4.18 WILDFIRE

This chapter of the Draft Environmental Impact Report (EIR) describes the potential wildfire impacts associated with the adoption and implementation of the proposed project. This chapter describes the regulatory framework and existing conditions, identifies criteria used to determine impact significance, provides an analysis of the potential wildfire impacts, and identifies proposed General Plan 2050 goals, policies, and actions, as well as feasible mitigation measures, that would minimize any potentially significant impacts.

4.18.1 ENVIRONMENTAL SETTING

4.18.1.1 REGULATORY FRAMEWORK

Federal Regulations

National Cohesive Wildfire Management Strategy

In the Federal Land Assistance, Management, and Enhancement Act of 2009, Congress mandated the development of a National Cohesive Wildland Fire Management Strategy for all lands in the United States. Wildfire management is guided by the National Cohesive Wildland Fire Management Strategy, which has three primary goals:[1]

- Resilient landscapes
- Fire adapted communities
- Safe and effective wildfire response

These three goals enable land managers to manage vegetation and fuels; protect homes, communities, and other values at risk; manage human-caused ignitions; and effectively and efficiently respond to wildfires. California is part of the Western Regional Strategy Committee, chartered to support and facilitate the implementation of the National Cohesive Wildland Fire Strategy.

Healthy Forests Restoration Act

The Healthy Forests Restoration Act (US Code Title 16, Chapter 84, Section 6501) was approved on December 3, 2003, to reduce wildfire risk to communities, municipal water supplies, and at-risk federal lands expediting projects designed to reduce hazardous fuels. This Act provides regulations for the protection of watersheds, forests, and rangelands from catastrophic wildfires across the landscape. Measures include improving systems to detect insect and disease infestations in hardwood forests; providing forestry assistance to state, private, and tribal landowners; facilitating research on large-scale

[1] United States Department of the Interior and United States Department of Agriculture, April 2014, *The National Strategy: The Final Phase of Development of the National Cohesive Wildland Fire Management Strategy*, https://www.forestsandrangelands.gov/documents/strategy/strategy/CSPhaseIIINationalStrategyApr2014.pdf, accessed April 3, 2023.

treatments to reduce pest infestations; and entering into contracts with private landowners to manage their forests.

National Fire Protection Association Standards

National Fire Protection Association (NFPA) codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institute. NFPA standards are recommended (advisory) guidelines for fire protection that are referenced in the California Fire Code (CFC), which is adopted by the City of Santa Rosa every three years. Specific standards applicable to wildland fire hazards include, but are not limited to:

- NFPA 1141, Fire Protection Infrastructure for Land Development in Wildlands
- NFPA 1142, Water Supplies for Suburban and Rural Fire Fighting
- NFPA 1143, Wildland Fire Management
- NFPA 1144, Reducing Structure Ignition Hazards from Wildland Fire
- NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations

State Regulations

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) is dedicated to the fire protection and stewardship of over 31 million acres of California's wildlands. CAL FIRE provides fire assessment and firefighting services for land in State Responsibility Areas (SRA), conducts educational and training programs, provides fire planning guidance and mapping, and reviews general plan safety elements to ensure compliance with State fire safety requirements. CAL FIRE staff, or a designee, also reviews building permit applications, parcel maps, and use permits for construction or development in SRAs and Local Responsibility Areas (LRA).

The Board of Forestry and Fire Protection is a government-appointed approval body within CAL FIRE. It is responsible for developing the general forest policy of the state, determining the guidance policies of CAL FIRE and representing the State's interest in federal forestland in California. The Board of Forestry and Fire Protection also promulgates regulations and approves general plan safety elements that are adopted by local governments for compliance with State statutes.

The California Office of the State Fire Marshal supports the mission of CAL FIRE by focusing on fire prevention. These responsibilities include regulating buildings in which people live, congregate, or are confined; controlling substances and products that may, in and of themselves or by their misuse, cause injuries, death, and destruction by fire; providing statewide direction for fire prevention within wildland areas; regulating hazardous liquid pipelines; developing and renewing regulations and building standards; and providing training and education in fire protection methods and responsibilities. These are accomplished through major programs, including engineering, education, enforcement, and support from the Board of Forestry and Fire Protection. For jurisdictions in SRAs or very high fire hazard severity zones (Very High FHSZs), the Land Use Planning Program division of the Office of State Fire Marshal reviews

safety elements during the update process to ensure consistency with California Government Code, Section 65302(g)(3).

Together, the Board of Forestry and Fire Protection, Office of State Fire Marshal, and CAL FIRE protect and enhance the forest resources of all wildland areas of California that are not under federal jurisdiction.

Fire Hazard Severity Zones and Responsibility Areas

CAL FIRE designates FHSZs as authorized under California Government Code Sections 51175 et seq. FHSZs may be designated Very High, High, or Moderate. CAL FIRE considers many factors when designating FHSZs, including fire history, existing and potential vegetation fuel, flame length, blowing embers, terrain, and weather patterns for the area. CAL FIRE designates FHSZs in two types of areas depending on which level of government is financially responsible for fire protection.

- **Local Responsibility Area (LRA).** Incorporated communities are financially responsible for wildfire protection.
- **State Responsibility Area (SRA).** CAL FIRE and contracted counties are financially responsible for wildfire protection.

CAL FIRE Strategic Plan

CAL FIRE produced the 2018 *Strategic Fire Plan for California*, which contains goals, objectives, and policies to prepare for and mitigate the effects of fire on California's natural and built environments. The 2018 *Strategic Fire Plan for California* focuses on fire prevention and suppression activities to protect lives, property, and ecosystems, in addition to providing natural resource management to maintain state forests as a resilient carbon sink to meet California's climate change goals. A key component of the 2018 *Strategic Fire Plan for California* is the collaboration between communities to ensure fire suppression and natural resource management is successful.[2]

2021 California's Wildfire and Forest Resilience Action Plan

The Governor's Forest Management Task Force developed California's Wildfire and Forest Resilience Action Plan, which is a framework for establishing healthy and resilient forests that can withstand and adapt to wildfire, drought, and climate change. The Wildfire and Forest Resilience Action Plan accelerates efforts to restore the health and resilience of California's forests, grasslands, and natural places; improves the fire safety of communities; and sustains the economic vitality of rural forested areas. CAL FIRE, in partnership with the US Forest Service, intends to scale up forest thinning and prescribed fire; integrate climate adaptation into the statewide network of regional forest and community fire resilience plans; improve the electricity grid resilience, and promote sustainable land use.

[2] California State Board of Forestry and Fire Protection, 2018, *2018 Strategic Fire Plan for California*, https://osfm.fire.ca.gov/media/5590/2018-strategic-fire-plan-approved-08_22_18.pdf, accessed November 28, 2022.

State Responsibility Area and Very High Fire Hazard Severity Zone Fire Safe Regulations

California Code of Regulations (CCR) Title 14, Division 1.5, Chapter 7, Subchapter 2, *SRA/Very High FHSZ Fire Safe Regulations*, establishes minimum wildfire protection standards for construction and development in the SRA and Very High FHSZ and requires CAL FIRE to review development proposals and enact recommendations that serve as conditions of approval in these zones. These standards include basic emergency access and perimeter wildfire protection measures; signing and building numbering; private water supply resources for emergency fire use; and vegetation modification. These regulations apply to all residential, commercial, and industrial buildings in the SRA and Very High FHSZs in the LRA, the siting of new mobile homes, and all tentative and parcel maps. Fire Safe Regulations also include a minimum setback of 30 feet for all buildings from property lines and/or the center of a road. Section 1273.08, *Dead-End Roads*, of these standards provide regulations for the maximum lengths of single access roadways require the following:

- Parcels zoned for less than one acre: 800 feet
- Parcels zoned for 1 acre to 4.99 acres: 1,320 feet
- Parcels zoned for 5 acres to 19.99 acres: 2,640 feet
- Parcels zoned for 20 acres or larger: 5,280 feet

Fire Safe Regulations, Section 1299.03, *Fire Hazard Reduction Around Buildings and Structure Requirements*, provides defensible space requirements for areas within 30 feet of a structure (Zone 1) and between 30 and 100 feet from a structure (Zone 2). In Zone 1, all dead and dying plants must be removed, as must any flammable vegetation that could catch fire. In Zone 2, horizontal and vertical spacing among shrubs and trees must be created and maintained.

Public Resources Code Section 4291

Public Resources Code (PRC) Section 4291, *Mountainous, Forest-, Brush- and Grass-Covered Lands*, is intended for any person who owns, lease, controls, operates, or maintains a building or structure in a mountainous area, forest-covered lands, shrub-covered lands, grass-covered lands, or land that is covered with flammable material, regardless of whether the property is in an SRA or Very High FHSZ. This section requires defensible space to be maintained within 100 feet from each side of a structure. An ember-resistant zone is also required within 5 feet of a structure and more intense fuel reduction between 5 and 30 feet of a structure.

California Building Code

Building Design Standards

The California Building Code (CBC), Part 2 of Title 24 of the CCR, identifies building design standards, including those for fire safety. The CBC is updated on a three-year cycle. It is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the State Building Standards Commission. Commercial and residential buildings are plan-checked by local City and County building officials for compliance with the CBC and any applicable local amendments. Typical fire safety requirements of the CBC include the installation of sprinklers in buildings and other facilities; the establishment of fire-resistance standards for fire doors,

building materials, and particular types of construction in high FHSZs; requirements for smoke-detection systems; exiting requirements; and the clearance of debris. The City of Santa Rosa regularly adopts each new CBC update under the Santa Rosa City Code (SRCC) Chapter 18.44, *2022 California Fire Code.*

Materials and Methods for Exterior Wildfire Exposure

Chapter 7A of the CBC, *Materials and Methods for Exterior Wildfire Exposure*, prescribes building materials and construction methods for new buildings in an FHSZ or Wildland-Urban Interface Fire Area (WUIFA). Chapter 7A contains requirements for roofing; attic ventilation; exterior walls; exterior windows and glazing; exterior doors; decking; protection of underfloor, appendages, and floor projections; and ancillary structures. Other requirements include vegetation management compliance, as prescribed in the CFC Section 4906 and PRC 4291.

California Fire Code

The CFC incorporates, by adoption, the International Fire Code of the International Code Council, with California amendments. This is the official fire code for the State and all political subdivisions. It is found in CCR Title 24, Part 9, and, like the CBC, it is revised and published every three years by the California Building Standards Commission. Also like the CBC, the CFC is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions. The City of Santa Rosa regularly adopts each new CFC update under SRCC Chapter 18-44, *2022 California Fire Code*. The CFC is a model code that regulates minimum fire safety regulations for new and existing buildings; facilities; storage; processes, including emergency planning and preparedness; fire service features; fire protection systems; hazardous materials; fire flow requirements; and fire hydrant locations and distribution. Typical fire safety requirements include installation of sprinklers in all buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

Fire Safety During Construction and Demolition

Chapter 33 of the CFC, *Fire Safety During Construction and Demolition*, provides requirements for fire safety precautions during construction and demolition of a development project. The purpose of this chapter is to provide reasonable safety to life and property from fire during construction and demolition operations, including those in underground locations. Specific requirements include a prohibition of smoking on-site, except for in approved areas; management of combustible materials and debris; cutting and welding; electrical wiring; and cooking. Additional requirements include the preparation of site safety plans prior to building permit issuance, providing fire watch during nonworking hours, and maintaining water supply for fire protection as soon as combustible materials arrive on a project site.

Wildland-Urban Interface Areas

Chapter 49 of the CFC, *Requirements for Wildland Urban Interface Fire Areas*, applies to any geographical area identified as an FHSZ by CAL FIRE. It defines FHSZs, connects to the SRA/Very High FHSZ Fire Safe Regulation requirements for defensible space, and parallels requirements for wildfire protection buildings construction and hazardous vegetation fuel management in other sections of the CCR and PRC.

Chapter 49 of the 2022 CFC includes a definition for the Wildland-Urban Interface (WUI) and provides requirements for fire protection plans, landscape plans, long-term vegetation management, and creation and maintenance of defensible space for all new development within the WUI.

California Public Utilities Commission

In 2007, wildfires in southern California were ignited by overhead utility power lines and aerial communication facilities near power lines. In response, the California Public Utilities Commission (CPUC) began considering and adopting regulations to protect the public from fire hazards due to overhead power lines and nearby aerial communication facilities. The CPUC published a Fire-Threat Map under Rulemaking 15-05-006, following procedures in Decision 17-01-009, revised by Decision 17-06-024, which adopted a work plan for the development of a utility high fire-threat district where enhanced fire safety regulations in Decision 17-12-024 apply.[3] The fire regulations require electric utilities to:[4]

- Prioritize the correction of safety hazards.
- Correct nonimmediate fire risks in "Tier 2" (elevated fire threat) areas on the CPUC high fire-threat district within 12 months, and in "Tier 3" (extreme fire threat) areas within 6 months.
- Maintain increased clearances between vegetation and power lines within the high fire-threat district.
- Maintain stricter wire-to-wire clearances for new and reconstructed facilities in Tier 3 areas.
- Conduct annual inspections of overhead distribution facilities in rural areas of Tier 2 and Tier 3 areas.
- Prepare a fire prevention plan annually if overhead facilities exist in the high fire-threat district.

