures), setback to property line, signage, and water supply. To comply with the standards, proposed development must include road and street networks that provide safe access for emergency wildland fire equipment and civilian evacuation concurrently. Newly constructed buildings and roads must post clearly visible signs, including names and contact numbers visible from the roadway. Emergency water for wildfire protection must be available and accessible in specified quantities. Finally, to reduce the intensity of a wildfire, strategic siting of fuel modification and greenbelts must meet specific requirements.

### **California Fire Code**

The California Fire Code is Part 9 of the California Building Code (CBC), which is set forth in CCR Title 24. The California Fire Code is created by the California Building Standards Commission and is based on the International Fire Code created by the International Code Council and is revised and republished every 3 years. Chapter 49 of the California Fire Code defines requirements for building construction and vegetation and fuel management within Wildland-Urban Interface Fire Areas. In WUIs all new building must comply with California Fire Code standards defining wildfire protection building construction requirements intended to reduce wildfire exposure. In addition, buildings within the WUI must comply with California laws and regulations that require maintenance of a “defensible space” of 100 feet from structures (PRC Section 4291, CCR Section 1299.03).

### **California Public Resources Code 4201-4204 (Fire Hazard Severity Zones)**

This statute directs CAL FIRE to map and periodically review FHSZs within SRAs, based on determining factors such as fuel loading, slope, and fire weather and winds. These FHSZs are the basis for identifying requirements for fire protection found in other regulations such as the California Fire Code.

### **Senate Bill 1241 (Kehoe) of 2012**

Senate Bill 1241 (Chapter 311, Statutes of 2012) requires cities and counties to address fire risk in SRAs and Very High Fire Hazard Severity Zones (VHFHSZs) in the safety element of their general plans. It also requires cities and counties to make certain findings regarding available fire protection and suppression services before approving a tentative subdivision map or parcel map. The bill also resulted in amendments to the CEQA Guidelines Initial Study checklist to include questions related to fire hazard impacts for projects located in or near lands classified as SRAs and VHFHSZs.

### **Senate Bill 190 (Dodd) of 2019**

Senate Bill 190 (Chapter 404, Statutes of 2019) includes a specific requirement for the State Fire Marshall to develop best models for defensible space and additional standards for home hardening and construction materials to increase the resilience of communities. The bill also requires the State Fire Marshall to develop

a Wildland-Urban Interface Fire Safety Building Standards Compliance training intended for use in the training of local building officials, builders, and fire service personnel.

### **Assembly Bill 38 (Wood) of 2019**

Assembly Bill 38 (Chapter 391, Statutes of 2019) requires the Office of Emergency Services and the Department of Forestry and Fire Protection to develop best practices for community-wide resilience against wildfires through home hardening, defensible space, and other measures. In addition, sellers of real property located in a high or very high fire hazard severity zone will be required to provide specified documentation to the buyer that the property is in compliance with the wildfire protection measures.

### **Assembly Bill 836 (Wicks) of 2019**

Assembly Bill 836 (Chapter 393, Statutes of 2019) establishes the Wildfire Smoke Clean Air Centers for Vulnerable Populations Incentive Pilot Program which will provide retrofits of air ventilation systems to create community clean air centers in order to mitigate the adverse public health impacts due to wildfires and other smoke events. The program will prioritize areas with high cumulative smoke exposure burden.

### **Assembly Bill 3074 (Friedman) of 2020**

Assembly Bill 3074 (Chapter 259, Statutes of 2020) imposes additional fuel reduction requirements on a person who owns, leases, controls, operates, maintains or builds an occupied dwelling or structure in, upon, or adjoining wild lands within a very high fire hazard severity zone. This bill requires additional fuel clearance between 5 and 30 feet around the structure, and to create an ember-resistant zone within 5 feet of the structure, based on regulations promulgated by the State Board of Forestry and Fire Protection. Application of these regulations would be the responsibility of the local agency having jurisdiction over the property and the Department of Forestry and Fire Protection.

### **Senate Bill 85 (Skinner) of 2021**

This \$536 million appropriations bill substantially enhances the budget of the State Department of Forestry and Fire Protection. It charges the State Office of Emergency Services to develop criteria and reporting procedures regarding the pre-positioning of fire-fighting resources prior to the inception of the fire season. It makes grants of \$12 to \$15 million to multiple State department charged with land management responsibilities to fund fuel reduction and vegetation management efforts. It makes similar grants of \$2 to \$3 million to multiple land conservation entities. It provides almost \$200 million for Fire Prevention Grants to local communities. It sets aside funds for local assistance in instances when federal reimbursement funds are delayed.

### **Board of Forestry and Fire Protection Review of Safety Elements**

At least 90 days prior to the adoption or amendment of their safety element, counties that contain SRAs and cities or counties that contain VHFHSZs must submit their safety element to the Board of Forestry and Fire Protection (Government Code Section 65302.5(b)). The Board reviews the safety element and responds to the city or county with its findings and recommended changes regarding the uses of land and policies in SRAs or VHFHSZs that will protect life, property, and natural resources from unreasonable risks associated with wildfires, and the methods and strategies for wildfire risk reduction and prevention within SRAs or VHFHSZs (Government Code Section 65302.5 (b)(3).) The Board of Supervisors or City Council must consider the Board's recommendations and respond to the Board in writing if any of the recommendations are not accepted.

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

### County of San Diego Consolidated Fire Code

The County of San Diego Consolidated Fire Code (County of San Diego 2017) adopts, by reference, the California Fire Code (24 CCR 9) every 3 years when it is revised and republished. The Consolidated Fire Code consists of local Fire Protection District ordinances that have modified the Fire Code portion of the State Building Standards Code and any County of San Diego modification to the Fire Districts' amendments. The purpose of the Consolidated Fire Code is to protect the public health and safety, which includes permit and inspection requirements for the installation, alteration, or repair of new and existing fire protection systems, and penalties for violations of the Consolidated Fire Code. The Consolidated Fire Code provides the minimum requirements for access, water supply and distribution, construction type, fire protection systems, and vegetation management.

### County of San Diego Code of Regulatory Ordinances Sections 96.1.005 and 96.1.202

The San Diego County Fire Authority (CFA), in partnership with CAL FIRE, the Bureau of Land Management, and the U.S. Forest Service, is responsible for defensible space inspections. Inspectors are responsible for ensuring that adequate defensible space has been created and maintained around structures. If violations of the program requirements are noted, inspectors itemize required corrective measures and provide a reasonable time frame in which to remediate the violations. If violations still exist upon re-inspection, the local fire inspector will forward a notice of violation to the County for further enforcement action.

### Municipal Fire Codes

Each of the 18 cities in the San Diego region has a Fire Code included in its Municipal Code. Like the County of San Diego Consolidated Fire Code, these codes all adopt by reference the California Fire Code with amendments that specify details such as local authority and contact information. Although all municipalities require compliance with California Fire Code vegetation management requirements for creating defensible space around structures, some municipalities include additional specifications for vegetation management such as a preference for using native vegetation, and special requirements for sensitive habitat or water conservation.

### San Diego County Fire Authority Strategic Plan 2020–2025

Since 2013 the CFA transitioned from a largely volunteer force to a professional department staffing 35 stations with responsibility for 1.5 million acres in the unincorporated area of the County. In 2019 the CFA finalized its first 5-year plan (County of San Diego Fire Authority 2019). The plan has four goals related to: (1) Employee Health and Professional Development, (2) Exceptional Emergency Services, (3) Resilient Communities, and (4) Organizational Excellence and Fiscal Responsibility. Each goal has multiple objectives. Most relevant are those under Resilient Communities. These objectives are to:

- Develop and implement a more cohesive pre-fire strategy to achieve resilient communities
- Reduce potential for loss in existing structures
- Strengthen fire safety measures in new construction
- Enhance pre-fire vegetation management
- Improve pre-fire emergency planning



## San Diego Gas & Electric Company's Wildfire Mitigation Plan

San Diego Gas & Electric Company (SDG&E), in accordance with California Senate Bill 901, developed a Wildfire Mitigation Plan (SDG&E 2019) to provide a plan that describes the preventive strategies and programs SDG&E plans to adopt to minimize the risk of its electrical lines and equipment causing catastrophic wildfires. The plan includes a risk analysis; a description of wildfire prevention strategies and programs undertaken by SDG&E; and details related to inspections, system hardening, and emergency preparedness.

### City and County General Plans

Local planning policies related to wildfire are established in each jurisdiction's general plan. Safety elements are required to address fire hazards, evacuation routes, and emergency response. As of January 1, 2013, Senate Bill 1241 of 2012 required that within 2 years of implementation of the next Regional Transportation Plan, upon the next revision of the housing element, jurisdictions review and update the safety element as necessary to address the risk of fire in SRAs and VHFHSZs. These revisions must consider the provisions outlined in "Fire Hazard Planning" by OPR (OPR 2015) and must include a number of specified content areas such as fire hazard mapping; historical data on wildfires; identification of agencies with responsibility for fire protection; and goals, policies, and objectives for the protection of the community from the unreasonable risk of wildfire.

Local General Plan wildfire policies included in the safety elements are summarized in Table 4.19-2.

**Table 4.19-2**  
**Local General Plan Wildfire Policies**

<b>Jurisdiction</b>	<b>General Plan Wildfire Policies</b>
City of Carlsbad	General Plan updated in September 2015. Housing Element updated in 2017. Safety Element wildfire updates required by SB 1241 not completed to date. Wildfire is mentioned in the Safety Element as part of the San Diego County Multi-Jurisdictional Hazard Mitigation Plan.
City of Chula Vista	General Plan updated in December 2005. Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date. Wildfire is not mentioned in the Safety Element.
City of Coronado	General Plan updated in December 2005. Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date. The Safety Element states that wildfire is not a concern on Coronado because it is a developed urban peninsula surrounded by the Pacific Ocean.
City of Del Mar	General Plan updated in 1985. Housing Element updated in 2013. Safety Element <del>wildfire updates required by SB 1241 not completed to date.</del> updated in 2019. Wildfire is <del>not mentioned in the</del> listed as a "potential hazard" in the Safety Element.
City of El Cajon	General Plan updated in January 2001. Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date. Wildfire is mentioned in the Safety Element with reference to adoption of the San Diego County Multi-Jurisdictional Hazard Mitigation Plan.
City of Encinitas	General Plan updated in 1991. Housing Element updated in 2007. Safety Element wildfire updates required by SB 1241 not completed to date. Wildfire measure in the existing Public Safety Element:

Jurisdiction	General Plan Wildfire Policies
	<p>Policy 1.13: In areas identified as susceptible to brush or wildfire hazard, the City shall provide for construction standards to reduce structural susceptibility and increase protection. Brush clearance around structures for fire safety shall not exceed a 30-foot perimeter in areas of native vegetation or significant brush, and as provided by Resource Management Policy 10.1.</p>
City of Escondido	<p>General Plan updated in 2012, Housing Element updated in 2013. Safety Element reflects wildfire updates required by SB 1241.</p> <p>Wildland Fire Hazards Policies:</p> <p>2.14: Require new development in high wildfire risk areas to incorporate site design, maintenance practices, and fire-resistant landscaping to protect properties and reduce risks.</p> <p>2.14: Continue to remove excessive/overgrown vegetation from city-owned properties and require private property owners to remove excessive/overgrown vegetation to the satisfaction of the Fire Department, to prevent and minimize fire risks to surrounding properties.</p> <p>2.16: Require fire protection plans for mitigation of potential grass and wildland fires within designated high fire hazard areas and other areas required by the Fire Department, that address the need for fire systems, water availability, secondary emergency access routes, construction requirements, and fire-resistant landscaping and appropriate defensible space around structures.</p> <p>2.17: Maintain programs to minimize impacts on sensitive biological habitat and species when suppressing wildland fires, when feasible.</p> <p>2.18: Educate the public about wildland fire prevention techniques to minimize the potential hazards of wildland fires.</p>
City of Imperial Beach	<p>General Plan updated in 2015, Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date.</p> <p>The Safety Element of the General Plan identifies urban fires as the primary concern in Imperial Beach.</p>
City of La Mesa	<p>General Plan updated in 2012, Housing Element updated in 2012. Safety Element wildfire updates required by SB 1241 not completed to date.</p> <p>Wildfire is mentioned in the Safety Element with reference to adoption of the San Diego County Multi-Jurisdictional Hazard Mitigation Plan.</p> <p>Wildfire Policies:</p> <p>Objective SE-4.2: Minimize the risk of wildfires in developed areas of the City.</p> <p>Policy SE-4.2.1: Continue current practice of weed abatement in brush areas that are vulnerable to wildfire.</p> <p>Policy SE-4.2.2: Continue to participate in Zone, County, and State mutual and automatic aid agreements that support mitigation of wildfire hazards.</p>
City of Lemon Grove	<p>General Plan updated in 2012, Housing Element updated in 2012. Safety Element wildfire updates required by SB 1241 not completed to date.</p> <p>The Safety Element of the General Plan states that the probability of wildfire in Lemon Grove is extremely low, and that the City's Safety Element does not address it.</p>
City of National City	<p>General Plan updated in 2012, Housing Element updated in 2012. Safety Element wildfire updates required by SB 1241 not completed to date.</p> <p>Wildfire-related Policies (included under Fire and Emergency Medical Services):</p> <p>S-3.1: Add or expand fire stations and equipment as necessary and as fiscal and staffing resources allow, ensuring adequate fire response coverage.</p>

Jurisdiction	General Plan Wildfire Policies
	<p>S-3.2: Ensure daily staffing needs are met for the City's fire stations in order to achieve service standards, as fiscal resources allow.</p> <p>S-3.3: Consult with the Sweetwater Authority to upgrade water mains and install fire hydrants as necessary.</p> <p>S-3.4: Maintain and enforce standards for weed and brush abatement to provide clearances around structures and minimize fire hazard risk.</p> <p>S-3.5: Enforce the City's fire code including minimum road width standards for fire equipment access.</p> <p>S-3.6: Support housing rehabilitation programs that reduce structural fire risks due to heating or electrical problems.</p> <p>S-3.7: Promote fire prevention through public education programs.</p>
City of Oceanside	<p>General Plan updated in 2002, Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date.</p> <p>Fire Prevention Measures related to Natural Hazards in the General Plan:</p> <ol style="list-style-type: none"> <li>1. Weed and Rubbish Abatement – City Council can order removal of brush and rubbish after declaring such to be a hazard to the public welfare.</li> <li>2. Suppression and Control of Hazardous Fire Areas – Special provisions limit activities and require brush removal within hazardous fire areas.</li> <li>3. Construction of Firebreaks – Each year a 75 to 100-foot firebreak is constructed by Camp Pendleton along the Oceanside-Camp Pendleton boundary. This firebreak, in conjunction with the efforts of the Camp's eight engine companies (117 personnel) has been successful in preventing fires from spreading from Camp Pendleton to the City.</li> </ol>
City of Poway	<p>General Plan updated in 1991, Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date.</p> <p>Strategies included under Policy B – Fire Protection:</p> <ol style="list-style-type: none"> <li>1. Encourage the development, implementation and public awareness of fire prevention programs.</li> <li>2. Implement programs to reduce the quantity of combustible vegetative materials in the City to reduce wildland fire hazards including a brush management program subject to approval by the City.</li> <li>3. Continue the use of the Weed Abatement Program and a fire buffer program along heavily traveled roads through thinning, diskings or controlled burning, subject to air quality standards. Brush, but not trees, should be cleared from both sides of major arterials.</li> <li>4. The existing rows of eucalyptus trees should be trimmed periodically, and combustible vegetative materials at the tree base should be periodically removed.</li> <li>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.</li> <li>6. Fire protection requirements shall be expanded where structural and/or capital improvements cannot adequately protect the community from property damage or potential loss of life.</li> <li>7. Study the feasibility of regulations requiring the installation of a sprinkler system at the time of construction of new residential structures and in conjunction with expansion or substantial interior remodeling of existing structures.</li> </ol>

Jurisdiction	General Plan Wildfire Policies
	<p>8. Require fire retardant roofing materials based upon the type of construction in and outside of high fire hazard areas.</p> <p>9. Enforce the fire control requirements of the City’s landscape standards.</p> <p>10. In order to minimize fire hazards, the Poway Fire Department shall routinely be involved in the review of development applications. Consideration shall be given to adequate emergency access, driveway widths, turning radii, fire hydrant locations and needed fire flow requirements.</p> <p>11. Advocate and support State legislation which would provide tax incentives encouraging the repair or demolition of structures which are classified as high fire hazards.</p> <p>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.</p>
City of San Diego	General Plan updated in 2008, Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date.
City of San Marcos	<p>General Plan updated in 2012, Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date.</p> <p>Goal S-3, Minimize injury, loss of life, and damage to property resulting from structural or wildland fire hazards, includes policies:</p> <p>S-3.1: Require development to be located, designed and constructed to provide adequate defensibility and reduce the risk of structural loss and life resulting from wildland fires. Development will consider hazards relative to terrain, topography, accessibility and proximity to vegetation. One such provision for development to minimize the risk of structural loss and life shall be the inclusion of overhead fire sprinklers.</p> <p>Policy S-3.2: Provide sufficient level of fire protection service to reduce risk from urban and wildland fire. Advocate and support regional coordination among fire protection and emergency service providers.</p> <p>Policy S-3.3: Require development to provide additional access roads when necessary to provide for safe access of emergency equipment and civilian evacuation concurrently.</p> <p>Policy S-3.4: Coordinate with fire protection and emergency service providers to assess fire hazards before and after wildfire events to adjust fire prevention and suppression needs, as necessary, commensurate with both short and long term fire prevention needs.</p>
City of Santee	<p>General Plan updated in 2011, Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date.</p> <p>The General Plan states that the City of Santee Fire Department administers a weed abatement ordinance to reduce the risk of structural damage from wildfires. In the spring, the Fire Department inspects the entire City and notifies property owners to clear a defensible space around structures, and to clear undeveloped lots of weeds. If owners do not voluntarily clear the property, the City can direct the work to be done via a private contractor at owner’s expense.</p>
City of Solana Beach	<p>General Plan updated in 2012, Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date.</p> <p>Objective 4.0, Establish fire prevention regulations and standards to minimize potential fire hazards and fire losses.</p> <p>Policy 4.a: The city shall enact an ordinance which establishes criteria for land development in hillside areas with emphasis on fire-retardant construction materials, access for fire-fighting personnel and equipment, removal of</p>

Jurisdiction	General Plan Wildfire Policies
	<p>combustible vegetation, and minimizing the overall exposure to risks associated with wildfires and adjacent structure fires.</p> <p>Policy 4.b: The city shall enact an ordinance which establishes structural design standards to ensure adequate fire safety.</p> <p>Policy 4.c: The city shall ensure that development is phased properly in relation to the city's ability to provide an adequate level of fire protection.</p> <p>Policy 4.d: The city shall establish appropriate measures to mitigate potential fire hazards in areas of special concern.</p> <p>Policy 4.e: The city Fire Department shall review proposed site plans to ensure that adequate fire safety measures are provided.</p> <p>Policy 4.f: The city will participate with other communities in mutual aid agreements to ensure effective cooperation among fire agencies.</p>
City of Vista	<p>General Plan updated in 2012, Housing Element updated in 2013. Safety Element wildfire updates required by SB 1241 not completed to date.</p> <p>PSFS Goal 5: Protect life, property, and the environment from structural, wildland- urban, and wildland fire damage.</p> <p>PSFS Policy 5. 3.: Require development or projects within very high, high, or moderate fire zones, as designated by the City' s Fire Hazard Severity Zones Map, to comply with regulations and /or implement measures to mitigate the risk to life and structures from intrusion of fire from wildland fire exposures and fire exposures from adjacent structures, and to mitigate structure fires from spreading to wildland fuels. This may include, but is not limited to:</p> <ol style="list-style-type: none"> <li>a. Preparing fire protection plans.</li> <li>b. Creating and maintaining defensible space and vegetation management.</li> <li>c. Planting and maintaining fire - resistant landscaping.</li> <li>d. Using fire - resistant building materials and construction techniques.</li> <li>e. Ensuring adequate water supply and fire flow.</li> <li>f. Providing adequate circulation, emergency access, and property addressing and road identification.</li> </ol> <p>PSFS Policy 5. 2: Periodically update fire hazard studies and Fire Hazard Severity Zones Maps, and update or develop regulations and codes as appropriate.</p> <p>PSFS Policy 5. 3: Conduct community -wide awareness and education efforts concerning defensible space planning, maintenance, ignition- resistant construction, and landscaping techniques, with a focus on the areas within the Very High Fire Hazard Severity Zone.</p> <p>PSFS Policy 5. 4: Through the development review process, ensure that water main capabilities are adequate to meet fire flow requirements to the satisfaction of the Vista Irrigation District and Fire Department for all new development.</p> <p>PSFS Policy 5. 5: Pursue funding to implement fire protection measures at the City- and project - specific level. PSFS Policy 5. 6: Work with the Vista Fire Protection District and the County to ensure that development within fire hazard areas in the SOI complies with site design and property maintenance standards to reduce the risk of wildfires.</p> <p>PSFS Policy 5. 7: Maintain the City' s Vegetation Management Program to reduce wildfire hazards in urban and semi -urban areas within Vista. Thinning, pruning or removal of native vegetation under this program shall require approval of the Fire Marshal and the appropriate resource agencies if not permitted under existing agreements.</p>
County of San Diego	<p>General Plan updated in 2011. Safety Element wildfire updates required by SB 1241 not completed to date.</p>