California Government Code

California Government Code Section 65302(g) and Section 65302.15 require that the mandatory safety element of a general plan be reviewed and revised as needed with the revision of a housing element or local hazard mitigation plan, but no less than every eight years, to ensure the goals, policies, actions, mapping, and background content are consistent with State regulations and reflect the best available information for wildfire risks, climate adaptation and resiliency, and emergency evacuation routes for certain residential areas. Communities with local hazard mitigation plan updates after January 1, 2022, must also ensure their safety elements or local hazard mitigation plans include an assessment of evacuation routes and their capacity, safety, and viability as well as evacuation locations under a range of emergency scenarios.

For wildfire and evacuation purposes, a safety element must:

- Identify wildfire hazards with the latest fire severity zone maps from the Board of Forestry and Fire Protection, US Geological Survey, and other sources.
- Consider guidance given by the Office of Planning and Research's Fire Hazard Planning document.

[3] California Public Utilities Commission, Fire Map, https://ia.cpuc.ca.gov/firemap/, accessed April 3, 2023.

[4] California Public Utilities Commission, CPUC Adopts New Fire-Safety Regulations, press release, , http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K352/201352402.PDF, accessed April 3, 2023.

- Demonstrate that the jurisdiction or contract agency and associated codes satisfactorily address adequate water supply, egress requirements, vegetation management, street signage, land use policies, and other criteria to protect from wildfires.
- Establish in the safety element (and other elements that must be consistent with it) a set of comprehensive goals, policies, and feasible implementation measures for protection of the community from unreasonable risks of wildfire.
- Identify evacuation-constrained residential parcels in hazard-prone areas.

Governor's Office of Planning and Research Fire Hazard Technical Advisory

The Governor's Office of Planning and Research published the Fire Hazard Technical Advisory in 2015 and revised it in 2022 as a planning guide for addressing fire hazards, reducing risk, and increasing resilience across California's diverse communities and landscapes. The Fire Hazard Technical Advisory provides a range of goals, policies, and programs for fire hazard prevention and mitigation, disaster preparedness, and emergency response and recovery. The 2022 update includes specific land use strategies to reduce fire risk to buildings, infrastructure, and communities.

California Environmental Quality Act

In November 2022 the California Attorney General issued the *Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act.* This guidance document was designed to help lead agencies comply with the California Environmental Quality Act (CEQA) when considering whether to approve projects in wildfire-prone areas. These areas are often in the WUI area—i.e., the area where the built environment meets or intermingles with the natural environment. This guidance provides suggestions for how best to comply with CEQA when analyzing and mitigating a proposed project's impacts on wildfire ignition risk, emergency access, and evacuation. The guidance is aimed at proposed development projects, such as residential, recreational, or commercial developments. The extent to which it applies will vary by project based on project design and location. It does not impose additional requirements on local governments or alter any applicable laws or regulations but is intended to provide guidance on some of the issues, alternatives, and mitigation measures that should be considered during the environmental review process.

Regional Regulations

Sonoma-Lake-Napa Unit Strategic Fire Plan

CAL FIRE developed the *Sonoma-Lake-Napa Unit Strategic Fire Plan*, adopted in 2022, which protects more than two million acres of the SRA in Sonoma, Napa, Lake, Yolo, Colusa, and Solano Counties.[5] The goal of this strategic fire plan is to build resilience and resistance to damaging wildfires while recognizing fire's beneficial aspects to forestry and environment practices. This is completed through education and

[5] California Department of Forestry and Fire Protection, updated May 2022, *Sonoma-Lake-Napa Unit 2022 Strategic Fire Plan*, https://osfm.fire.ca.gov/media/s1vdava4/2022-sonoma-lake-napa-solano-yolo-colusa-unit-fire-plan.pdf, accessed June 22, 2023.

participation with communities, collecting data and proper record keeping, monitoring the effectiveness of the Sonoma-Lake-Napa Unit's programs, and identifying and improving areas of the WUI.

Sonoma County Community Wildfire Protection Plan

The Sonoma County Community Wildfire Protection Plan (CWPP), developed by the Permit Sonoma Fire Prevention Division, Communications Division, and Natural Resources Division, as well as Fire Safe Sonoma and Steering committee members, identifies and prioritizes fuel reduction opportunities throughout the county and addresses structural ignitability and collaboration with stakeholders. The Sonoma County CWPP has been developed upon the priority goals and objectives identified by the Healthy Forest Restoration Act in partnership with local collaborators. The priority actions of the CWPP include structural modifications, defensible space vegetation management, landscape scale fuel break projects, and education and pre-fire planning. The strategies in the Sonoma County CWPP provide significant risk reduction, and the document is updated every five years, with most recent update in 2023.[6] The City of Santa Rosa's CWPP serves as an Annex of the County of Sonoma's CWPP.

Local Regulations

Santa Rosa City Code

The SRCC includes various directives pertaining to wildfire. The SRCC is organized by title, chapter, and section, and in some cases, articles. Most provisions related to wildfire impacts are in Title 9, *Health and Safety*; Title 13, *Street, Sidewalks and Public Places;* Title 17, *Environmental Protection;* Title 18, *Buildings and Construction*; and Title 20, *Zoning*, as follows:

- Chapter 9-08, *Weeds and Rubbish*. Weeds, as defined in this chapter, which: a) bear seeds of a wingy or downy nature that have attained a natural growth in height in excess of four inches, or attain such a large growth as to become a fire menace when dry, or which are otherwise noxious or dangerous, and b) are on undeveloped parcels, on developed parcels over 0.5 acres with more than 0.5 acres of unimproved land, or on parcels located in a WUIFA within city limits, constitute a public nuisance. Section 9-08.020, *Nuisance Determination*, requires that all weeds as defined in this chapter, may be declared to be a public nuisance by the City Council and may thereafter be abated as provided by this chapter.
- Chapter 9-28, *Fuels Mitigation Pile Burning*. This chapter includes provisions related to pile burning in the City's WUIFA to reduce wildfire fuel hazards and accomplish a combination of fire protection and resource management goals. Section 9-28.020, *Application,* outlines that this application applies to parcels that are over 5 acres in size and in the WUIFA. However, parcels that do not meet these criteria can still perform this application through the approval of the fire chief.

[6] Sonoma County, 2023, Sonoma County Community Wildfire Protection Plan, https://permitsonoma.org/sonomacountycwpp, accessed June 22, 2023.

- Chapter 9-30, *Hazardous Vegetation and Fuel Management*. The purpose and intent of this chapter is to require compliance with defensible space for all parcels within the WUIFA. It will also require property owners to maintain defensible space throughout the entire WUIFA, remove dead trees, hazardous vegetation and limit certain mulch under specific conditions.
- Chapter 13-12, *Underground Utilities*. This chapter regulates and controls the wires, poles, and other wire-carrying structures within certain areas of the city. Section 13-12.30, *Poles and wires prohibited aboveground on Montgomery Drive*, prohibits aboveground wires, poles, or any other structure designed to carry telephone, telegraph, electric conduit at any place within 100 feet of the centerline of Montgomery Drive. Article II, *Procedure for Undergrounding*, outlines public hearing procedure, designation of underground utility districts, exceptions, notices, and the responsibilities of utility companies, property owners, and the City. Article III, *Electric Underground District*, describes the area designated as electric underground district. Article IV, *Undergrounding in Other Areas*, describes the requirements for undergrounding in other areas of the city that are part of the electric underground district.
- Chapter 17-08, *Seismic Safety*. Section 17-08.020, *Earthquake Fault Zones*, sets forth the requirements for a State Geologist to delineate active and recently active earthquake fault zones that are a potential hazard. Any projects within the delineated earthquake fault zone require specialized approval authority from the decision-making body. Section 17-08.060, *Building Permits for Projects within Earthquake Fault Zones*, states that the decision-making body shall evaluate the suitability of a project and can attach conditions to the project if necessary. The decision-making body also can deny permits if it is found that the site is unsuitable for the proposed project.
- Title 18, *Adoption by Reference*. This section adopts the CBC in its entirety, subject, however, to the amendments, additions, and deletions set forth in this chapter. The purpose of the CBC is to prescribe regulations governing the erection, construction, enlargement, alteration, repair, moving, removal, demolition, conversion, occupancy, equipment, use, height, area and maintenance of all buildings and structures within the city. The CBC includes the establishment of fire resistance standards for fire doors, building materials, and particular types of construction, and clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.
  - Chapter 18-16, *California Building Code*. This chapter describes all the sections of the CBC. This includes a section about living in the FHSZ or any WUIFA. Section 18-16.701A.3, *Application*, states that buildings located in the FHSZ or any WUIFA that has been constructed, altered, moved, repaired, or maintained after the application date shall comply with the provisions of this chapter around certain building aspects such as additions, maintenance, and vegetation management compliance.
    - Section 18-22R337.2, *Definitions*. This section defines a WUIFA as a geographical area identified by the City of Santa Rosa as a FHSZ in accordance with the PRC, as designated on the map titled "Wildland-Urban Interface Fire Area," dated January 28, 2009.
  - Chapter 18-44, *California Fire Code*. This chapter adopts regulations governing conditions hazardous to life and property from fire or explosion. This includes the 2022 CFC, which consists of portions of the 2022 International Fire Code as amended by the California Building Standards Commission. This title includes building regulations related to the fire resistance of buildings with amendments to the 2022 CFC, enforcing greater restrictions than those required by the State.

- Chapter 20-32, *Hillside Development Standards*. This chapter includes the regulations required to preserve the City's natural waterways and hillsides, amongst other areas, conserves open spaces and natural features, design standards to ensure the hillside development will be sensitive to existing terrain. Section 20-32.050, S*ite Planning and Development Standards*, specifically requires that development on hillsides be located on the most geologically stable portion of the site. Section 20-32.060, *Hillside* Development Permit*, requires a* review process for the City to consider the appropriateness of proposed development on hillside parcels, to ensure that a proposed project minimizes its environmental impact, including the preparation of geotechnical reports that identify and mitigate impacts.

Emergency Operations Plan

The Santa Rosa Emergency Operations Plan (EOP), originally adopted by Council in June 2017 and updated in December 2022, outlines how the City coordinates their response to major emergencies and disasters.[7] The EOP identifies operational strategies and plans for managing complex and potentially catastrophic events. It addresses the four phases of emergency management: preparedness, response, recovery, and mitigation. The EOP is organized into three parts. Part I, *Basic Plan*, presents the planning assumptions, policies, and concept of operations that guide the responsibilities for emergency preparedness, response, recovery and mitigation for the City. Part II, *Hazard Annexes*, and Part III, *Functional Annexes*, provide additional detail and guidance for specific hazards, functions, and operations.

Hazard Mitigation Plan

On December 7, 2021, the Santa Rosa City Council adopted the Sonoma County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) which also provides an update to the City's Local Hazard Mitigation Plan (LHMP).[8] The MJHMP is comprised of two volumes. Volume 1 includes all federally required elements of a disaster mitigation plan as they apply to the entirety of Sonoma County. Volume 2 is comprised of Annexes (chapters) for each local agency and special district participating in the MJHMP. The City of Santa Rosa Annex, which serves as a five-year update to the LHMP, is found in Volume 2, Chapter 3. The LHMP identifies the natural hazards faced by the city, assesses vulnerabilities to these hazards, and identifies hazard mitigation strategies that can be taken to reduce or alleviate the loss of life, personal injury, and property damage that otherwise might result from each natural hazards. Mitigation actions are suggested and carried out by various City departments. A description of the mitigation actions for wildfires include:

- In accordance with the adaptation strategies of the Climate Action Plans, integrate climate change adaptation into future updates of the Zoning Code, Building Code, General Plan, Urban Water Management Plan, and other related documents.
- Continue to update the City's emergency planning documents every five years to ensure consistency with state and federal law, local conditions, and best practices and the most recent science.

[7] City of Santa Rosa, June 2017, *City of Santa Rosa Emergency Operations Plan*, https://www.srcity.org/DocumentCenter/View/16434/Emergency-Operation-Plan, accessed March 22, 2023.

[8] City of Santa Rosa, 2021, *Local Hazard Mitigation Plan*, https://www.srcity.org/540/Local-Hazard-Mitigation-Plan, accessed March 9, 2023.

- Prepare a Zoning Code update to identify vegetation management requirements in the Wildland-Urban Interface zone for existing and new development.
- Retrofit, replace, or relocate critical facilities that are shown to be vulnerable to damage in natural disasters prioritizing those structures that have experienced repetitive losses and/or are located in a high or medium ranked hazard.
- Work with residents and property owners to develop an incentive program to replace shake roofs in the WUIFA.
- Continue to implement improvements to water flow capacity in the WUIFA.
- Continue to tie public education on defensible space and a comprehensive defensible space ordinance to a field program of enforcement.
- Implement actionable Items identified within the City of Santa Rosa Community Wildfire Protection Plan.
- Integrate the Hazard Mitigation Plan into other plans, ordinances and programs that dictate land use decisions within the community, including the General Plan, Specific Plans, and the City Code.
- Develop a plan for expediting the repair and functional restoration of water and wastewater systems through stockpiling of shoring materials, temporary pumps, surface pipelines, portable hydrants, and other supplies, such as those available through the Water/Wastewater Agency Response Network (WARN). Communicate that plan to local governments and critical facility operators.
- Explore the feasibility of resilience hubs within the City of Santa Rosa.

Community Wildfire Protection Plan

The Santa Rosa CWPP, developed for the Santa Rosa Fire Department (SRFD) through a collaborative process with the SRFD and the Sonoma-Lake-Napa Unit of CAL FIRE, as well as interested parties, key stakeholders, community members, local fire departments, and state and federal agencies managing land in the vicinity of Santa Rosa.[9] The Santa Rosa CWPP was built off of the October 2016 City of Santa Rosa Local Hazard Mitigation Plan, which as stated above, was updated in 2021. The Santa Rosa CWPP meets the requirements of both FEMA's Core Capabilities and the 2003 Healthy Forests Restoration Act and provides the City with tools that can enhance the protection of life safety and improve the resiliency of structures, critical infrastructure, and other assets to wildfire. Like the Sonoma County CWPP, the Santa Rosa CWPP identifies and prioritizes fuel reduction opportunities throughout the city and addresses structural ignitability and collaboration with stakeholders. Section 6 of the Santa Rosa CWPP includes the Action Plan for the City. The Action Plan section of the Santa Rosa CWPP recognizes that preparedness for the inevitable wildfire event includes activities and actionable items such as community education, emergency planning, protection of assets, reducing structure ignitibility, a comprehensive fuels mitigation strategy, and evacuation preparedness, and that a combination of hazardous fuel mitigation, structural

[9] City of Santa Rosa Community Wildfire Protection Plan, last modified August 25, 2020, *Community Wildfire Protection Plan*, https://srcity.org/DocumentCenter/View/30136/City-of-Santa-Rosa-Community-Wildfire-Protection-Plan-CWPP_91820, accessed September 9, 2024.

hardening, defensible space, and emergency preparedness activities can significantly affect firefighter success in protecting life safety and reducing the threat to the City's assets.

Santa Rosa Fire Department Strategic Plan

The Santa Rosa Fire Department developed a community-driven Strategic Plan (2024-2029), identifying the following key goals:

- Revitalize the fire department's workforce through innovative recruitment strategies to maximize organizational effectiveness.
- Improve physical resources to ensure the highest level of safety and service for our community and personnel.
- Enhance the overall technical readiness and communication infrastructure of the fire department to ensure efficient emergency response and personnel safety.
- Strengthen community engagement, safety, and preparedness through active community collaboration, communication, and outreach to create a more prepared community.

4.18.1.2 EXISTING CONDITIONS

Wildfire Background

The term "wildfire" refers to fires that usually result from the ignition of dry grass, brush, or timber. Historically, wildfires commonly occurred in steep or heavily vegetated areas, which makes suppression of the fire difficult. More recently, wildfires have been encroaching into more urban areas, that is, the WUIFA, threatening homes, businesses, and essential infrastructure. Though wildfires play an important role in the ecology of many natural habitats, risks to human safety and property increase as urban development moves into areas susceptible to wildfire hazards.

Types of Wildfires

There are three basic types of wildland fires: [10]

- Crown fires burn trees to their tops; these are the most intense and dangerous wildland fires.
- Surface fires burn surface litter and duff. These are the easiest fires to extinguish and cause the least damage to the forest. Brush and small trees enable surface fires to reach treetops and are thus referred to as *ladder fuels*.
- Underground fires occur underground in deep accumulations of dead vegetation. These fires move very slowly and can be difficult to extinguish.

[10] Natural Resources Canada, updated April 16, 2021, Fire Behavior, https://www.nrcan.gc.ca/forests/fire-insects-disturbances/fire/13145, accessed April 3, 2023.

Wildfires burn in many types of vegetation—forest, woodland, scrub (including chaparral and sage scrub), and grassland. Many species of native California plants are adapted to fire, and habitats such as woodlands, chaparral, and grasslands can recover from fire. For example, some species of chaparral plants, such as ceanothus, require intense heat for germination and therefore have flammable resins on leaves and roots that can quickly sprouts up in burned areas.[11] Between 2010 and 2017, wildfires in California burned about 265,000 acres of forest land, 207,000 acres of scrub vegetation, 99,000 acres of grassland, 18,000 acres of desert vegetation, and 14,000 acres of other vegetation types.[12] Wildfires have been observed to be more frequent and growing in intensity over the past several years.

Wildfire Causes

Although the term *wildfire* suggests natural origins, a 2017 study that evaluated 1.5 million wildfires in the United States between 1992 and 2012 found that humans were responsible for igniting 84 percent of wildfires, accounting for 44 percent of acreage burned.[13] The three most common types of human-caused wildfires are debris burning (logging slash, farm fields, trash, etc.), arson, and equipment use.[14] Power lines can also ignite wildfires through downed lines, vegetation contact, conductors that collide, and equipment failures.[15] CAL FIRE determined that between 2017 and 2021, 1,344 fires and 639,437 acres were burned due to electrical power and distribution lines.[16] Lightning is the most common natural cause of wildfire in the United States.[17] Power lines can ignite wildfires several ways, including:[18]

- Downed lines: downed power lines can produce arcing that can cause the powerlines to spark and ignite vegetation.
- Vegetation contact: a branch contacting two conductors for a sufficient duration may ignite the branch; a tree falling on a line can cause a downed line.
- High winds and severe weather: conductors can slap together during high winds and severe weather, creating arcing of the powerlines and ejecting hot metal particles that can ignite flammable matter on the ground.

[11] National Park Service, updated January 8, 2018, Wildland Fire in Chaparral: California and Southwestern United States, accessed April 3, 2023, https://www.nps.gov/articles/wildland-fire-in-chaparral.htm.

[12] California State Board of Forestry and Fire Protection, 2019, *2019 Strategic Fire Plan for California*, accessed November 28, 2022, https://www.fire.ca.gov/media/5504/strategicplan2019-final.pdf.

[13] Jennifer Balch, Bethany Bradley, John Abatzoglou, et al., March 2017, "Human-Started Wildfires Expand the Fire Niche across the United States," *Proceedings of the National Academy of Sciences*: Volume 114 No. 11, https://www.pnas.org/content/pnas/114/11/2946.full.pdf.

[14] Pacific Biodiversity Institute, May 2007, *Roads and Wildfires*, accessed April 3, 2023, http://www.pacificbio.org/publications/wildfire_studies/Roads_And_Wildfires_2007.pdf.

[15] Texas Wildfire Mitigation Project, 2014, How Do Power Lines Cause Wildfires? accessed April 3, 2023, https://wildfiremitigation.tees.tamus.edu/faqs/how-power-lines-cause-wildfires.

[16] California State Board of Forestry and Fire Protection, 2023, Statistics: Past Wildfire Activity Statistics (Redbooks), accessed April 3, 2023, https://www.fire.ca.gov/our-impact/statistics.

[17] Jennifer Balch, Bethany Bradley, John Abatzoglou, et al., March 2017, "Human-Started Wildfires Expand the Fire Niche across the United States," *Proceedings of the National Academy of Sciences*: Volume 114 No. 11, https://www.pnas.org/content/pnas/114/11/2946.full.pdf.

[18] Texas Wildfire Mitigation Project, 2014, How Do Power Lines Cause Wildfires? accessed June 23, 2023, https://wildfiremitigation.tees.tamus.edu/faqs/how-power-lines-cause-wildfires.

- Equipment failures: As circuit components deteriorate, they can arc and spark and thus ignite nearby flammable matter.

An analysis of United States Forest Service wildfire data from 1986 to 1996 determined that 95 percent of human-caused wildfires and 90 percent of all wildfires started within a half mile of a road and that about 61 percent of all wildfires and 55 percent of human-caused wildfires started within approximately 650 feet (200 meters) of a road. The study concluded that the increase in human-caused ignition greatly outweighs the benefits of increased access for firefighters.[19]

Wildfires ignite structures in three ways: burning embers landing on the structure or flammable material next to the structure, direct flame contact, and radiant heat from fire close to the structure. Embers are the most common cause of home ignition. Embers ignite structures by entering through attic vents, igniting flammable materials around the home (litter in the roof gutter; wood stacks; or wood fencing), or finding their way under roofing materials.[20]

CAL FIRE estimated in 2010 that there were about three million housing units in California in FHSZs and potentially at risk from wildland fire—that is, just over 20 percent of the total housing units in the state.[21] According to CAL FIRE data, approximately 95 percent of structures seriously damaged in California wildfires from 2013 to 2020 took place in FHSZs in the LRA, SRA, or Federal Responsibility Area.[22]

Wildland-Urban Interface Fire Area

A WUIFA in Santa Rosa is any area where structures and other human developments meet or intermingle with wildland vegetative fuels—shrubs, trees, and grasses. Developments in the WUIFA exacerbate fire occurrence and fire spread in several ways:

- Increased numbers of people near and in wildland areas, creating more frequent human-caused wildfires.
- Wildfires become harder to fight due to simultaneous evacuation and firefighting resources diverted from containing the wildfire to protecting lives and homes.
- Letting natural fires burn becomes impossible; leading to buildup of fuel in brush and forested areas and overgrowth of grasslands, increasing wildfire hazard further.[23]

[19] Pacific Biodiversity Institute, May 2007, *Roads and Wildfires*, accessed April 3, 2023, http://www.pacificbio.org/publications/wildfire_studies/Roads_And_Wildfires_2007.pdf.

[20] California Chaparral Institute, Protecting Your Home from Fire, accessed June 23, 2023, https://www.californiachaparral.org/fire/protecting-your-home/.

[21] State Board of Forestry and Fire Protection and California Department of Forestry and Fire Prevention, August 2018, *2018 Strategic Fire Plan for California*, accessed June 23, 2023, https://osfm.fire.ca.gov/media/5590/2018-strategic-fire-plan-approved-08_22_18.pdf.

[22] CapRadio, December 2021, After years of delays, CAL FIRE says updated and expanded wildfire hazard maps are on their way, accessed June 23, 2023, https://www.capradio.org/articles/2021/12/20/after-years-of-delays-calfire-says-updated-and-expanded-wildfire-hazard-maps-are-on-their-way/.

[23] Volker Radeloff, David Helmers, H. Kramer, et al., February 2018, *Rapid Growth of the US Wildland-Urban Interface Raises Wildfire Risk*, https://www.pnas.org/content/pnas/115/13/3314.full.pdf, accessed June 23, 2023.

Secondary Effects

Secondary effects of wildfire include additional hazards such as poor air quality, landslides, and power outages. After a high intensity wildfire, the burn scar is typically bare of its vegetative cover, which had supported the hillsides and steeper slopes. As a result, heavy rainstorms increase the possibility of severe landslides and debris flows in these areas. The intense heat from the fire can also cause a chemical reaction in the soil that makes it less porous, causing water to run off during precipitation events, leading to flooding downstream. As discussed in Chapter 4.7, *Geology and Soils*, of this Draft EIR, the EIR Study Area has experienced landslides in the past ranging from small, localized events to events that caused injury and substantial damage. On December 31, 2005, a mudslide on Montgomery Drive collided with houses and automobiles as it extended into the middle of the road. Two houses were damaged and a third was destroyed. In 1997, decreased vegetation from wildfires combined with excessive ground moisture from heavy rains to cause the Hidden Acres landslide in the Bennet Valley area (outside of the Santa Rosa city limits). It was also a major concern following the 2017 wildfires, with preventative actions taken to cover and protect exposed slopes in fire-damaged hillside areas of the city. As shown on Figure 4.7-2, *Landslide Map*, in Chapter 4.7 of this Draft EIR, the EIR Study Area contains several areas that are prone to landslides and have experienced landslides in the past.

In addition to damaging natural environments, wildfires can injure and kill residents and firefighters as well as damage or destroy structures and personal property. Wildfires also deplete water reserves, down power lines, disrupt communication services, and block evacuation routes, which can isolate communities. Wildfires can also indirectly cause flooding if flood control facilities become inadequate to handle increases in stormwater runoff, sediment, and debris that are generated from burn scars.