Jurisdiction	General Plan Wildfire Policies
	<p><b>GOAL S-3</b>  Minimized Fire Hazards. Minimize injury, loss of life, and damage to property resulting from structural or wildland fire hazards.</p> <p><b>Policies</b></p> <p>S-3.1 Defensible Development. Require development to be located, designed, and constructed to provide adequate defensibility and minimize the risk of structural loss and life safety resulting from wildland fires.</p> <p>S-3.2 Development in Hillsides and Canyons. Require development located near ridgelines, top of slopes, saddles, or other areas where the terrain or topography affect its susceptibility to wildfires to be located and designed to account for topography and reduce the increased risk from fires.</p> <p>S-3.3 Minimize Flammable Vegetation. Site and design development to minimize the likelihood of a wildfire spreading to structures by minimizing pockets or peninsulas, or islands of flammable vegetation within a development.</p> <p>S-3.4 Service Availability. Plan for development where fire and emergency services are available or planned.</p> <p>S-3.5 Access Roads. Require development to provide additional access roads when necessary to provide for safe access of emergency equipment and civilian evacuation concurrently.</p> <p>S-3.6 Fire Protection Measures. Ensure that development located within fire threat areas implement measures that reduce the risk of structural and human loss due to wildfire.</p> <p>Mitigation measures include, but are not limited to, the use of ignition resistant materials, multiple ingress and egress routes, and fire protection systems.</p> <p>S-3.7 Fire Resistant Construction. Require all new, remodeled, or rebuilt structures to meet current ignition resistance construction codes and establish and enforce reasonable and prudent standards that support retrofitting of existing structures in high fire threat areas.</p> <p><b>GOAL S-4</b>  Managed Fuel Loads. Managed fuel loads, including ornamental and combustible vegetation.</p> <p><b>Policies</b></p> <p>S-4.1 Fuel Management Programs. Support programs and plans, such as Strategic Fire Plans, consistent with State law that require fuel management/modification within established defensible space boundaries and when strategic fuel modification is necessary outside of defensible space, balance fuel management needs to protect structures with the preservation of native vegetation and sensitive habitats.</p> <p>S-4.2 Coordination to Minimize Fuel Management Impacts. Consider comments from CAL FIRE, U.S. Forest Service, local fire districts, and wildlife agencies for recommendations regarding mitigation for impacts to habitat and species into fuel management projects.</p> <p>S-4.3 Forest Health. Encourage the protection of woodlands, forests, and tree resources and limit fire threat through appropriate fuel management such as removal of dead, dying, and diseased trees.</p> <p><b>GOAL S-5</b>  Regional Fire Protection. Regional coordination among fire protection agencies.</p> <p><b>Policies</b></p> <p>S-5.1 Regional Coordination Support. Advocate and support regional coordination among fire protection and emergency service providers.</p>

Jurisdiction	General Plan Wildfire Policies
	<p>S-5.2 Fire Service Provider Agreements. Encourage agreements between fire service providers to improve fire protection and to maximize service levels in a fair, efficient, and cost effective manner.</p> <p>S-5.3 Reassessment of Fire Hazards. Coordinate with fire protection and emergency service providers to reassess fire hazards after wildfire events to adjust fire prevention and suppression needs, as necessary, commensurate for both short and long term fire prevention needs.</p> <p>GOAL S-6</p> <p>Adequate Fire and Medical Services. Adequate levels of fire and emergency medical services (EMS) in the unincorporated County.</p> <p>Policies</p> <p>S-6.1 Water Supply. Ensure that water supply systems for development are adequate to combat structural and wildland fires.</p> <p>S-6.2 Fire Protection for Multi-Story Development. Coordinate with fire services providers to improve fire protection services for multi-story construction.</p> <p>S-6.3 Funding Fire Protection Services. Require development to contribute its fair share towards funding the provision of appropriate fire and emergency medical services as determined necessary to adequately serve the project.</p> <p>S-6.4 Fire Protection Services for Development. Require that new development demonstrate that fire services can be provided that meets the minimum travel times identified in Table S-1 (Travel Time Standards from Closest Fire Station).</p> <p>S-6.5 Concurrency of Fire Protection Services. Ensure that fire protection staffing, facilities and equipment required to serve development are operating prior to, or in conjunction with, the development. Allow incremental growth to occur until a new facility can be supported by development.</p>

#### 4.19.3 SIGNIFICANCE CRITERIA

Appendix G of the CEQA Guidelines provides criteria for determining the significance of a project's environmental impacts, in the form of Initial Study checklist questions. Unless otherwise noted, the significance criteria specifically developed for this EIR are based on the checklist questions that address the criteria in CEQA Guidelines Appendix G. In some cases, SANDAG has combined checklist questions, edited their wording, or changed their location in the document in an effort to develop significance criteria that reflect the programmatic level of analysis in this EIR and the unique characteristics of the proposed Plan.

Checklist questions for wildfire are included in Section XX of Appendix G. For purposes of this EIR, the Appendix G questions have been combined and modified. Specifically, Appendix G Section XX question (a) is addressed in criterion HAZ-4 in Section 4.9, *Hazards and Hazardous Materials*. Question (b) is addressed in WF-1. Question (c) is addressed in WF-2. Question (d) is addressed in criterion WF-3. Appendix G Section IX, *Hazards and Hazardous Materials*, includes one question (g) pertaining to wildfire risk, which has been incorporated into WF-3 in this section, and not included in the *Hazards and Hazardous Materials* discussion. Per Appendix G Section XX, the analysis of wildfire impacts considers proposed Plan Areas located in or near SRAs or lands classified as VHFHSZ; however, because most of the San Diego region is located in or near these areas, the entire region is considered in the analysis.

Implementation of the proposed Plan, where located in or near SRAs or lands classified as VHFHSZs, or in other areas within the San Diego region, would have a significant wildfire impact if it would:

- WF-1** 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; or expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.
- WF-2** 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.
- WF-3** 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.

#### 4.19.4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

- WF-1 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; OR EXPOSE PEOPLE OR STRUCTURES, EITHER DIRECTLY OR INDIRECTLY, TO A SIGNIFICANT RISK OF LOSS, INJURY OR DEATH INVOLVING WILDLAND FIRES**

#### ANALYSIS METHODOLOGY

This section analyzes the types of conditions under which the regional growth and transportation network components of the proposed Plan would exacerbate wildfire risks, expose people to pollution concentrations from a wildfire, or expose people or structures to a significant risk of loss, injury, or death involving wildfires. Geographic Information System analysis is used to identify forecast regional growth and land use change and planned transportation network improvements in Very High Fire Hazard Severity Zones (VHFHSZs) within SRAs and LRAs. VHFHSZs are areas in which slopes, prevailing winds, and other factors are conducive to wildfire risk. Where the analysis identifies exacerbated wildfire risks, it then examines whether such exacerbated wildfire risks would expose people or structures to (1) pollutant concentrations from a wildfire or (2) the uncontrolled spread of a wildfire. A significant impact would occur if forecast regional growth and land use change or planned transportation network improvements would either exacerbate wildfire risk and expose people or structures to wildfire pollutant concentrations, or if there is risk of uncontrolled spread of a wildfire due to the exacerbated wildfire risk.

CAL FIRE FHSZ mapping takes into consideration vegetation, topography (slope), weather (including winds), crown fire potential, and ember production and movement (CAL FIRE 2018c); therefore, these data were used to identify areas likely to have slope, winds, and other factors that could exacerbate fire risks if developed. Impacts were calculated by overlaying the forecast regional growth and land use footprint, and the transportation network improvements footprint onto mapped CAL FIRE data for VHFHSZs in the San Diego region. Acres of each footprint that would expand into the VHFHSZs are quantified and identified as areas where wildfire risk could be exacerbated.

#### 2025

##### ***Regional Growth and Land Use Change***

From 2016 to 2025, regional growth is forecast to result in an increase of 161,338 people (4.8 percent), 97,661 housing units (5.9 percent), and 115,328 jobs (7 percent). Approximately 78.8 percent of the 2025 population growth would occur within the cities of San Diego (57.9 percent), Chula Vista (12.1 percent), and Escondido

(8.8 percent). Collectively, these three jurisdictions would accommodate approximately 78 percent of new housing units and 63 percent of new jobs between 2016 and 2025.

Substantial regional growth and land use change is forecast throughout the San Diego region between 2016 and 2025. Regional growth and land use change would occur in the form of new residential development, services, commercial areas, industrial centers, schools, and civic uses. As shown on Figures 4.19-1 and 4.19-2, much of San Diego region is subject to wildland fire hazards. While most regional growth and land use change forecast would consist of infill, development on the edges of urban areas and in outlying areas has the potential to increase the threat of wildland fires on human populations and property, as development may be located closer to and within the WUIs and VHFSZs. It is forecast that, between 2016 and 2025, a total of 6,070 acres of new development would occur within the SRA. More than half of this development, 3,433 acres, would occur on land within the SRA classified as a VHFSZ. A total of 3,222 acres of new development is forecast within the LRA. All 3,222 acres would occur on land classified as a VHFSZ.

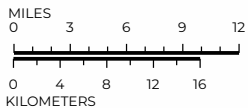
The expansion of the WUI by new development would occur throughout the region, –but increases in development between 2016 and 2025 are forecast in San Marcos, Escondido, Ramona, Julian, Santee, Alpine, and, above all, eastern Chula Vista (Figure 4.19-3). These portions of the region have greater fire danger due to expansive areas of native vegetation and slopes that would fuel and accelerate a fire. Aside from the less developed areas in the eastern portion of the region, the western portion of the region is also at high risk for fire hazards as it contains hundreds of miles of WUI due to the multitude of canyons throughout the area. Development along the canyon rims places structures in proximity to natural vegetation. Because of these existing land characteristics, around which many communities are formed, new growth and development in the interface areas may expose additional people and structures to a significant risk of loss, injury, or death involving wildland fires. In addition, growth experienced between 2016 and 2025 may result in an increased demand for fire protection services and increased demand on the existing water supply. In the event of a major wildland fire, the lack of available fire response staff or adequate response times, or infrastructure constraints such as insufficient water supply, may also contribute to an increased risk of wildland fire hazard.

Wildland fires may result in immediate damage to infrastructure such as buildings and facilities, and long-term damage from loss of forest or vegetation structure that may lead to erosion and unstable surfaces. The provision of defensible space would create a separation zone between wildlands and structures. Any development or redevelopment constructed adjacent to wildlands in the WUI zone would be obligated to conform to the statutory and regulatory requirements discussed in Section 4.19.2, *Regulatory Setting*. These include specific fire code requirements, including ignition-resistant construction with exterior walls of noncombustible or ignition-resistant material from the surface of the ground to the roof system. Other fire-resistant measures would be applied to eaves, vents, windows, and doors to avoid any gaps that would allow intrusion by flame or embers.