Regionally, smoke from wildfires creates poor air quality that can last for days or weeks, depending on the scale of the wildfire and wind patterns. Smoke itself is made up of a complex mixture of gases and fine particles produced when wood and other organic materials burn. Health risks from smoke inhalation are largely from microscopic particles ($PM_{2.5}$) that can penetrate the lungs and cause a range of health problems, including chronic heart and lung diseases. Exposure to particulate pollution is even linked to premature death. There are some populations that are more sensitive than others to smoke—for instance, people with heart or lung diseases, seniors, children, people with diabetes, people with compromised immune systems, and pregnant women.[24] Through observations of wildfires, experts have determined that wildfires which produce large plumes of smoke can result in that smoke and ash being carried thousands of miles from the burn area of the wildfire. Therefore, air pollution is a major secondary risk from wildfires in the region.[25]

[24] United States Environmental Protection Agency, updated October 20, 2022, Why Wildfire Smoke is a Health Concern, https://www.epa.gov/wildfire-smoke-course/why-wildfire-smoke-health-concern, accessed April 3, 2023.

[25] Nasa Earth Observatory, August 2018, Smoky Skies in North America, https://earthobservatory.nasa.gov/images/92612/smoky-skies-in-north-america, accessed April 3, 2023.

Wildfire in Santa Rosa

As shown on Figure 4.18-1, *Fire Hazard Severity Zones*, the EIR Study Area is in both the LRA and SRA. Lands within the city limit are within the LRA, and lands between the city limit and the Planning Area boundary are within the SRA. Figure 4.18-1 shows Very High FHSZs in the LRA are in the Fountaingrove, Skyhawk, and Oakmont neighborhoods of the city. The SRA to the north and south of the city limits contain Moderate and High FHSZs. As shown on Figure 4.18-2, *General Plan Land Uses in Wildland Urban Interface Fire Areas,* land uses within the WUIFA consist of very low and low density residential, with other land uses consisting of parks and recreation, medium density residential, medium low density residential, public/institutional, and retail and business services.

The wildland-urban interface is the zone of transition between unoccupied land and human development. It is the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. In the different zones, the intermix zone is land with at least one housing unit per 40 acres and 50 percent or more vegetation cover, and the interface zone is land with at least one housing unit per 40 acres and less than 50 percent vegetation cover. In Santa Rosa, the WUIFA is a geographical area identified by the City as an FHSZ, in accordance with PRC, Sections 4201 through 4204, and Government Code, Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires.

Areas within EIR Study Area and adjacent unincorporated areas of Sonoma County are in the CPUC high fire-threat district, as shown on Figure 4.18-3, *CPUC Fire-Threat Map*. These areas are mainly to the east and west of the EIR Study Area in the surrounding mountain ranges. Both areas are a Tier 2 and 3 high fire-threat district.[26]

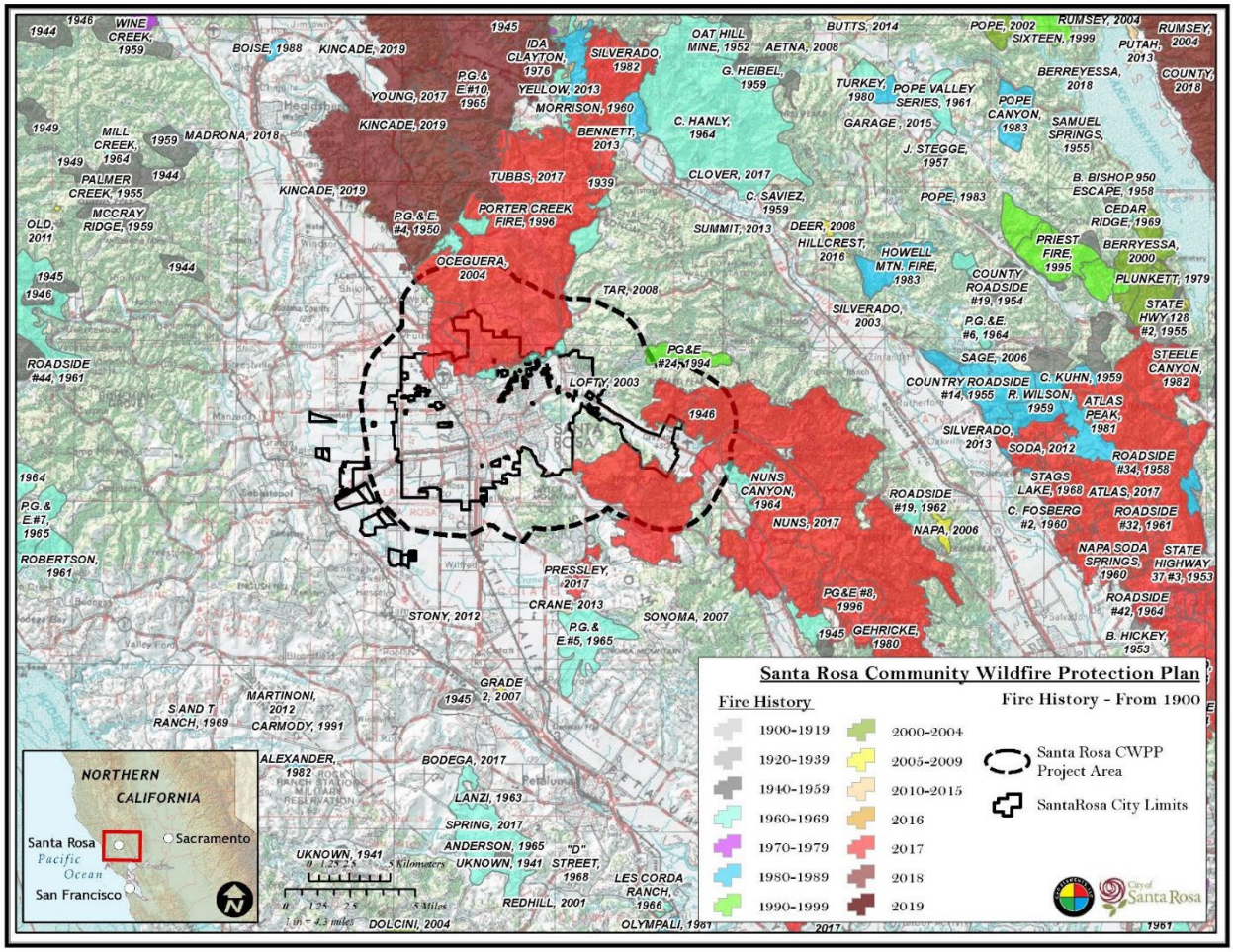
Wildfire History

As shown on Figure 4.18-4, *Historic Wildfire Perimeters*, several wildfires have burned in and near the EIR Study Area. These include the 1870 Great Fire, 1923 Mayacamas Fire, 1939 Airport Fire, 1964 Nuns Canyons Fire, 1964 Hanly Fire, 2003 Lofty Perch Fire, and more recent wildfire described below.

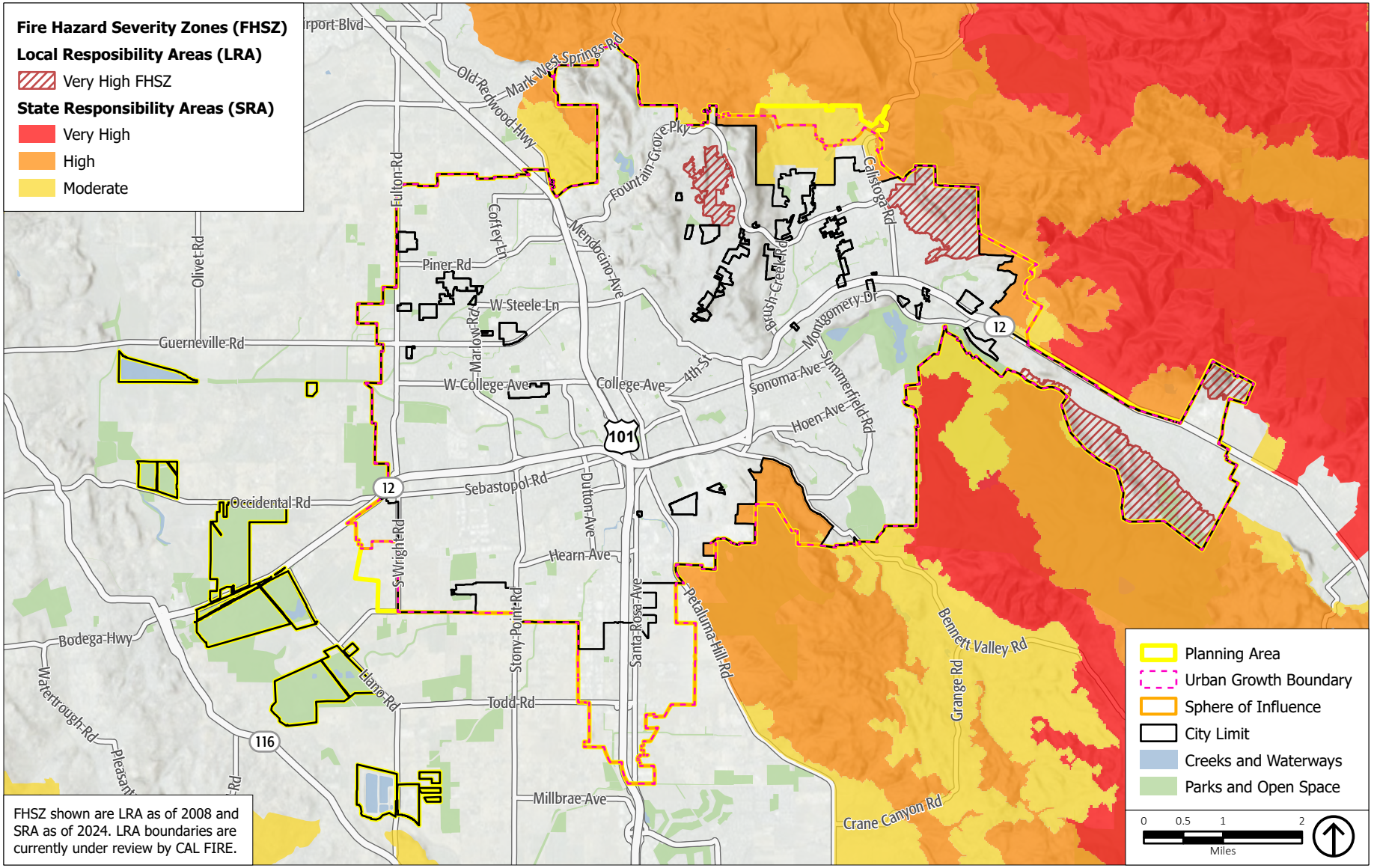
The following image from the Santa Rosa CWPP provides additional details regarding the names and year of occurrences of historic wildfires.[27]

[26] California Public Utilities Commission, revised August 19, 2021, CPUC Fire-Threat Map, https://files.cpuc.ca.gov/safety/fire-threat_map/2021/CPUC%20Fire%20Threat%20Map_v.3_08.19.2021.Letter%20Size.pdf, accessed April 3, 2023.

[27] City of Santa Rosa Community Wildfire Protection Plan, last modified August 25, 2020, *Community Wildfire Protection Plan*, https://srcity.org/DocumentCenter/View/30136/City-of-Santa-Rosa-Community-Wildfire-Protection-Plan-CWPP_91820, accessed September 9, 2024.



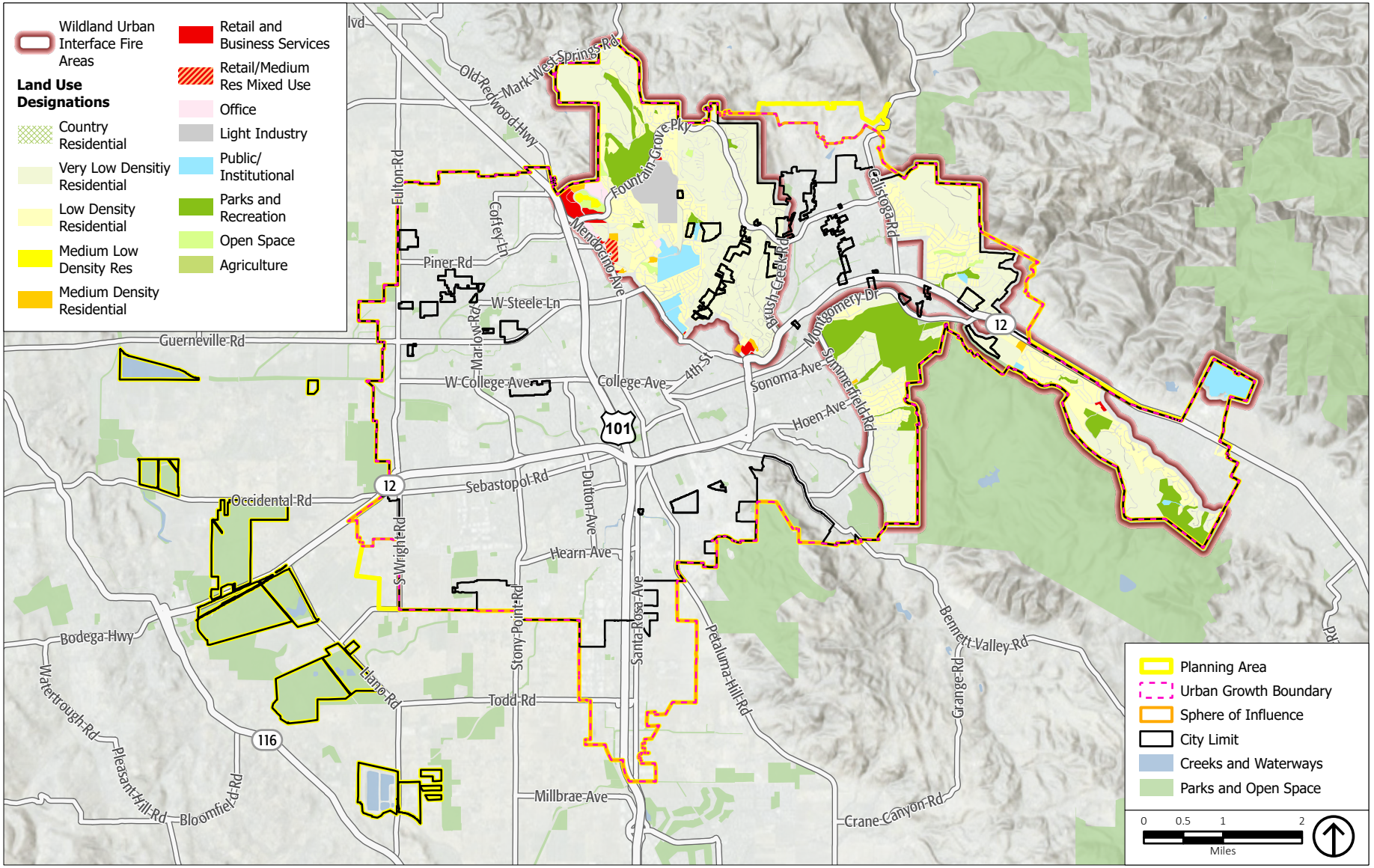
On Friday, October 6, 2017, the National Weather Service issued a Red Flag Warning for Sonoma County from Sunday, October 8, through Tuesday morning, October 10. On the night of Sunday, October 8, 2017, Santa Rosa and surrounding areas were experiencing above-normal wind speeds and reports of fires across the County. SRFD responded to 20 vegetation fires and six structure fires between 6:00 p.m. and midnight. The Tubbs Fire ignited near Highway 128 and Bennett Lane in Calistoga at 9:45 p.m., and the Nuns Fire ignited in the Sonoma County area north of Glen Ellen around the same time as the Fire Department was responding to multiple fires in the city and adjacent areas. Strong winds pushed the Tubbs Fire toward Santa Rosa, spreading at an average speed of approximately 4.5 miles per hour, or 1 mile every 13.3 minutes. By 1:10 a.m., the fire reached the Fountaingrove neighborhood, and by 2:01 a.m. it had jumped US Highway 101, impacting a regional commercial center and surrounding neighborhoods, including Coffey Park. Nine Santa Rosa residents lost their lives, and 100,000 county residents evacuated their homes. Three emergency shelters operated in the City. A Major Disaster Declaration was made on October 10th. The Tubbs and Nuns fires were finally declared contained on October 30 and 31.



Source: City of Santa Rosa, 2020; ESRI, 2022; CAL FIRE 2024; PlaceWorks, 2024.

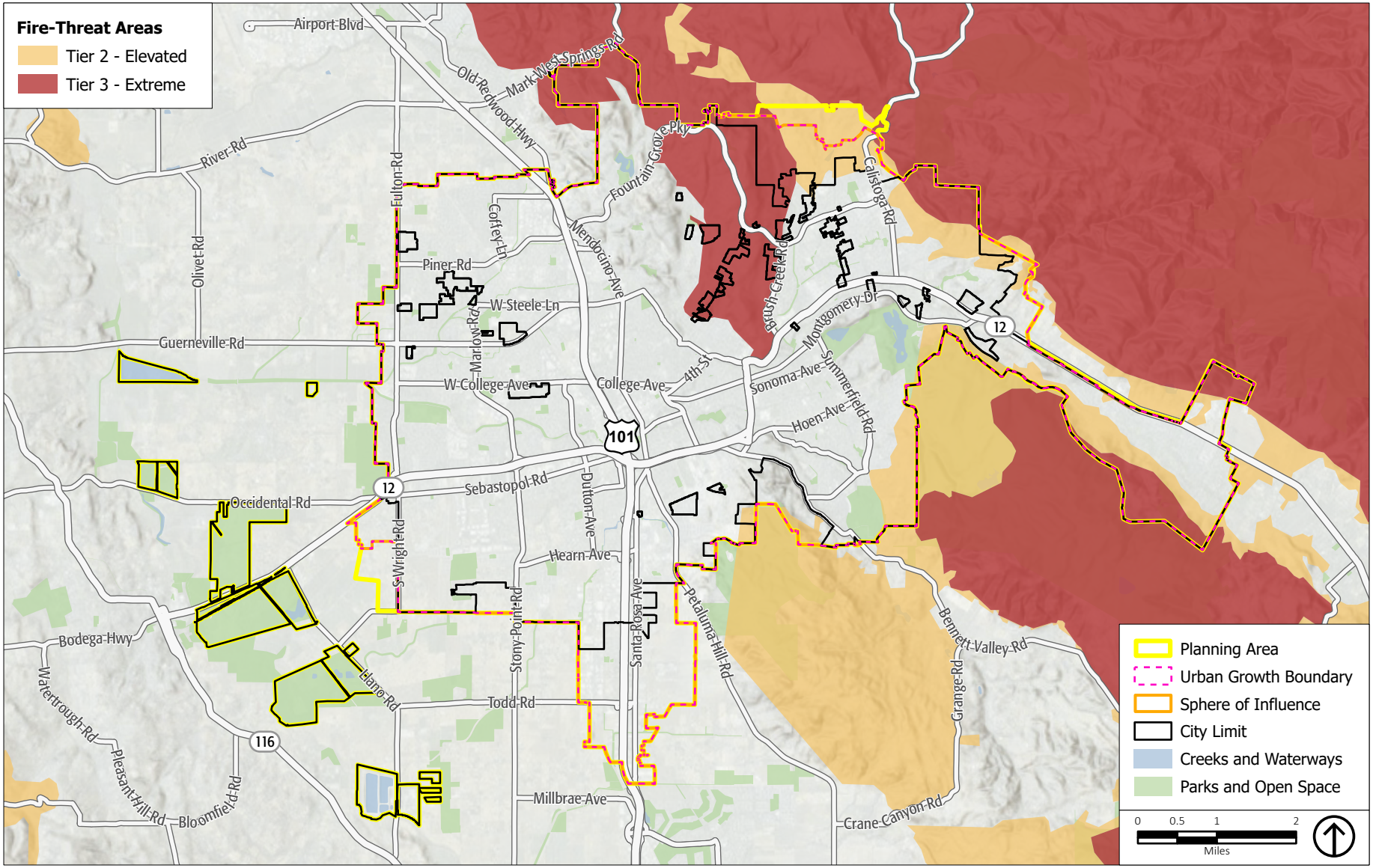
Figure 4.18-1
Fire Hazard Severity Zones

WILDFIRE



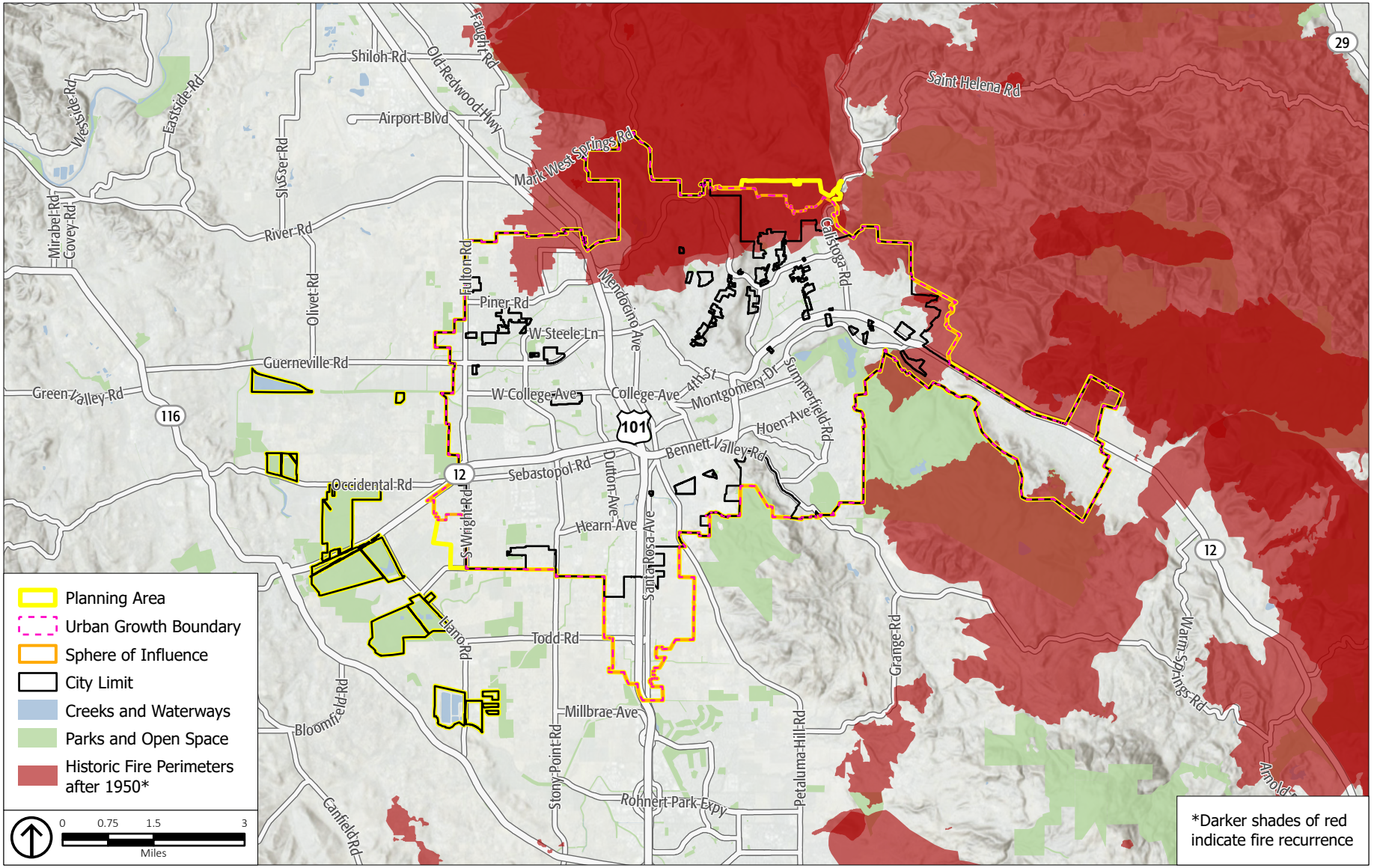
Source: City of Santa Rosa, 2020; ESRI, 2022; PlaceWorks, 2024.

Figure 4.18-2
General Plan Land Use in Wildland Urban Interface Fire Areas



Source: City of Santa Rosa, 2020; CPUC, 2021; ESRI, 2022; PlaceWorks, 2024.

Figure 4.18-3
CPUC Fire-Threat Map



Source: CAL FIRE, 2021; CalOES, 2021; ESRI, 2022; PlaceWorks, 2024.

Figure 4.18-4
Historic Wildfire Perimeters

The City spent approximately $9 million in reserves for initial fire response costs, and total suppression costs for the Tubbs Fire are estimated at $100 million. In all, the Tubbs Fire destroyed 3,043 residential units in the city of Santa Rosa--constituting 5 percent of the residential building stock—as well as 36 commercial buildings, including two hotels, a winery, a department store, and restaurants. It affected virtually the same areas of Santa Rosa as the 1964 Hanley Fire, but it also spread west of US Highway 101 and burned 1,432 homes in the Coffey Park neighborhood.

The city was again threatened by wildfire on the evening of October 23, 2019, when the Kincade Fire started near the Geysers Geothermal plant in north Sonoma County. The Kincade Fire burned 77,758 acres and destroyed 374 buildings, prompting the largest evacuation in the history of Sonoma County. The fire burned to the outskirts of Windsor, north of the city, before the southerly progression of the fire was stopped.