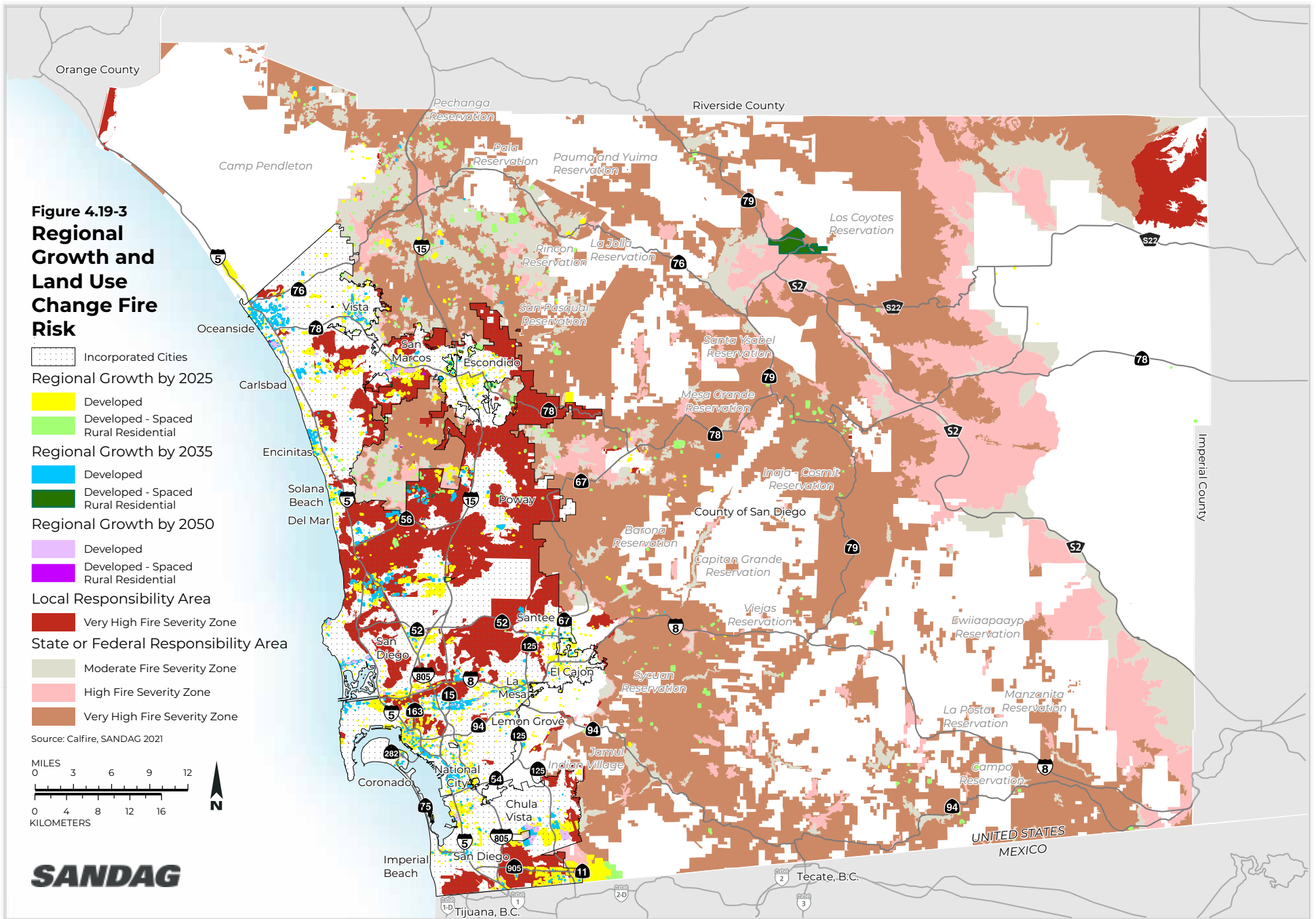
**Figure 4.19-3  
Regional  
Growth and  
Land Use  
Change Fire  
Risk**

-  Incorporated Cities
- Regional Growth by 2025**
-  Developed
-  Developed - Spaced Rural Residential
- Regional Growth by 2035**
-  Developed
-  Developed - Spaced Rural Residential
- Regional Growth by 2050**
-  Developed
-  Developed - Spaced Rural Residential
- Local Responsibility Area**
-  Very High Fire Severity Zone
- State or Federal Responsibility Area**
-  Moderate Fire Severity Zone
-  High Fire Severity Zone
-  Very High Fire Severity Zone

Source: Calfire, SANDAG 2021



**SANDAG**





In addition to the risks to people and property posed by the actual wildland fire, the smoke generated by wildland fires exposes county residents to harmful pollution concentrations and would do so in the future. This pollution exposure is exacerbated in Southern California by the weather conditions prevalent during the peak period of wildfire risk. Dry gusty Santa Ana winds accelerate and warm as they descend towards sea level. These winds fan and spread wildfires burning in the WUI and transport smoke to densely populated coastal areas. Wildfires propelled by Santa Ana winds can spread faster and burn longer than fires at other times of the year (Aguilera et al. 2021). Smoke particles vary in size, but up to 90 percent of wildfire smoke consists of fine particles (i.e., particulate matter less than 2.5 microns in size [PM2.5]) (Center for Disease Control 2019). Wildfires have the potential to suddenly increase PM2.5 concentrations, often surpassing safe limits and reaching levels qualified as hazardous. Sudden increases in PM2.5 levels caused by wildfire smoke can particularly affect vulnerable populations such as children and the elderly. Wildfire-specific PM2.5 can have greater impacts on respiratory health than PM2.5 from other sources, as it has been found to be up to 10 times more harmful than non-smoke PM2.5 (Aguilera et al. 2021). In healthy persons, the PM2.5 increases can cause respiratory symptoms, transient reductions in lung function, and pulmonary inflammation. Among less healthy individuals short-term exposures (i.e., days to weeks) to fine particles are associated with aggravation of pre-existing respiratory and cardiovascular disease resulting in increased risk of premature mortality (Center for Disease Control 2019). A recent study suggests that the airborne PM2.5 can carry harmful microbes as evidenced by an increase in fungal infections in areas characterized by recent wildfires (Kobziar and Thompson III, 2020). Another recent study showed an association between elevated levels of COVID-19 cases and high PM2.5 concentrations originating from wildfires in the 4 weeks after exposure in counties with large wildfires in 2020 (Zhou et al 2021). A broader analysis of project air quality impacts is presented in Section 4.3, *Air Quality*.

In addition to fire code regulations, local general plans contain policies and programs aimed at reducing the risk of wildland fires through land use compatibility, training, sustainable development, brush management, and public outreach. To effectively mitigate wildland fire hazards in the San Diego region, a multilateral approach that involves federal, State, and local governments and fire agencies is necessary. Collectively, the local jurisdictions and fire agencies work together to prevent the loss of life in wildland fires, the ignition of structures by wildland fires, the encroachment of wildland fire into communities, and a wildfire-caused structural conflagration; as well as limit the size of wildland fires. Also, at the jurisdictional level, the continued monitoring and updating of existing development regulations and plans reinforce the value of defensible space to further reduce the impact of wildfires on people and structures. Finally, public education and firefighter training, support, and emergency operations efforts help reduce the risks of impacts involving wildfires.

The existing policies and regulations included in Section 4.19.2 as they relate to fire code regulations, fire agency plans, and local general plans, policies, and programs aimed at reducing the risk of wildland fires through land use compatibility, training, sustainable development, brush management, and public outreach, coupled with the strategies above, would help reduce the risks to people and structures associated with wildland fires. However, due to the relatively large area within the San Diego region that is considered at high risk for wildland fires, the regional growth and land use change associated with the proposed Plan would substantially expand the WUI and 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 wildland. These wildfires would in turn expose county residents to harmful pollution concentrations in the form of wildfire smoke. Impacts related to the exposure of additional people and structures to risk of loss, injury, or death involving wildland fires, and the impacts related to the exposure of people to pollutant concentrations in the form of wildfire smoke, would be significant.

### ***Transportation Network Improvements and Programs***

The transportation network improvements and programs that would be implemented between 2016 and 2025 generally would be focused in the highly urbanized western portion of the region (Figure 4.19-4), and portions of this area remain susceptible to wildland fires due to climate, topography, and native vegetation. Between 2016 and 2025, new transportation network improvements in the SRA would occupy a total of 34 acres. These improvements would consist primarily of arterial roadway upgrades and completion of the State Route (SR) 76 widening between Mission Avenue and Interstate 15 (I-15). The transportation improvements within the SRA would occupy a total of 11 acres of land classified as VHFSZs. A total of 16 acres of land within the LRA would be occupied by new transportation improvements. All 11 acres are classified as VHFSZs and would consist of arterial roadways and light rail transit (LRT) lines. Development of the Central Mobility Hub and the San Ysidro Mobility Hub would commence, however the location and nature of these improvements would not exacerbate fire risk.

In general, transportation projects and facilities are not typically susceptible to substantial damage from wildfires and would not contribute added fuel to wildfires. Generally, the most noticeable effect of wildland fires on the transportation systems proposed would be temporary interruption of service with little expectation of damage to property or injury to people. In addition, improving the capacity of the existing transportation network would result in increased use of the existing corridors beyond the terminus of current conditions, indirectly enhancing potential evacuation routes and/or providing additional firebreaks.

Any transportation network improvements constructed in fire hazard severity zones or the WUI would be obligated to conform to the statutory and regulatory requirements of federal, State, and local regulations as discussed in Section 4.19.2 and wildfire-related mitigation measures required as a result of project-specific CEQA review. Nevertheless, fire hazards such as welding and heavy equipment operation exist during transportation facility construction. Implementation and operation of the transportation network improvements and programs would increase the exposure of additional people and structures to wildfires. Therefore, the transportation network improvements and programs associated with the proposed Plan would 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 wildland. Impacts would be significant.

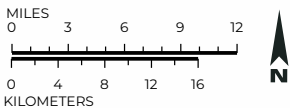
### ***2025 Conclusion***

Regional growth and land use change associated with the proposed Plan between 2016 and 2025 would expose additional people and structures to risk of loss, injury, or death involving wildland fires, and would expose of people to harmful pollutant concentrations in the form of wildfire smoke. The concentrations exacerbate health issues and are a contributing cause to premature deaths. Transportation network improvements and programs associated with the proposed Plan would 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 wildland. Risks would be exacerbated in areas where designated Mobility Hubs, characterized by a higher density of jobs and residences, would develop within and adjacent to VHFSZs. These impacts would be significant.