In August 2020, Northern California recorded over 12,000 lightning strikes, which sparked over 585 wildfires across the region. This lightning storm ignited the Sonoma Lightning Complex fires, which burned 61,875 acres and the Sonoma-Lake-Napa Unit Lightning Complex and Hennessey fires, which burned over 305,000 acres. In September 2020, the Glass Fire ignited, threatening neighborhoods in eastern Santa Rosa. The Glass Fire prompted evacuations of approximately 70,000 people in Santa Rosa and surrounding region, burning 67,484 acres and destroying 611 structures. Within the Santa Rosa City limits, 34 residential units and five commercial structures were destroyed. By October 22, 2020, Governor Newsom announced that Sonoma County, along with Napa and Shasta Counties, had been added to a Major Disaster Declaration due to the wildfires.[28]

Factors Influencing Wildfire

Several factors influence wildfire conditions and facilitate the spread of wildfires, including weather conditions, fuels, topography, and climate change. Human actions are also the leading cause of wildfires in California, increasing the risk of wildfire devastating natural lands and communities.

Weather

The climate in Santa Rosa is generally referred to as “Mediterranean,” with hot, dry summers and cool, wet winters. The weather is generally mild throughout the year. Fog and low overcast often move in from the Pacific Ocean during the mornings and evenings, usually clearing up to warm, sunny weather by late morning or noon.[29] Because the summer months are generally hot and dry, the risk of wildfires has historically been greatest in summer and fall. Relative humidity is also an important fire-related weather factor. As humidity levels drop, the dry air causes vegetation moisture levels to decrease, thereby

[28] California Office of Emergency Management, October 2020, Three Additional Counties Added to Presidential Major Disaster Declaration to Support State’s Response to Wildfires, http://news.caloes.ca.gov/three-additional-counties-added-to-presidential-major-disaster-declaration-to-support-states-response-to-wildfires/, accessed on November 22, 2022.

[29] Tetra Tech, 2021, *Sonoma County Multijurisdictional Hazard Mitigation Plan Santa Rosa Annex,* https://permitsonoma.org/Microsites/Permit%20Sonoma/Documents/Long%20Range%20Plans/Adopted%20Plans/Hazard%20Mitigation%20Plan/Sonoma-County-2021-MJHMP-Volume-2-City-Of-Santa-Rosa-Annex.pdf, accessed June 28, 2023.

increasing the likelihood that plant material will readily ignite and burn; the risk of wildfire increases when lightning strikes occur during dry periods.

Wind is a primary weather factor of wildfire behavior. Diablo winds, which are a type of downslope, warm, northerly to northeasterly wind, flow over the mountains east of the EIR Study Area and can have speeds exceeding 50 to 60 miles per hour.[30] As wind speeds increase, the rate of fire spread, intensity, and ember spread potential also increases. Gusty and erratic wind conditions can cause a wildfire to spread irregularly, making it difficult to predict its path and effectively deploy fire suppression forces. Winds from the east in the late summer and fall compound with lower relative humidity, creating "red flag" conditions.[31] High winds and low humidity are especially dangerous because low humidity can dry out trees and other fuel that may also be weakened by the winds. This can increase wildfire conditions in the EIR Study Area. Wind shifts can also occur suddenly due to temperature changes and interactions with steep slopes or hillsides, causing fires to spread unpredictably. Fall has historically been one of the most dangerous times for wildfire risk, as periods of very high temperatures, low humidity, and strong wind increases cause red flag warnings and extreme fire danger.

Fuel

The qualities of vegetation that directly influence fire risk include fuel type and size, loading, arrangement, chemical composition, and dead and live fuel moisture, which contributes to the flammability characteristics of the vegetation. As described in more detail in Chapter 4.4, *Biological Resources*, of this Draft EIR, vegetation within the EIR Study Area consists of hardwood forest, conifer forest, grassland, nonnative forest, and shrub. Forest vegetation is the dominant vegetation type in the eastern portion of the EIR Study Area, and grassland and agriculture are dominant in the western portion of the EIR Study Area. Grasslands and woodlands are highly flammable, particularly leaf litter that is left to accumulate, ultimately dries, and provides fuel for potential fires. The fire risk in grassland and woodlands vegetation communities can be reduced through several tactics, primarily controlled burns and annual grazing.[32]

Topography

Slope is a measure of land steepness, and wildfire intensity and rate of spread increase as slope increases due to the tendency of heat from a fire to rise via convection. For example, as slope increases from 20 to 40 percent, flame heights can double and rates of fire spread can increase fourfold; from 40 to 60 percent, flame heights can become three times higher, and rates of spread can increase eightfold. The arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes. As mentioned in Chapter 4.7, *Geology and Soils*, of this Draft EIR, the topography of the EIR Study Area varies from steep slopes in the hillsides of the eastern and southern portions, to generally flat in the western

[30] Tetra Tech, 2021, *Sonoma County Multijurisdictional Hazard Mitigation Plan, Volume I,* https://permitsonoma.org/Microsites/Permit%20Sonoma/Documents/Planning/Long%20Range%20Plans/Hazard%20Mitigation%20Plan/Adopted-Sonoma-County-MJHMP-Volume-1-December-2021.pdf, accessed June 28, 2023.

[31] The National Weather Service issues "red flag" weather day warnings when certain weather elements such as low relative humidity and strong winds could increase wildfire risk.

[32] The Nature Conservancy, updated March 28, 2022, Restoring Fire to Native Grasslands, https://www.nature.org/en-us/about-us/where-we-work/united-states/minnesota/stories-in-minnesota/restoring-fire-to-native-grasslands/, accessed April 3, 2023.

portion sloping toward the Laguna de Santa Rosa to the west. The steeply sloped area largely coincides with the fire-prone areas in the EIR Study Area.

Human Actions

Most wildfires are ignited by human action, the result of direct acts of arson, carelessness, or accidents. Many fires originate in populated areas along roads and around homes and are often the result of careless disposal of cigarettes, mowing of dead grass, electrical equipment malfunction, use of equipment, or burning of debris. Recreation areas with increased human activity that are in fire-prone areas also increase the potential for wildfires.

Climate Change

Climate change is likely to increase annual average maximum temperatures in Santa Rosa from a historical 70.8 degrees Fahrenheit (°F) to 75.4 °F by 2050 and 78.6°F by 2100.[33] This will likely create warmer temperatures earlier and later in the year. Precipitation levels are projected to increase over the course of the century, changing from a historical annual average of 35.9 inches per year to an annual average of 40.4 inches by 2050 and 44.8 inches by 2100.[34] Variations in precipitation patterns will also lead to an increase in frequency and intensity of heavy precipitation events as well as prolonged periods of drought. The combination of extreme heat and droughts cause soils and vegetation to dry out, creating more fuel for wildfires. These factors are expected to increase wildfire conditions, creating the risk of more frequent and intense wildfires. Historically, an average of 229 acres burned annually in the city.[35] Wildfires are projected to increase to an annual average in the city of 257 acres burned annually by 2050 and 267 acres burned annually by 2100.[36]

Fire Protection Resources

SRFD has primary responsibility for fire protection within city limits. The City is aided by CAL FIRE, the Sonoma County Fire Protection District and Sonoma Valley Fire District. Santa Rosa has a 2006 agreement with CAL FIRE that provides for CAL FIRE response on LRA lands as needed, which allows the City to leverage the state's considerable firefighting resources, including aircraft. Based on fire danger, various dispatch levels have been established in the agreement that define the number and kind of resources that CAL FIRE will send to a reported wildfire.

SRFD has a Fire Prevention Bureau staffed by a Fire Marshal, three Assistant Fire Marshals, six Fire Inspectors, a Plan Checker, two community outreach specialists and administrative personnel. Additionally, all ten of the City's fire stations are involved in a fire inspection program and work closely with Fire Inspectors to reduce community fire risk. Chapter 4.14, *Public Services, Park, and Recreation*, of this Draft EIR provides additional details about fire protection services in the EIR Study Area.

[33] Cal-Adapt, 2023, Annual Averages, https://cal-adapt.org/tools/annual-averages/, accessed April 3, 2023.
[34] Cal-Adapt, 2023, Annual Averages, https://cal-adapt.org/tools/annual-averages/, accessed April 3, 2023.
[35] Cal-Adapt, 2023, Wildfire, https://cal-adapt.org/tools/wildfire/, accessed April 3, 2023.
[36] Cal-Adapt, 2023, Wildfire, https://cal-adapt.org/tools/wildfire/, accessed April 3, 2023.

Evacuation and Access

Potential evacuation routes are roadways that allow many people to quickly leave an area due to a potential or imminent disaster. These routes should have sufficient capacity to accommodate the needs of the community, be safely and easily accessible, and allow people to travel far enough away to be safe from emergency conditions. As shown on Figure 4.18-5, *Evacuation Routes and Evacuation-Constrained Residential Parcels*, primary evacuation routes include US Highway 101 and State Route 12. Figure 4.18-5 also shows dozens of additional evacuation routes throughout the city.

During emergencies, the Santa Rosa Police Department and the Santa Rosa Fire Department coordinate evacuation warnings and orders with the City of Santa Rosa emergency management team. Notifications are coordinated with the County of Sonoma Department of Emergency Management.

Several neighborhoods throughout the city have evacuation constraints, as shown on Figure 4.18-5. An evacuation-constrained residential parcel is defined as the following:

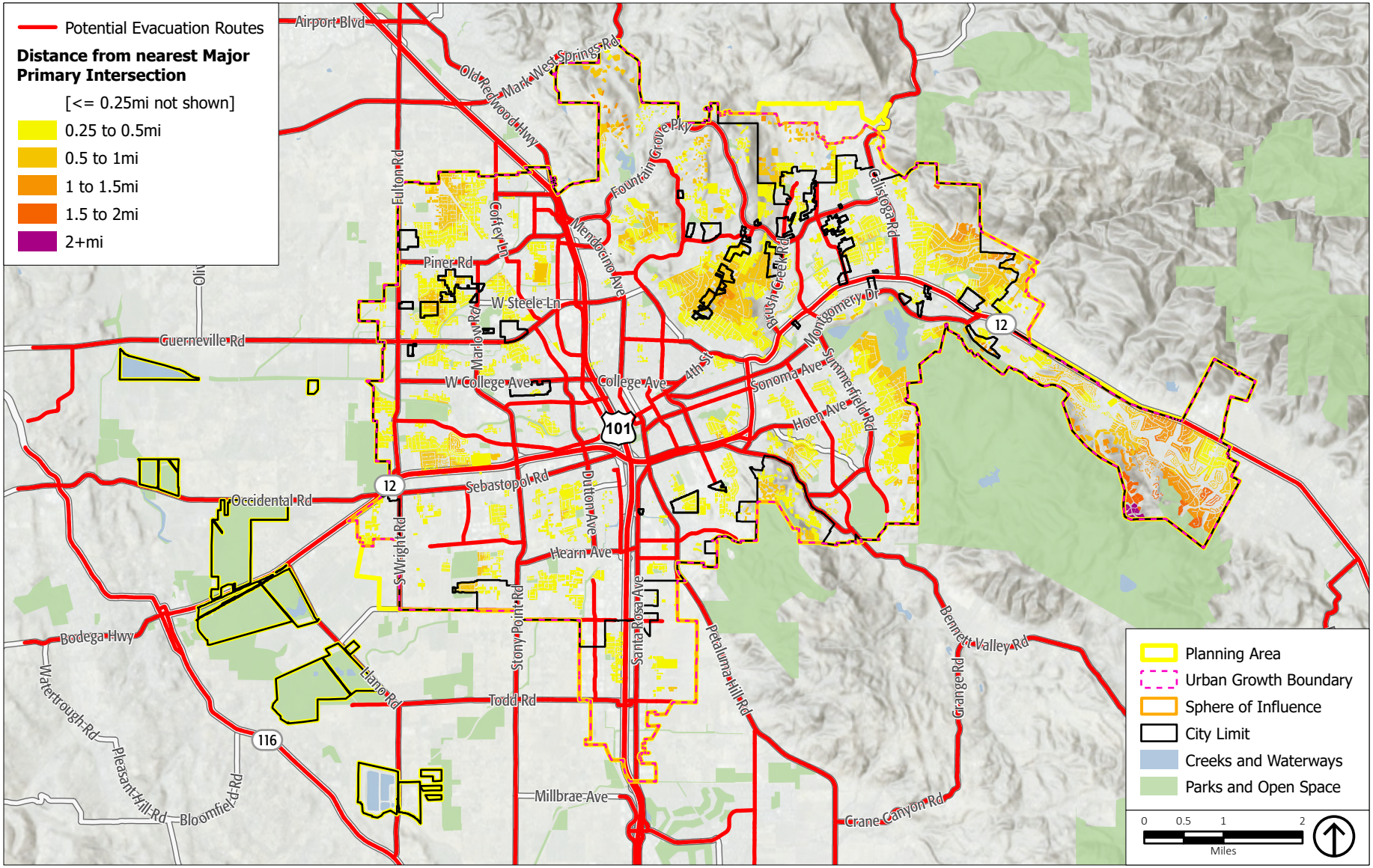
- A residential parcel with only one ingress and egress point; and/or
- A residential parcel that is more than 0.5 miles from the closest designated evacuation route based on the distance along the roadway network.

Evacuation-constrained residential parcels are throughout the EIR Study Area, and many are in or near the WUIFA and wildfire prone areas.

4.18.2 STANDARDS OF SIGNIFICANCE

If located in or near SRAs or lands classified as Very High FHSZs, the proposed project would result in a significant wildfire impact if it would:

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



Source: CalOES, 2021; ESRI, 2022; PlaceWorks, 2024.

Figure 4.18-5

Evacuation Routes and Evacuation Constrained Residential Parcels

4.18.3 IMPACT DISCUSSION

As described in Chapter 4.0, *Environmental Analysis*, of this Draft EIR, some proposed General Plan 2050 policies and actions are required as means to mitigate environmental impacts under CEQA. These policies and actions are fully enforceable at the discretion of the decision-maker through permit conditions, agreements, or other legally binding instruments. These mitigating policies and actions use the imperative "shall," include performance criteria, and are marked with an asterisk (*). Note that all actions are required to be implemented by the City and therefore the imperative "shall," if not explicitly stated, is implied.

WF-1 Implementation of the proposed project could substantially impair an adopted emergency response plan or emergency evacuation plan.

Adopted emergency response plans and emergency evacuation plans include those discussed under Section 4.18.1.1, *Regulatory Framework*, such as the Santa Rosa EOP. The proposed project could result in a significant impact if it would substantially impair the implementation of this EOP.

Potential future development in the EIR Study Area would be required to integrate applicable emergency operation and evacuation requirements as necessary to facilitate evacuation for people in wildfire-prone areas. Future development, regardless of whether it includes new development or redevelopment, is required to comply with adopted local, regional, and State plans and regulations addressing emergency access, response, and evacuation. Future development in the WUIFA or Very High FHSZs would be required to comply with the Very High FHSZ Fire Safe Regulations, the CBC, the CFC, and the SRCC, which have requirements for maximum lengths of single-access roads, minimum widths of roadways, and vegetation fuel management around roadways.

A temporary impact to emergency response and evacuation over the buildout horizon of the proposed project could occur from construction of future development projects if they were to result in temporary lane closures that would potentially alter evacuation routes. However, potential future development over the buildout horizon of the proposed project would be required to comply with applicable Very High FHSZ Fire Safe Regulations, the CBC, the CFC, and the SRCC, which would prohibit the obstruction of the circulation network. Additionally, these activities would be limited to the duration of the construction period, and direct impacts of construction would be evaluated during the permit review process by SRFD and/or CAL FIRE. Review and approval of temporary lane closures, if needed, for future development projects in the EIR Study Area would ensure that that no inconsistencies with emergency evacuation plans would occur.

Furthermore, as described in Chapter 3, *Project Description*, of this Draft EIR, the expansion of the city into surrounding lands is no longer a focus of City planning efforts. The proposed General Plan 2050 identifies 21 Areas of Change where the City will focus on housing, services, connectivity, and/or infrastructure needed to make these complete neighborhoods (see Figure 3-6, *Proposed General Plan 2050 Areas of Change*, in Chapter 3 of this Draft EIR). Potential future development in the EIR Study Area is projected to occur primarily in the proposed Areas of Change in the form of infill/intensification on sites already developed or underutilized, and/or in close proximity to existing development and infrastructure.

Out of the 21 Areas of Change, only the Oakmont (#20) location is partially in the WUIFA (the majority of this Area of Change is outside the WUIFA) and none of the Areas of Change are in the Very High FHSZ. Areas of Change that border WUIFAs include Fountaingrove/Mendocino Interchange (#1), Mendocino Corridor (#8), Flamingo Center (#10), and Howarth Commercial (#14). Therefore, the majority of the projected growth would not be in areas prone to wildfire hazards where evacuation due to fire threat would be greater than non-fire prone areas.

Buildout in the EIR Study Area would result in changes to the circulation patterns or emergency access routes throughout Santa Rosa. As described in Chapter 3, and evaluated in Chapter 4.15, *Transportation*, of this Draft EIR, the proposed project also includes new and improved circulation infrastructure, of which many of the circulation modifications reflected in the proposed General Plan 2050 are also identified in the recent *Moving Forward 2050 Sonoma County Comprehensive Transportation Plan*. As shown in Table 3-4, *Major Planned Roadway Circulation Improvements*, and Table 3-5, *Major Planned Multimodal Circulation Improvements* in Chapter 3 of this Draft EIR, the proposed changes to the circulation infrastructure include strategic roadway widenings on key arterials and highways, including SR 12, Fulton Road, Stony Point Road, and new or expanded roadways in WUIFA areas of Santa Rosa, to facilitate access of emergency responders. Specifically, improvements include evacuation route upgrades primarily on arterials in the WUIFA, including Fountaingrove Parkway and Montgomery Drive, and on the Farmers Lane Extension from Bennett Valley Road to Petaluma Hill Road, including sidewalks, bike lanes, and transit route. Accordingly, proposed circulation improvements would not substantially impair the implementation of the Santa Rosa EOP.

Chapter 5, *Safety, Climate Resilience, Noise, and Public Services and Facilities*, of proposed General Plan 2050 contains goals, policies, and actions that require local planning and development decisions to consider impacts to emergency response and evacuation. The following goal, policies, and actions would serve to minimize potential adverse impacts related to emergency response and evacuation:

- Goal 5-5: Ensure that Santa Rosa is prepared for future emergencies.
  - Policy 5-5.1: Encourage City staff and community members to be prepared for and capable of responding to emergency events.
    - Action 5-5.1: Maintain and periodically update the City's Emergency Operations Plan.
    - Action 5-5.2: Coordinate with staff of the Sonoma County Operational Area (which consists of the cities, special districts, and unincorporated areas of the county) to update joint emergency response and disaster response plans, as needed.
    - Action 5-5.3: Promote public awareness of the natural hazards and potential effects of disasters in the Planning Area through community and volunteer organizations.
  - Policy 5-5.3: Promote emergency response and preparedness training for City staff, community members, and businesses to increase community resilience.
    - Action 5-5.6: Participate in emergency response exercises in the Operational Area that involve key hazards of concern for the city.
  - Policy 5-5.4: Prioritize projects and strategies that mitigate hazards and increase community resilience.

- Action 5-5.7: Update the Local Hazard Mitigation Plan per State and federal requirements and implement action items as feasible.

- Policy 5-5.5: Ensure that coordination between the City and Operational Area continuously improves to meet the changing risks of the community.
  - Action 5-5.11: Continue to implement mutual aid, automatic aid, and California's Mutual Master Aid System to provide effective emergency response.
  - Action 5-5.12: Maintain effective mutual-aid agreements with neighboring cities and Sonoma County to support emergency management.
  - Action 5-5.13: Continue to execute mutual-aid agreements with public and private entities to support community emergency management.
- Policy 5-5.6: Prioritize investments that expand and enhance evacuation capacity and capabilities.
  - *Action 5-5.14: Require all new development projects to provide adequate access for fire and emergency response personnel.
  - *Action 5-5.15: Prohibit the creation of new single ingress/egress roadway conditions in the city.
  - *Action 5-5.16: Retrofit existing single-access residential neighborhoods to include additional access routes or other provisions to increase evacuation safety.
  - *Action 5-5.17: Analyze the capacity, viability, and safety of evacuation routes for hazard areas in the city (e.g., WUIFA) and incorporate the results into the City's Emergency Operations Plan.

Without adequate access there is the potential for impacts related to evacuation to be potentially significant.

Impact WF-1: Implementation of the proposed General Plan 2050 could result in inadequate evacuation access the impair the implementation of an emergency evacuation plan.

Significance with Mitigation: Less than significant. Implementation of the proposed General Plan 2050 goals, policies, and actions would increase the effectiveness of emergency operations and evacuation, and therefore would not impair or conflict with applicable plans. Specifically, proposed *Action 5-5.16 would reduce the number of evacuation-constrained residential parcels identified on Figure 4.18-5, *Evacuation Routes and Evacuation-Constrained Residential Parcels*, by retrofitting existing single-access roads in residential neighborhoods to include additional access routes or other provisions to increase evacuation safety. Proposed *Action 5-5.17 requires the City to conduct an analysis of the evacuation route network to determine the capacity, viability, and safety of evacuation routes, which would be incorporated into the Emergency Operations Plan and would improve evacuation scenarios. In addition, as described, the proposed changes to the circulation infrastructure include strategic improvements that include evacuation route upgrades primarily on arterials within Wildland-Urban Interface Fire Areas. Future development, regardless of whether it includes new development or redevelopment, would be required to comply with adopted local, regional, and State plans and regulations addressing emergency response and evacuation, including proposed *Action 5-5.14 and

*Action 5-5.15, which require the provision of adequate access for fire and emergency response personnel and prohibit the creation of new single access roadways in the city. Therefore, implementation of the proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan and impacts would be *less than significant*.

WF-2 Implementation of the proposed project could, 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.

As discussed in Section 4.18.1.2, *Existing Conditions*, the topography of the EIR Study Area varies from steeply slopes in the hillsides of the eastern and southern portions, to generally flat in the western portion sloping towards the Laguna de Santa Rosa to the west. The steeply sloped area largely coincides with the fire-prone areas in the EIR Study Area. Construction of potential future development in fire-prone areas of the EIR Study Area would require grading and site preparation; however, these activities would not significantly change the slope. All potential future development in Santa Rosa would be required to comply with the CBC, CFC, and SRCC requirements for grading, which would minimize the ignition and spread of wildfire due to slopes.

As discussed in Section 4.18.1.2, *Existing Conditions*, Santa Rosa is prone to periods of high winds. These winds can shift suddenly, and they are often accompanied by low humidity. They create dangerous conditions for starting and spreading wildfires during the drier months of the year, and they also spread wildfire smoke hazards, as can prevailing winds. Section 4.18.1.1, *Regulatory Framework*, describes plans, policies, regulations, and procedures that help to reduce wildfire risks. The 2018 *Strategic Fire Plan for California*, 2021 *California Wildfire and Forest Resilience Action Plan*, Sonoma County CWPP, Santa Rosa CWPP, and Sonoma County MJHMP are intended to reduce wildfire hazards and coordinate response to these hazards on a statewide and regional scale. In addition, the Bay Area Air Quality Management District provides air quality alerts, advisories, and an interactive online map to view current air quality conditions in the region. Furthermore, proposed General Plan 2050 Policy 5-6.4 requires the City to continue to implement the City's existing policy for cooling center activation, weatherize City buildings, and participate in cooling strategies for persons engaged in outdoor work and persons experiencing homelessness, and Action 5-6.10 requires the City to seek funding to upgrade existing warming and cooling centers to have the ability to offer refuge from extreme heat events and poor air quality due to regional wildfire smoke.

Other factors, such as vegetation, have the potential to exacerbate wildfire risks. The forest, grassland, and shrub areas of Santa Rosa are easily ignited, especially during late summer and fall when temperatures and winds are high and relative humidity is low. During these conditions, vegetation can dry out, particularly in areas with unirrigated vegetation, becoming extremely flammable and increasing wildfire risks. As described in Section 4.18.1.1, *Regulatory Framework*, the Sonoma County MJHMP, Sonoma County CWPP, and the Santa Rosa CWPP contain several vegetation management, defensible space, fuel reduction, and fuel break projects to reduce the uncontrolled spread of wildfire due to vegetation. Additionally, all potential future development in wildfire-prone areas or the WUIFA in Santa Rosa would be required to comply with the Very High FHSZ Fire Safe Regulations, CFC Chapter 49, PRC

Section 4291, and the SRCC. These regulations have specific requirements for new and existing development to create defensible space and extensive fuel reduction within 100 feet of a structure, an ember-resistant zone within 5 feet of a structure, and the overall maintenance of properties to reduce the risk of uncontrolled fires or the spread of fires to other properties.