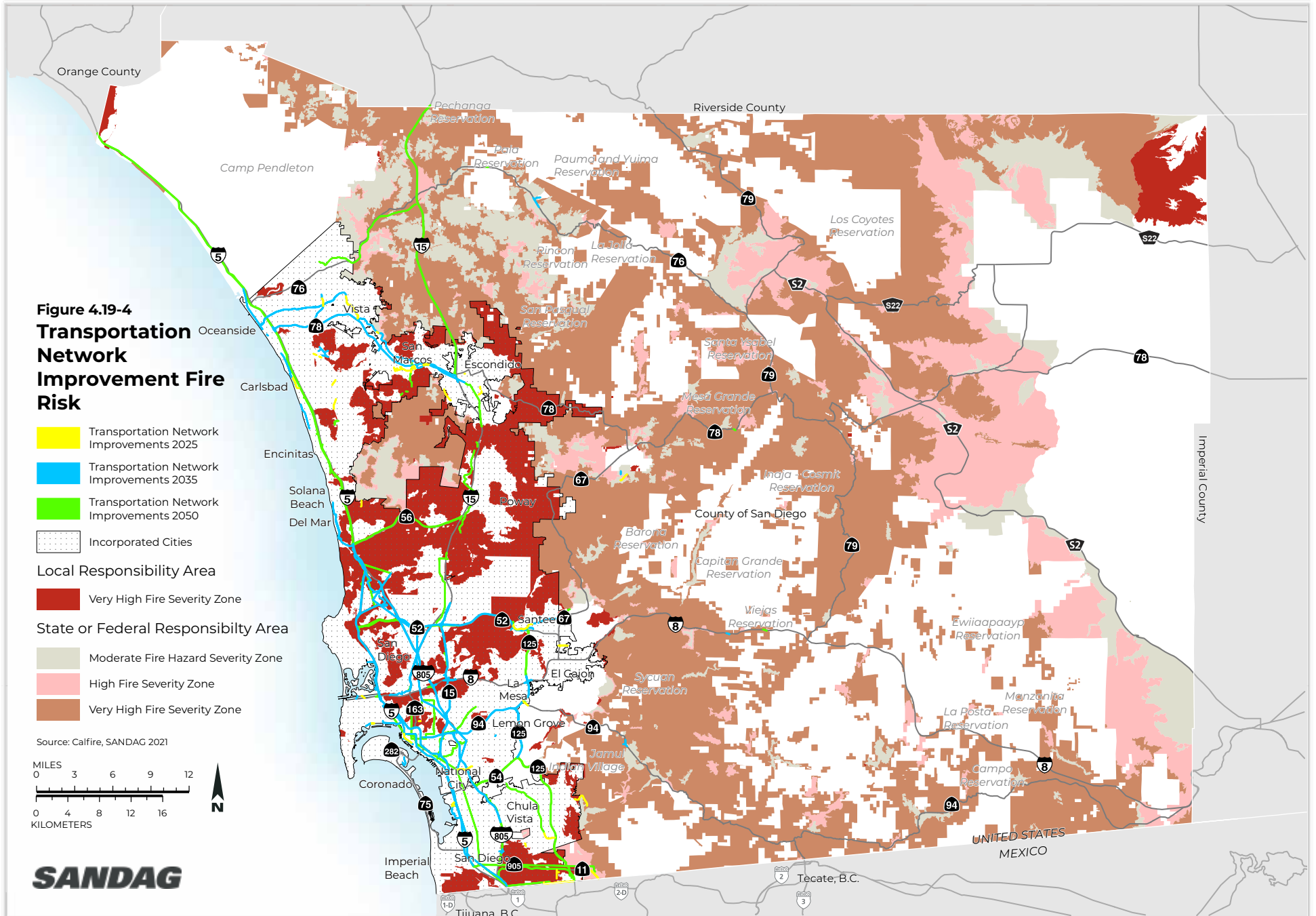
**Figure 4.19-4  
Transportation  
Network  
Improvement Fire  
Risk**

- Transportation Network Improvements 2025
  - Transportation Network Improvements 2035
  - Transportation Network Improvements 2050
  - Incorporated Cities
- Local Responsibility Area**
- Very High Fire Severity Zone
- State or Federal Responsibility Area**
- Moderate Fire Hazard Severity Zone
  - High Fire Severity Zone
  - Very High Fire Severity Zone

Source: Calfire, SANDAG 2021



**SANDAG**



## 2035

### ***Regional Growth and Land Use Change***

From 2026 to 2035, regional growth is forecast to result in an increase of 149,500 people (4.3 percent), 121,650 housing units (9.4 percent), and 159,728 jobs (9 percent). Approximately 78 percent of the 2035 population growth would occur in the City of San Diego (70.9 percent) and City of National City (7.3 percent). These two jurisdictions would account for approximately 73 percent of new housing units and 60 percent of new jobs between 2026 and 2035. This development in urban areas would pose minimal wildland fire risk.

As discussed in the 2016–2025 analysis, increased regional growth and land use change between 2026 and 2035 would be located in WUIs and VHFSZs as shown on Figure 4.19-2. A total of 2,633 acres of land is forecast to be occupied by new development within the SRA between 2026 and 2035. A total of 1,193 acres of this new development is forecast to occur in VHFSZs. The areas of forecast development are at times not contiguous to existing developed areas and would represent an expansion of the WUI. An additional 544 acres of new development is forecast within the LRA. All 544 acres are projected to be within VHFSZs. Growth experienced between 2026 and 2035 may result in an increased demand for fire protection services and increased demand on the existing water supply. In the event of a major wildland fire, the lack of available fire response staff or adequate response times, or infrastructure constraints such as insufficient water supply, may also contribute to an increased risk of wildland fire hazard. The existing policies and regulations included in Section 4.19.2 as they relate to fire code regulations, fire agency planning, and local general plans, policies, and programs aimed at reducing the risk of wildland fires through land use compatibility, training, sustainable development, brush management, and public outreach, coupled with the strategies listed in table 4-19.2, would help reduce the risks to people and structures associated with wildland fires.

Due to the relatively large area within the San Diego region that is considered at very high risk for wildland fires, the regional growth and land use change associated with the proposed Plan would 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 wildland. Wildfires would also potentially expose the region’s population to harmful pollutant concentrations in the form of wildfire smoke. Therefore, impacts related to the exposure of additional people and structures to risk of loss, injury, or death involving wildland fires, and exposure of people to pollutant concentrations, would be significant. Therefore, this impact in the year 2025 would be significant.

### ***Transportation Network Improvements and Programs***

Between 2026 and 2035, additional transportation network improvements and programs would occur in the San Diego region as part of the proposed Plan. As discussed in the 2025 analysis, the majority of the transportation network improvements included in the proposed Plan are focused in the highly urbanized western portion of the region. A total of 15 acres of land within the SRA would be occupied by new transportation improvements between 2026 and 2035. Only 4 acres of land classified as VHFSZs would be developed as transportation improvements within the SRA. A total of 509 acres of land would be developed as transportation improvements within the LRA between 2026 and 2035. All 509 acres would occur within VHFSZs. These improvements consist primarily of Complete Corridor improvements along I-5, I-15, I-8, I-805, SR 52, SR 78, SR 94, and SR 125. Additional improvements include arterial roadways in eastern Chula Vista.

Any transportation network improvements constructed in VHFSZs or WUIs would be obligated to conform to the statutory and regulatory requirements of federal, State, and local regulations as discussed in Section 4.19.2.

Implementation of the transportation network improvements and programs would increase the exposure of additional people and 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 wildland. Impacts would be significant.

### **2035 Conclusion**

Regional growth, land use change, and transportation network improvements associated with the proposed Plan forecast between 2026 and 2035 would expose additional people and 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 wildland. Risks would be exacerbated in areas where designated Mobility Hubs, characterized by a higher density of jobs and residences, would develop within and adjacent to VHFSZs. Wildfires would also potentially expose the region's population to harmful pollutant concentrations in the form of wildfire smoke. The concentrations exacerbate other health issues and are a contributing cause to premature deaths. Therefore, impacts in the time period between 2026 and 2035 related to the exposure of additional people and structures to risk of loss, injury, or death involving wildland fires, and the impacts related to the exposure of people to pollutant concentrations in the form of wildfire smoke, would be significant.

### **2050**

#### ***Regional Growth and Land Use Change***

Between 2036 and 2050, regional growth in proximity to WUIs and VHFSZs, as shown on Figure 4.19-3, would contribute to the risk of loss, injury, or death involving wildland fires. Additional regional growth and land use change forecast between 2036 and 2050 would occur in areas at high risk for wildland fires and expose additional people and structures to a significant risk of loss, injury, or death involving wildland fires. No development is forecast in the SRA between 2036 and 2050. In the LRA, 172 acres of development is forecast. All 172 acres are projected to occur within VHFSZs.

The existing policies and regulations included in Section 4.19.2 as they relate to fire code regulations, fire agency plans, and local general plans, policies, and programs aimed at reducing the risk of wildland fires through land use compatibility, training, sustainable development, brush management, and public outreach, coupled with the strategies listed in Table 4-19.2 would help reduce the risks to people and structures associated with wildland fires. However due to the relatively large area within the San Diego region that is considered at high risk for wildland fires, the regional growth and land use change associated with the proposed Plan would 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 wildland. Wildfires would also potentially expose the region's population to harmful pollutant concentrations in the form of wildfire smoke. Therefore, impacts related to the exposure of additional people and structures to risk of loss, injury, or death involving wildland fires, and the impacts related to the exposure of people to pollutant concentrations in the form of wildfire smoke, would be significant.

#### ***Transportation Network Improvements and Programs***

Transportation network improvements and programs in place between 2036 and 2050 would be located in areas that are susceptible to wildland fires. A total of 483 acres of land is forecast to be developed within the SRA as transportation network improvements between 2036 and 2050. Of this total 441 acres would be on land classified as VHFSZs. These improvements consist largely of Complete Corridor improvements along I-15



between Escondido and the Riverside County line. Within the LRA, 620 acres of land would be developed with transportation network improvements. All 620 acres would be land within VHFSZs. These improvements include Complete Corridor improvements along I-5, I-8, SR 52, SR 54, SR 56, SR 125, and SR 905. Any transportation network improvements constructed in VHFSZs or WUIs would be obligated to conform to the statutory and regulatory requirements of federal, State, and local jurisdictions, as discussed in Section 4.9, *Hazards and Hazardous Materials*. Implementation of the transportation network improvements and programs, however, would 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 wildland.

### **2050 Conclusion**

Regional growth, land use change, and transportation network improvements associated with the proposed Plan forecast between 2036 and 2050 would expose additional people and 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 wildland. Risks would be exacerbated in areas where designated Mobility Hubs, characterized by a higher density of jobs and residences, would develop within and adjacent to VHFSZs. Wildfires would also potentially expose the region's population to harmful pollutant concentrations in the form of wildfire smoke. The concentrations exacerbate other health issues and are a contributing cause to premature deaths. Therefore, impacts in the time period between 2036 and 2050 related to the exposure of additional people and structures to risk of loss, injury, or death involving wildland fires, and the impacts related to the exposure of people to pollutant concentrations in the form of wildfire smoke, would be significant.

### **Exacerbation of Climate Change Effects**

Implementation of the proposed Plan would exacerbate climate change effects of exposing additional people and structures to significant risk of loss, injury, or death involving wildland fires. Climate change is expected to result in a longer and less predictable fire season and drive factors that may worsen wildfires, such as more frequent and intense dry Santa Ana winds, drier autumns, and increased development and presence of dead fuels (Kalansky et al. 2018). The proposed Plan would increase development and transportation network improvements in WUIs, heightening the risk of ignitions from human sources that would threaten existing development, as well as exposing more people and structures to wildfires.

### **MITIGATION MEASURES**

**WF-1 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; OR EXPOSE PEOPLE OR STRUCTURES, EITHER DIRECTLY OR INDIRECTLY, TO A SIGNIFICANT RISK OF LOSS, INJURY OR DEATH INVOLVING WILDLAND FIRES**

### **2025, 2035, and 2050**

**WF-1 Reduce Wildfire Risk for Development and Transportation Projects.** During planning, design, and project-level CEQA review of transportation network improvements or development projects located in SRAs or in LRAs classified as VHFHSZs, SANDAG shall, and other transportation project sponsors, the County of San Diego, cities, and other local jurisdictions such as fire protection agencies can and should, ensure that project

sponsors implement measures to reduce impacts from wildfires. Such measures include, but are not limited to, the following:

- Establishing site-specific safety measures, such as fire protection plans, to protect local resources from wildfire. Fire protection plans should be based on appropriate wildfire modeling, and include information related to reducing ignition risks during construction and operation of facilities.
- Adhering to the most updated building code requirements (usually updated every 3 years), including ignition-resistant construction and inclusion of design features that prevent the intrusion of flames and embers.
- Improving access by designing and improving roads, transit facilities, gates, and access plans to accommodate emergency response and evacuation if necessary.
- Ensuring sufficient emergency water supply for existing and new projects by working with water management agencies and plans.
- Enforcing defensible space regulations to keep overgrown and unmanaged vegetation and other flammable material away from structures.

## **SIGNIFICANCE AFTER MITIGATION**

### **2025, 2035, and 2050**

Mitigation measure WF-1 will reduce this impact (WF-1) by requiring measures to preclude or substantially reduce risks from wildland fires in VHFSZs by requiring specific design features for new development and by requiring that adequate emergency response is in place to serve new development when wildfires occur. To the extent that these measures reduce risk of wildfire, they would also reduce the exposure of county residents to uncontrolled wildfire spread and to harmful pollutant concentrations in the form of wildfire smoke. However, these mitigation measures do not reduce this impact (WF-1) to a less-than-significant level in all locations for all future wildfires, and therefore resulting exposure to uncontrolled wildfires and the pollution in the form of particulate matter from wildfire smoke. This exposure would occur throughout the time period 2016-2050 given the relatively large area within the San Diego region considered at high risk for wildland fires and the level of uncertainty regarding the location, frequency, and severity of future wildfires. When wildfires occur, prevailing weather conditions usually are such that major portions of the regional population are exposed to dangerous pollution concentrations from wildfire smoke. For these reasons, it cannot be concluded that wildland fire risks and the risks associated with wildfire smoke pollution would be reduced to less than significant in all locations for all future development projects. Because there are no feasible mitigation measures to reduce this impact to less than significant, this impact remains significant and unavoidable.

**WF-2            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**

## **ANALYSIS METHODOLOGY**

This section incorporates the analysis methodology used for WF-1 to evaluate wildfire risks, but focuses on components of projects that comprise public infrastructure and services, such as water sources, lines, and access roads, required to support regional growth and transportation network projects. The potential to exacerbate fire risk or result in temporary impacts on the environment is qualitatively analyzed based on the

expected need for infrastructure, primarily in areas where new development would include expansion of these services. The need for expanded public services and utility infrastructure identified in PS-1 and U-1 in Section 4.15 has been included in the analysis.

## 2025

### ***Regional Growth and Land Use Change***

From 2016 to 2025, regional growth is forecast to result in an increase of 161,338 people (4.8 percent), 97,661 housing units (5.9 percent), and 115,328 jobs (7 percent). Approximately 78.8 percent of the 2025 population growth would occur within the cities of San Diego (57.9 percent), Chula Vista (12.1 percent), and Escondido (8.8 percent). Collectively, these three jurisdictions would accommodate approximately 78 percent of new housing units and 63 percent of new jobs between 2016 and 2025. In these cities, higher demand for new utility infrastructure, upgraded systems, and/or expansions would occur, while demand for utilities would also increase throughout the region in response to forecast growth.

In general, regional growth and land use change in urban areas, largely within the LRA when considering wildfire risk, would have less demands on utilities than in more rural areas that are less comprehensively served by existing utility infrastructure. The San Diego County Water Authority (SDCWA) has indicated that it has sufficient supply, storage capacity, and delivery capability to satisfy water demands through 2035 (SDCWA 2014). The SDCWA has completed a number of major capital projects in recent years, such as the additional storage capacity at San Vicente Reservoir, and no further projects of this magnitude are currently scheduled. No water services dedicated specifically to emergencies, including wildfires, are contemplated. During the major wildfire events of 2003 and 2007 the SDCWA was able to provide adequate water supplies for fire suppression (SDCWA 2021).

Connections for new water service within the LRA, and often within the SRA, would typically be accomplished via trenching within public rights-of-way (ROW) and would create minimal risk of wildfire. Fire risks associated with construction activities are typically controllable and avoided or substantially lessened by mitigation measures adopted by the implementing agency, including adherence to existing regulations and best management practices (BMPs) for fire prevention.

Regional population growth would result in an increase in the amount of wastewater generated, especially in the cities of San Marcos, National City, and Chula Vista. As discussed in Section 4.15, existing wastewater treatment plants serving the region's cities have sufficient capacity to serve forecast growth through 2025. Smaller treatment plants throughout the region may reach capacity and need to be expanded. Development in existing communities would require expansion or upsizing of existing collection and treatment systems, while development in new areas would require installation of new collection and treatment systems. Development in rural residential areas would also require onsite wastewater treatment facilities, such as septic tanks. The pipelines associated with these new and expanded facilities would be installed underground, typically in the public ROW. Fire risks associated with construction activities would be controllable or substantially lessened by mitigation measures adopted by the implementing agency, including adherence to existing regulations and BMPs for fire prevention.

As discussed in Section 4.6, *Energy*, the region's energy demands will increase along with the region's population. The impacts of construction and operation of energy-generating facilities would have a range of impacts depending on the facility type, size, and location. The provision of new or expansion of existing energy-generation facilities would result in construction-related impacts. Additional demand for natural gas may also

require the construction of new supply, conveyance, storage, and distribution infrastructure. Fire risks originating from construction activities would be controlled or substantially lessened by mitigation measures adopted by the implementing agency, including adherence to existing fire prevention regulations and BMPs.

Additional transmission lines would be needed to meet growing demand for electricity resulting from regional population, housing, and employment growth. Additional facilities would also be needed depending on the location and timing of regional growth and the location of new generation facilities. Forecast regional growth and land use change would primarily occur in or adjacent to areas that are already developed and that have electricity and natural gas infrastructure in place. This would be particularly the case in the LRA, and to a lesser extent in the SRA in areas where new development is contiguous to existing development. Although this would reduce the need for construction of new facilities in other areas, the increases in demand for electricity, and development in non-contiguous or topographically constrained areas within the SRA, would potentially create a need for new transmission lines routed across undeveloped land.

The construction of new transmission lines across natural habitat within VHFSZs or vegetated land within the WUI results in a severe fire danger. Wildfires are caused along transmission lines as a result of various types of equipment malfunctions. Most common are downed lines or arcing between conductors that generates heat and sparks to ignite vegetation (New York Energy Week 2018). Many hundreds of thousands of acres in California alone have been burned as a result of wildfires caused by power line failures in recent years. In the summer of 2018 alone, 17 large wildfires were caused in the state as a result of downed power lines (Atkinson 2018). These fires have resulted in many millions of dollars in fines being levied against electrical utilities, including a \$14.4 million fine paid by SDG&E as a result of the 2007 Witch, Rice, and Guejito fires in San Diego County (New York Energy Week 2018). SDG&E has made substantial progress in undergrounding transmission lines (Atkinson 2018). However, absent a commitment to underground all future lines serving new development in VHFSZs, new electrical transmission infrastructure poses a significant fire risk.

Current fire planning in San Diego County does not call for additional fire roads or fuel breaks (County of San Diego Fire Authority 2019); therefore, no impacts from the creation of fire breaks or fire roads are anticipated.

### ***Transportation Network Improvements and Programs***

Utilities serving regional transportation network improvements developed between 2016 and 2025 would consist primarily of electrical lines for signage, signals, and LRT propulsion along with reclaimed water lines for landscape irrigation. These utility lines would be constructed within the transportation facility ROW. The electrical transmission would occur primarily via underground conduit. Water lines for irrigation would be installed underground. These lines would pose minimal fire risk. In those instances where aboveground electrical facilities are required, such as substations or catenary for the Mid-Coast LRT line, the facilities would be located in urban areas with buffers from any vegetation. Fire risk impacts related to the installation of these utilities would be less than significant.

### ***2025 Conclusion***

Land development between 2016 and 2025 would expand into VHFSZs within the LRA, and the SRA. This development would require extension and expansion of existing utilities. In instances where utilities are expanding contiguous to existing development, or when utilities are installed underground, as is typically the case in urban areas or in association with transportation network improvements, there is minimal fire risk as construction activities would be controlled by mitigation measures adopted by the implementing agency, including adherence to existing fire prevention regulations and BMPs. In instances where new land

development would require construction or extension of aboveground electrical transmission lines, a substantial risk of sparking a wildfire exists, which would be a significant impact.

## 2035

### *Regional Growth and Land Use Change*

From 2026 to 2035, regional growth is forecast to result in an increase of 149,500 people (4.3 percent), 121,650 housing units (9.4 percent), and 159,728 jobs (9 percent). Approximately 78 percent of the 2035 population growth would occur in the City of San Diego (70.9 percent) and City of National City (7.3 percent). These two jurisdictions would account for approximately 73 percent of new housing units and 60 percent of new jobs between 2026 and 2035. In these cities, higher levels of public services would be needed, although demand for public services would increase throughout the region in response to forecast growth. Growth and development within existing urban areas would have less demands on utilities than in more rural areas that are less served by existing utility infrastructure. This development in urban areas would pose minimal fire risk.

The SDCWA has indicated that it has sufficient supply, storage capacity, and delivery capability to satisfy water demands through 2035 (SDCWA 2016). No major capital projects related to additional water storage or conveyance capacity are scheduled during this period. No water services dedicated specifically to emergencies, including wildfires, are contemplated. During the major wildfire events of 2003 and 2007 the SDCWA was able to provide adequate water supplies for fire suppression.

Connections for new water service within the LRA, and often within the SRA, would typically be accomplished via trenching within public ROW and would create minimal risk of wildfire. Fire risks associated with construction activities are typically controllable and avoided or substantially lessened by mitigation measures adopted by the implementing agency, including adherence to existing regulations and BMPs for fire prevention.

Regional population growth would result in an increase in the amount of wastewater generated. As discussed in Section 4.15, some expansion of the region's wastewater treatment capacity would likely be required to serve forecast growth through 2035. Smaller treatment plants throughout the region may reach capacity and need to be expanded. Development in existing communities would require expansion or upsizing of existing collection and treatment systems, while development in new areas would require installation of new collection and treatment systems. Development in rural residential areas would also require onsite wastewater treatment facilities, such as septic tanks. The pipelines associated with these new and expanded facilities would be installed underground, typically in the public ROW. Fire risks associated with construction activities would be controllable or substantially lessened by mitigation measures adopted by the implementing agency, including adherence to existing regulations and BMPs for fire prevention.

As discussed in Section 4.6, the region's energy demands will increase along with the region's population. The impacts of construction and operation of energy-generation facilities would have a range of impacts depending on the facility type, size, and location. The provision of new or expansion of existing energy-generation facilities would result in construction-related impacts. Additional demand for natural gas may also require the construction of new supply, conveyance, storage, and distribution infrastructure. Fire risks originating from construction activities would be controlled or substantially lessened by mitigation measures adopted by the implementing agency, including adherence to existing fire prevention regulations and BMPs.

Additional transmission lines would be needed to meet growing demand for electricity resulting from regional population, housing, and employment growth. Additional facilities would also be needed depending on the

location and timing of regional growth and the location of new generation facilities. Forecast regional growth and land use change would primarily occur in or adjacent to areas that are already developed and that have electricity and natural gas infrastructure in place. This would be particularly in the case in the LRA, and to a lesser extent in the SRA in areas where new development is contiguous to existing development. Although this would reduce the need for construction of new facilities in other areas, the increases in demand for electricity, and development in non-contiguous or topographically constrained areas within the SRA, would potentially create a need for new transmission lines routed across undeveloped land. As discussed above, absent a commitment to underground all future lines serving new development in VHFSZs, new electrical transmission infrastructure is a significant fire risk.

Current fire planning in San Diego County does not call for additional fire roads or fuel breaks (County of San Diego Fire Authority 2019); therefore, no impacts from the creation of fire breaks or fire roads are anticipated.

### ***Transportation Network Improvements and Programs***

Utilities serving regional transportation network improvements developed between 2026 and 2035 would primarily involve electrical lines for signage, signals, and LRT propulsion, as well as reclaimed water lines for landscape irrigation. These utility lines would be constructed within the transportation facility ROW. The electrical transmission would occur primarily via underground conduit. Water lines for irrigation would be installed underground. These lines would pose minimal fire risk. In those instances where aboveground electrical facilities are required, such as substations or catenary for the installation of a third track on existing LRT segments, the facilities will be located in urban areas with buffers from any vegetation. Fire risk impacts related to the installation of these utilities would be less than significant.

### ***2035 Conclusion***

Land development between 2026 and 2035 would expand into VHFSZs in the LRA, and the SRA. This development would require extension and expansion of existing utilities. In instances where utilities are expanding contiguous to existing development, or when utilities are installed underground as is the typically the case in urban areas or in association with transportation network improvements, there is minimal fire risk as construction activities would be controlled by mitigation measures adopted by the implementing agency, including adherence to existing fire prevention regulations and BMPs. In instances where new land development would require construction or extension of aboveground electrical transmission lines, a substantial risk of sparking a wildfire exists, which would be a significant impact.

### **2050**

#### ***Regional Growth and Land Use Change***

From 2036 to 2050, regional growth is forecast to result in an increase of 125,725 people (3.4 percent), 61,433 housing units (4.3 percent), and 164,843 jobs (8.5 percent). Approximately 78 percent of the 2050 population growth would occur in the City of San Diego, City of Chula Vista, and City of San Marcos. In these cities, higher demand for new utility infrastructure, upgraded systems, and/or expansions would occur, while demand for utilities would also increase throughout the region in response to forecast growth. Regional growth and land use change in urban areas would have less demands on utilities than in more rural areas that are not currently served by utility infrastructure.

The horizon for current planning regarding the region's water supply, storage, and conveyance regime is 2036 (SDCWA 2013). The need for investment in major water infrastructure beyond 2035 is therefore unknown.

Increasing population combined with climate change add to this uncertainty. In the event that large-scale water projects are undertaken, fire risks associated with construction activities would be controllable or substantially lessened by mitigation measures adopted by the SDCWA, including adherence to existing regulations and BMPs for fire prevention. No land development in the SRA is forecast for the years between 2036 and 2050, and construction is anticipated to occur in cities and other existing built-up areas. Connections to this new development would be via underground pipes and would pose minimal fire risk.

As discussed in Section 4.15, some expansion of the region's wastewater treatment capacity would likely be required to serve forecast growth through 2050. Smaller treatment plants throughout the region may reach capacity and need to be expanded. Minimal development in rural areas is forecast, but development in existing communities would require expansion or upsizing of existing collection and treatment systems. The pipelines associated with these new and expanded facilities would be installed underground, typically in the public ROW. Fire risks associated with construction activities would be controllable or substantially lessened by mitigation measures adopted by the implementing agency, including adherence to existing regulations and BMPs for fire prevention.

As discussed in Section 4.6, the region's energy demands will increase along with the region's population. The impacts of construction and operation of the facilities would have a range of impacts depending on the facility type, size, and location. The provision of new or expansion of existing energy-generation facilities would result in construction-related impacts. Additional demand for natural gas may also require the construction of new supply, conveyance, storage, and distribution infrastructure. Fire risks originating from construction activities would be controlled or substantially lessened by mitigation measures adopted by the implementing agency, including adherence to existing fire prevention regulations and BMPs.

Land development between 2036 and 2050 would occur primarily in cities and in areas contiguous to existing development. While increased demand would likely require expansion of utility systems, and Construction would occur primarily in or contiguous to existing developed areas. In instances where utilities are expanding contiguous to existing development, or when utilities are installed underground, as is the typically the case in urban areas or in association with transportation network improvements, there is minimal fire risk as construction activities would be controlled by mitigation measures adopted by the implementing agency, including adherence to existing fire prevention regulations and BMPs. There would, however, be additional above-ground electrical distribution infrastructure required to serve new development within the LRA. There are extensive VHFSZs within the LRA, and this new electrical distribution infrastructure may affect these areas, as well as some areas within the SRA. Impacts related to fire risks resulting from infrastructure expansion to serve regional development occurring between 2036 and 2050 are found to be significant.

### ***Transportation Network Improvements and Programs***

Utilities serving regional transportation network improvements developed between 2036 and 2050 would primarily involve electrical lines for signage, signals, and LRT propulsion, as well as reclaimed water lines for landscape irrigation. These utility lines would be constructed within the transportation facility ROW. The electrical transmission would occur primarily via underground conduit. Water lines for irrigation would be installed underground. These lines would pose minimal fire risk. In those instances where aboveground electrical facilities are required, such as substations or catenary for the installation of a third track on existing LRT segments, the facilities will be located in urban areas with buffers from any vegetation. Fire risk impacts related to the installation of these utilities would be less than significant.

## 2050 Conclusion

Land development between 2036 and 2050 would expand into VHFSSZs in the LRA, and the SRA. This development would require extension and expansion of existing utilities. In instances where utilities are expanding contiguous to existing development, or when utilities are installed underground as is the typically the case in urban areas or in association with transportation network improvements, there is minimal fire risk as construction activities would be controlled by mitigation measures adopted by the implementing agency, including adherence to existing fire prevention regulations and BMPs. In instances where new land development would require construction or extension of aboveground electrical transmission lines, a substantial risk of sparking a wildfire exists, which would be a significant impact.

## Exacerbation of Climate Change Effects

Implementation of the proposed Plan could exacerbate climate change effects on increased fire risk due to installation of new infrastructure. Installation of above-ground electrical distribution infrastructure in rural areas and high fire-risk areas could increase the risk of ignition, such as from downed wires or sparks from faulty infrastructure (Mitchell 2013). Combined with climate change effects that would increase wildfire risk, this could potentially result in more wildfires in the future.

## MITIGATION MEASURES

**WF-2 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**

### 2025, 2035, and 2050

**WF-2 Reduce Wildfire Risk Related to Wildfire-Associated Infrastructure Required to Support Development or Transportation Projects.** During planning, design, and project-level CEQA review of transportation network improvements or development projects located in SRAs or in LRAs classified as VHFSSZs, the County of San Diego, cities, other local jurisdictions, and public service and utility providers can and should ensure that project sponsors implement measures to reduce impacts from wildfire-associated infrastructure. Such measures include, but are not limited to, the following:

- Establishing site-specific safety measures, such as fire protection plans, for new infrastructure and facilities required to provide public services and utilities for new development in order to protect local resources from wildfire.
- Adhering to wildfire safety and mitigation plans established by local utilities companies, including design and construction standards, inspection schedules, and emergency preparedness.
- Adhering to the most updated building code requirements (usually updated every 3 years) for structures related to public services and infrastructure, including ignition-resistant construction and inclusion of design features that prevent the intrusion of flames and embers.
- Ensuring sufficient emergency water supply (local water providers) for existing and new projects.



## SIGNIFICANCE AFTER MITIGATION

### 2025, 2035, and 2050

Mitigation measure WF-2, combined with other mitigation measures resulting from project-level CEQA conducted by the implementing agency, including adherence to existing fire prevention regulations and BMPs, would be sufficient to reduce impacts related to utility infrastructure construction to a level less than significant. However, land development within VHFHSZs within the LRA and some areas in the SRA would likely require the construction of aboveground electrical transmission lines. Mitigation measure WF-2 would not reduce the serious fire risks posed by these transmission lines and the fire risk impacts would not be reduced to less-than-significant levels; therefore, this impact remains significant and unavoidable.

**WF-3 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**

### ANALYSIS METHODOLOGY

A significant impact would occur if regional growth and land use change or transportation network improvements and programs were located in or near SRAs or LRA lands classified as VHFHSZs and would expose people or structures to significant risks related to post-fire changes in vegetation and topography. Risks related to downslope or downstream flooding, landslides, or drainage changes are discussed for areas where growth and transportation network improvements would be located in SRAs or LRAs classified as VHFHSZs, which tend to coincide with areas on steeper slopes, which are susceptible to these post-fire risks.

### IMPACT ANALYSIS

#### 2025

##### *Regional Growth and Land Use Change*

Rainfall runoff is enhanced subsequent to wildfire due to changes in soil properties, loss of vegetation cover, and destruction of organic debris on the ground surface. Runoff is accelerated down burned hillslopes compared to unburned hillslopes for two reasons. Surficial soil characteristics are altered when subjected to high temperatures and become water repellent (USGS 2021a). Vegetation, which would normally provide resistance to runoff flow and dissipate its energy, is absent. During intense rainfall, post-fire conditions can cause flooding to occur much faster than under normal conditions (hence, “flash” flooding). In the years immediately following a wildfire, accelerated runoff can cause flooding, debris flows, and landslides.

In the immediate aftermath of wildfires there is a heightened risk of flash floods due to higher than normal runoff rates. This increases flood waters above what would normally occur with a given rate of precipitation. The more intense rain events predicted as a result of climate change increase the risk of these post-wildfire flash floods. Areas already in or close to flood zones would be at greater risk.

Debris flows are common events in Southern California in the aftermath of wildfires. Debris flows are sediment-laden slurries resulting from surface runoff accumulating on hillslopes and channel material such as soil, logs, and boulders as it moves downslope. San Diego County and Southern California in general, has a history of damaging post-fire debris flows due to the combination of high wildfire frequency, steep terrain covered by high fuel loads, periodic high-intensity rain storms and high population densities. Over the last century, major

debris flow events causing widespread damage (destruction of 40 or more structures) and loss of life have occurred on average every 13 years (Kean and Staley 2021). Events causing more localized but still substantial damage occur with more frequency. This has led to the construction of sediment and debris retention basins at the most exposed locations, such as along the southern base of the San Gabriel Mountains.

Study of debris flow events has shown that they are often triggered by high-intensity rainfall events of relatively short duration, and that unlike more typical landslides, they are not dependent on underlying soil saturation (Kean and Staley 2021). The greatest likelihood of a debris flow occurs in the rainy season immediately following the wildfire. A U.S. Geological Survey study covering the larger southwestern study area found that debris flows were triggered by a median 2-year storm event, meaning a storm event that was likely on average to happen every other year (USGS 2021a). It has been predicted that, in the event of a severe wildfire followed by an average or greater storm event, there is a 5 to 12 percent probability of an ensuing debris flow.

The USGS has developed an analytical methodology for assessing the risk of damaging floods and resulting debris flows (USGS 2021a). This methodology uses watershed terrain and configuration, wildfire burn severity, soil properties, and rainfall characteristics to estimate the probability and volume of debris flows that may occur in response to a 2-year storm. Many such assessments have been conducted in the aftermath of wildfires across the western United States. A problem arises in that these assessments are performed after a wildfire has occurred. In late fire-season wildfires there is often a very short interval between the fire and the onset of winter rains, and the first rain season after the wildfire is the period of highest risk (Kean and Staley 2021; Rengers et al. 2020). This short window combined with the widespread fires occurring in the American West means that most burn areas are not assessed.

Kean and Staley (2021) applied the USGS assessment methodology regionally across all of Southern California. It was found that the areas of most severe risk were at the base of the transverse ranges (i.e., the San Bernardino and San Gabriel Mountains). Virtually all other slopes in Southern California, however, were rated as a moderate to high risk for debris flows, assuming a median intensity wildfire and typical high-intensity rainstorm. They conclude that, with the increasing warming, extended fire season, and higher intensity rainstorms expected as a result of the changing climate, the frequency of debris flows will increase. Virtually all slopes within the VHFHSZs in San Diego County are classified at a moderate to high risk of debris flows (Kean and Staley 2021; Figures 3–5).

Landslides also occur subsequent to wildfires. Unlike debris flows, which most often occur in the rainy season immediately after a wildfire, a study of rainfall-induced landslides in burn areas across Southern California, including several in San Diego County, shows that they are more likely to occur 3 years after the wildfire (Rengers et al. 2020). Rainfall-induced landslides increase in frequency after some vegetation recovery has occurred and the water repellent soil properties present immediately after wildfires have subsided. The above study also monitored a 70-square-kilometer area in the San Gabriel Mountains containing several wildfire burn areas of varying age. This focused area of study confirmed that rainfall-induced landslides are most likely during peak rainfall intensity periods in the midst of protracted storms in the third-year wet season following the wildfire. Landslides are far more likely to occur on south, southwest, and southeast-facing slopes. This is thought to be a result of the sparser vegetation cover present on these slopes compared to north-facing slopes receiving less direct sunlight.

Mapping of known or suspected landslides within San Diego County illustrates that they have occurred across large portions of the County, including within areas covered by the VHFHSZ designation (USGS 2021b). Mapped landslides are widespread, but mapped known or suspected landslides covered by the VHFHSZ designation are concentrated in the Otay Ranch area of Chula Vista, El Cajon, Santee, and Poway.

Forecast regional growth and land use change between 2016 and 2025 would result in the development of 6,070 acres of land within the SRA. Of this total, 3,433 acres are forecast on land classified as VHFSZs. A total of 3,222 acres of new development is forecast between 2016 and 2025 within the LRA. All of this acreage would be on land classified as VHFSZs. Substantial portions of this land are on or below slopes that could generate floodwaters, debris flows, or landslides. Increasing levels of severe wildfire occurrence are expected in these VHFSZs as a result of the changing climate. At the same time some individual rain events are expected to be more severe. Development and people within these areas would face an elevated level of flood risk due to accelerated runoff from burn areas. There would be a high likelihood of damaging debris flows from burned slopes, particularly from slopes that burned during the immediately prior fire season. In the subsequent rainy seasons, a higher likelihood of landslides would be expected in burned areas that are characterized by landslide risk. The exposure of people and structures to increased risk of flooding, debris flows, and landslides, as a result of post-fire runoff is a significant impact.

### ***Transportation Network Improvements and Programs***

The transportation network improvements and programs that would be implemented between 2016 and 2025 generally would be focused in the highly urbanized western portion of the region, although portions of this area remain susceptible to wildland fires due to climate, topography, and native vegetation as previously discussed. Between 2016 and 2025, new transportation network improvements would occupy a total of 34 acres of land within the SRA, consisting primarily of arterial roadway upgrades and completion of the SR 76 widening between Mission Avenue and I-15. A total of 11 of these 34 acres would be on land classified as VHFSZs. Within the LRA 16 acres of land would be developed with transportation improvements. All 16 acres are classified as VHFSZs, consisting primarily of planned arterial roadways and improvements along LRT lines.

In general, transportation projects and facilities are designed and implemented in a manner that would result in no changes in vegetation and topography that, after a wildfire, would increase risks related to downslope or downstream flooding, landslides, or drainage changes. By conducting hydraulic studies before transportation facility design, and adhering to requirements for stormwater detention and floodplain regulation, transportation facilities projects typically do not substantially alter pre-project drainage conditions. Planned transportation network improvements themselves are structures that would be exposed to downslope risk from post-fire debris flows and landslides, however, and this exposure is a significant impact.

### ***2025 Conclusion***

Some regional growth and land use changes, and transportation projects, between 2016 and 2025 would occur in SRAs and VHFSZs within LRAs that have an elevated risk of post-wildfire flash floods, debris flows, and landslides. These events would potentially expose people, residences and other buildings, and transportation improvements, to elevated risk. These risks are a significant impact.

### **2035**

#### ***Regional Growth and Land Use Change***

Regional forecasts for the time period between 2026 and 2035 would include development an additional 2,633 acres of land within the SRA. Of this total, 1,193 acres would be classified as VHFSZ. A total of 544 acres of land is forecast to be developed within the LRA, all of which is classified as VHFSZ. This development would be scattered across the region. Within the LRA substantial development on lands classified as VHFSZ would be located along the SR 56 corridor and in northwestern Santee. This additional development in lands at high risk

for wildfire, and the corresponding expansion of the WUI, would expose additional people and buildings to elevated risk of flash floods, debris flows, and landslides after wildfires. These exposures are a significant impact.

### ***Transportation Network Improvements and Programs***

Transportation network improvements forecast for the period between 2026 and 2035 are forecast to occupy 15 acres in the SRA. Four of these acres would be on land classified as VHFSZs. A total of 509 acres is forecast to be occupied by new transportation improvements within the LRA, all of which would occur on land classified as VHFSZs. The transportation network improvements forecast within this time period in areas classified as VHFSZ would include Complete Corridor improvements to I-5, I-15, SR 67, SR 76, and SR 78. These transportations network improvements would be placed in downslope locations subject to an elevated level of risk from flash floods, debris flows, and landslides in the years following wildfires. This potential exposure is a significant impact.

### ***2035 Conclusion***

Some regional growth and land use changes, and transportation projects, between 2026 and 2035 would occur in VHFSZs within the SRA and within the LRA. Residents, buildings, and the structures including transportation facilities within these areas would be subject to an elevated level of risk of flash floods, debris flows, or landslides in the years following wildfires. These risks are a significant impact.

## **2050**

### ***Regional Growth and Land Use Change***

No land development is forecast to occur within the SRA between 2036 and 2050. A total of 172 acres of land within the LRA is forecast to be developed. All 172 acres are classified as VHFSZs. This land is located in eastern Chula Vista and western Santee. The people and buildings within these developments would be subject to an elevated level of risk from flash floods, debris flows, and landslides in the years following wildfires. This exposure would be a significant impact.

### ***Transportation Network Improvements and Programs***

Transportation network improvements would be implemented on land classified as VHFSZ between 2036 and 2050. Within the LRA, a total of 620 acres would be developed as transportation improvements, all of which would be classified as VHFSZs. Notable planned facilities are improvements to freeway segments and interchanges along I-805, SR 905, and SR 56. Within the SRA a total of 483 acres would be developed with transportation improvements, 441 acres of which would be classified as VHFSZs. Planned transportation improvements include the straightening and widening of SR 76 and SR 78 east of I-15 and the improvement of I-15 from Escondido to the County line. Structures comprising these transportation facilities would be exposed to an elevated level of downslope risk from flash floods, debris flows, and landslides in the years following wildfires. This exposure would be a significant impact.

### ***2050 Conclusion***

Some regional growth and land use changes, and transportation projects, between 2036 and 2050 would occur in SRAs and VHFSZs within LRAs. The people, buildings, and structures, including transportation facilities,

situated in the areas classified as VHFSZs are, subsequent to recurring wildfires, subject to elevated levels of risk from flash floods, debris flows, and landslides. These risks are a significant impact.

### **Exacerbation of Climate Change Effects**

Implementation of the proposed Plan could exacerbate climate change effects of exposing people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. The proposed Plan would increase development and thus impervious surfaces in downslope or downstream areas; these impervious surfaces could worsen impacts of flooding and runoff. Climate change is also expected to increase risk of flooding and landslides in the future due to increased frequency and intensity of extreme precipitation events. Furthermore, climate change may increase the potential for heavy rainfall to occur after wildfire, resulting in potential landslides as flooding washes away soil destabilized from wildfire (Bedsworth et al. 2018). Thus, the proposed Plan could expose more people and structures to increased flooding and landslide risks that would have been increased by climate change.

### **MITIGATION MEASURES**

**WF-3 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**

#### **2025, 2035, and 2050**

**WF-3 Reduce Post-Fire Risks Related to Flooding, Landslides, Slope Instability, or Drainage Changes for Development and Transportation Projects.** During planning, design, and project-level CEQA review of development projects or transportation network improvement projects in SRAs or in LRAs classified as VHFHSZs, SANDAG shall, and the County of San Diego, cities, and other local jurisdictions can and should, ensure that project applicants work with local communities to implement measures to reduce post-fire impacts. Such measures include, but are not limited to, the following:

- Treating wildfire burned areas to control stormwater runoff prior to winter rains.
- Restoring wildfire areas by planting native vegetation cover or encouraging the regrowth of native species using best practices as soon as possible to aid in control of stormwater runoff.
- Reducing potential for future flood hazard by sufficient removal of dead, woody vegetation along watercourses following a catastrophic fire to reduce the risk of future catastrophic fires.
- Including fire hazard reduction measures that balance forest health with fuel-reducing activities while considering the potential effect on flood management.

### **SIGNIFICANCE AFTER MITIGATION**

#### **2025, 2035, and 2050**

Between 2016 and 2050 it is forecast that thousands of acres of land classified as SRA and/or VHFSZ would be converted from vacant land by land development or as a result of the development or transportation facilities. The converted land has been identified, because of slope, vegetation, and other factors, subject to high levels of risk from wildfires. Wildfire risks will increase due to continuing climate change and the resulting droughts. Climate change will also result in more severe rainfall events. These factors together would greatly increase

the risks of flash floods, debris flows, and landslides in the years following wildfires and would likely occur on a scale and in a timeframe that would preclude prevention by implementing mitigation measure WF-3. Because there are no feasible mitigation measures to reduce continued elevated risk of flash floods, debris flows, and landslides to less than significant, this impact (WF-3) remains significant and unavoidable.