Furthermore, Chapter 5, *Safety, Climate Resilience, Noise, and Public Services and Facilities*, of proposed General Plan 2050 contains goals, policies, and actions that require local planning and development decisions to consider impacts of slope, prevailing winds, and vegetation to wildfire risks. In addition to the proposed goals, policies, and actions identified under impact discussions WF-1, the following goals, policies, and actions would minimize wildfire risks:

- Goal 5-1: Minimize community exposure to seismic and geologic hazards.
  - *Policy 5-1.1: New development, redevelopment, and major remodels shall avoid or adequately mitigate seismic and geologic hazards.
    - *Action 5-1.1: Prior to new development approval, ensure geologic studies and analyses are deemed acceptable by a California Certified Engineering Geologist and/or Geotechnical Engineer for applicable hazard conditions.
    - *Action 5-1.2: Restrict development in areas where adverse impacts associated with known natural or human-caused geologic hazards cannot be effectively mitigated, as determined by a California Certified Engineering Geologist and/or Geotechnical Engineer.
    - Action 5-1.3: Avoid or adequately mitigate development of critical facilities—hospitals, fire stations, emergency management headquarters, broadcast services, sewage treatment plants, and places of large congregations—in high-risk geologic hazard zones (e.g., Rodgers Creek Fault zone, liquefiable soils, areas of slope instability.
  - *Policy 5-1.2: Promote erosion-control strategies that reduce hazards to structures, properties, and drainages.
    - Action 5-1.9: Identify enhanced erosion-control measures for properties that exhibit high erosion potential, are in areas of steep slopes, or have experienced past erosion problems.
    - Action 5-1.10: Ensure each update to the Community Wildfire Protection Plan identifies slope stability and wildfire hazard areas and mitigation strategies to reduce post-wildfire erosion.
- Goal 5-3: Increase community resilience to future wildfire threats.
  - Policy 5-3.1: Encourage greenbelts as nature-based solutions to enhance climate resilience and reduce hazards in and around Santa Rosa.
    - Action 5-3.1: Consider ways that new development can incorporate greenbelt zones into the design to reduce wildfire risk and enhance climate resilience.
    - Action 5-3.2: Work with land use applicants to locate development relative to landscape features that can act as buffers from oncoming wildfires (like agricultural lands and maintained parks and greenbelts).

- Action 5-3.3: Seek provision of land management plans or alternative methods to fund vegetation management efforts, support defensible space maintenance on private property, and create fire breaks, greenbelts, and staging areas in strategic locations.

- Policy 5-3.2: Increase wildfire resiliency using required and voluntary risk reduction regulations and strategies.
  - Action 5-3.4: Adhere to State and local regulations and recommendations of the Community Wildfire Protection Plan that address wildfire risk and vulnerabilities.
  - Action 5-3.5: Continue to require new development, redevelopment, and remodels to comply with adopted codes and standards and promote implementation of recommendations for fire-safe design in the Community Wildfire Protection Plan.
  - Action 5-3.6: Continue to require conformance with the California Fire Safe Regulations for existing nonconforming properties in the Wildland-Urban Interface Fire Area (includes the Very High Fire Hazard Severity Zone).
  - Action 5-3.7: Continue improving the City's previously developed post-wildfire recovery framework to assist with future post-wildfire redevelopment activities.
  - *Action 5-3.8: Require the preparation of fire protection plans for new development and major remodels in the City's Wildland-Urban Interface Fire Area (WUIFA). Require that fire protection plans be consistent with requirements of the California Fire Code and include a risk analysis, fire response capabilities, fire safety requirements (e.g., defensible space, infrastructure, and building ignition resistance), mitigation measures, design considerations for non-conforming fuel modifications, wildfire education maintenance and limitations, and evacuation plans.

- Policy 5-3.3: Promote new development in areas of the community that have lower risk of wildfire hazards.
  - Action 5-3.9: Consider updating the Zoning Code to prohibit land uses in the WUIFA that serve mobility-limited persons, such as assisted care facilities and additional uses recommended by the State.
  - Action 5-3.10: Explore the development of a pilot program to transfer rights for current or new development from fire hazard areas to less fire-prone areas and consider managed retreat, which could move people and existing structures away from wildfire risk.
  - Action 5-3.11: Explore prohibiting increased land use densities or intensities in the WUIFA and Very High Fire Hazard Severity Zone in accordance with State guidance.

- Policy 5-3.4: Implement the vegetation management strategies and enhanced roadway standards in fire-prone areas through the City's Community Wildfire Protection Plan.
  - Action 5-3.12: Require properties in the WUIFA to adhere to the City's Hazardous Vegetation and Fuel Reduction Ordinance, and all properties in the WUIFA and Very High Fire Hazard Severity Zone to comply with California Fire Safe Regulations (Title 14 of the California Code of Regulations).

- Action 5-3.13: Implement the fire mitigation projects in the Community Wildfire Protection Plan.
- Action 5-3.14: Establish a monitoring program to track the effectiveness of Community Wildfire Protection Plan fuel-treatment activities.
- Action 5-3.15: Update the Community Wildfire Protection Plan every five years to reflect the needs of the community and the changing risks in the WUIFA.
- Action 5-3.16: Ensure each update to the Community Wildfire Protection Plan identifies slope stability and wildfire hazard areas and mitigation strategies to reduce post-wildfire erosion.

- Policy 5-3.5: Ensure all community members and businesses are informed and empowered to address hazard vulnerabilities, considering the specific needs of Equity Priority Populations.
  - Action 5-3.17: Continue to conduct multilingual and culturally appropriate education and outreach campaigns that assist property owners with defensible space, fire-safe landscaping, home hardening, and wildfire preparedness, as identified in the Community Wildfire Protection Plan.
  - Action 5-3.18: Prioritize wildfire mitigation, education, and outreach efforts to vulnerable populations who may not receive typical outreach.
  - Action 5-3.19: Work with local and regional partners to assist low-income households with maintaining defensible space around their homes and properties.
  - Action 5-3.20: Identify at-risk populations and developments in the WUIFA and ensure that emergency management planning and training include efforts to increase resilience in these areas.

These proposed General Plan 2050 goals, policies, and actions would ensure that fire hazard reduction measures occur and are maintained, and that existing and new development in woodland, grassland, and shrub areas would incorporate vegetation management measures. However, wildfire smoke could potentially travel into other areas of the EIR Study Area due to slope and prevailing winds during a wildfire. Therefore, even with existing regulatory requirements and proposed General Plan 2050 goals, policies, and actions, potential future development over the buildout horizon of the proposed project could expose people to the uncontrolled spread of wildfire or pollutant concentrations due to slope conditions and prevailing winds within the EIR Study Area.

Implementation of the proposed project could increase population, buildings, and infrastructure in wildfire prone areas. The introduction of additional humans (through new development and redevelopment) and human activities (including the use of construction equipment) to fire-prone areas inherently exacerbates existing fire hazards. Though the proposed General Plan 2050 goals, policies, and actions and mandatory State wildfire hazard reduction measures reduce risks in wildfire-prone areas, impacts related to exacerbating the risk of pollutant concentrations from wildfire and the uncontrolled spread of wildfire would be reduced, but not to a less-than-significant level. The proposed General Plan 2050 contains goals, policies, and actions that require existing development, new, and redevelopment projects to create and maintain fire safe vegetation around structures and roadways and enforcement of Very High FHSZ Fire Safe Regulations. New development would also be required to prepare Fire Protection

Plans. These policies provide the best wildfire hazard reduction measures available. Adherence to the above building practices, fire safety regulations, and vegetation fuel management requirements would reduce the potential for exacerbating wildfire risks. However, due to the programmatic nature of this analysis, the unknown details and potential impacts of specific future potential development projects over the buildout horizon of the proposed project, and the potential for future development to be in wildfire-prone areas, impacts are considered *significant*.

Impact WF-2: Potential future development over the buildout horizon of the proposed project could increase population, buildings, and infrastructure in wildfire-prone areas, thereby exacerbating wildfire risks.

Significance with Mitigation: Significant and unavoidable. Goals, policies, and actions identified in the proposed General Plan 2050 provide the best wildfire hazard reduction measures available. Specifically, proposed *Action 5-3.8 requires the preparation of fire protection plans for new development and major remodels in the City's Wildland-Urban Interface Fire Area (WUIFA), which are highly vulnerable areas; that are consistent with requirements of the California Fire Code and include a risk analysis, fire response capabilities, fire safety requirements (e.g., defensible space, infrastructure, and building ignition resistance), mitigation measures, design considerations for nonconforming fuel modifications, wildfire education maintenance and limitations, and evacuation plans. However, the only way to fully avoid the wildfire impact from implementation is to prohibit development in Very High Fire Hazard Severity Zones (FHSZ) and the WUIFA. The majority of northern and eastern Santa Rosa is in a Very High FHSZ and/or the WUIFA. Prohibiting new development in this portion of Santa Rosa is not feasible or practical because the City has a responsibility to meet other, conflicting obligations, including increasing the number and type of housing available and allowing reconstruction of homes burned by wildfires. Therefore, this measure is considered and rejected, and there are no feasible mitigation measures beyond the policies and plans described above. Due to potential unknown impacts from future development over the buildout horizon of the proposed project, impacts at the programmatic level would remain *significant and unavoidable*. This conclusion does not preclude a finding of less-than-significant impacts at the project level.

WF-3 Implementation of the proposed project would require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) but doing so would not exacerbate fire risk or result in temporary or ongoing impacts to the environment.

Potential buildout over the buildout horizon of the proposed project could require the installation of new roadways, fuel breaks, emergency water sources, transmission lines, and other utilities to serve future potential development in Santa Rosa. Furthermore, Chapter 5, *Safety, Climate Resilience, Noise, and Public Services and Facilities*, of proposed General Plan 2050 contains goals, policies, and actions that require local planning and development decisions to consider impacts of wildfire management infrastructure to reduce wildfire risks. In addition to the proposed goals, policies, and actions identified under impact discussions WF-1 and WF-2, the following goals, policies, and actions would minimize wildfire risks from infrastructure and maintenance:

- Goal 5-6: Ensure Santa Rosa is a resilient city able to adapt to, recover from, and thrive under changing climate conditions.
    - Policy 5-6-7: Strengthen the community's ability to respond to the risks and negative effects of power outages, including public safety power shutoffs (PSPS) and other climate-related threats.
        - Action 5-6.26: Support efforts to underground electrical transmission infrastructure throughout the city, including substations, prioritizing high-voltage transmission lines and areas in the WUIFA.
- Goal 5-9: Provide adequate and high-quality city services for water, wastewater, recycled water, stormwater, and solid waste.
    - Policy 5-9.1: Ensure water quality, water service delivery, and wastewater treatment are sufficient to meet the needs of current and future residents.
        - Action 5-9.2: Continue to require that water supply capacity and infrastructure are in place prior to occupancy of new development.
        - Action 5-9.8: Evaluate the City's long-term water supply strategies, including development of new sources of water supply, enhanced water-efficiency programs, and implementation of appropriate growth-control measures, if deemed necessary by the City.
        - Action 5-9.10: Implement the Water Supply Alternatives Plan to mitigate potential impacts of climate change, drought, and natural or human-caused catastrophic events by enhancing water supply resiliency and reliability.

The following addresses the types of wildfire risk management infrastructure that could be required in the EIR Study Area over the 2050 buildout horizon.

- Roadways. Buildout of the proposed project would include new roadways in the western and southern portions of the EIR Study Area. Potential future development over the buildout horizon of the proposed project could also create new or expanded roadways in WUIFA areas of Santa Rosa, including developing roadways to new development and expanding existing roads to accommodate new development and multimodal forms of transportation. All new roadways would be built to code to accommodate emergency vehicles and routinely maintained pursuant to vegetation management regulations.
- Fuel Breaks. Proposed General Plan 2050 *Action 5-3.8 and Action 5-3.12 require the preparation of fire protection plans for new development that addresses defensible space and fuel modifications around buildings and structures for properties or development within the Very High FHSZ and WUIFA.
- Emergency Water Sources. Proposed General Plan 2050 Action 5-9.2, Action 5-9.8, and Action 5-9.10 continue to require water supply capacity and infrastructure are in place prior to occupancy of new development, require the evaluation of the City's long-term water supply, and implement the Water Supply Alternatives Plan for reducing impacts from natural or human-caused catastrophic events, such as a wildfire.

- Power Lines. Potential future development over the buildout horizon of the proposed project would require electrical line installations and connections to provide power to buildings and infrastructure. Proposed General Plan 2050 Action 5-6.26 supports efforts to underground electrical transmission infrastructure throughout the city, including substations, prioritizing high-voltage transmission lines and areas in the WUIFA, which is consistent with SRCC Chapter 13-12. Additionally, the CPUC requires maintenance of vegetation around power lines, strict wire-to-wire clearances, annual inspections of aboveground power lines, and the preparation of fire prevention plans for aboveground power lines in high fire-threat districts. These measures would reduce the wildfire risks associated with the installation and maintenance of power lines.
- Other Utilities. Potential future development over the buildout horizon of the proposed project would require the installation and maintenance of water systems, septic or sewer systems, internet infrastructure, and stormwater systems in wildfire-prone areas.

These types of improvements would involve temporary construction and result in changes to the existing built environment. Development in the WUIFA and Very High FHSZ areas in the EIR Study Area would also be required to comply with building and design standards in the CBC, CFC, and Very High FHSZ Fire Safe Regulations, which include provisions for fire-resistant building materials, the clearance of debris, and fire safety requirements during demolition and construction activities. Additionally, PRC Section 4291 requires a defensible space within 100 feet of a structure and an ember-resistant zone within 5 feet of a structure. These measures, along with the other applicable State regulations and the proposed General Plan 2050 goals, policies, and actions discussed above, would minimize wildfire risks associated with the installation and maintenance of infrastructure. Therefore, impacts would be *less than significant.*

Significance with Mitigation: Less than significant.

WF-4	**Implementation of the proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, postfire slope instability, or drainage changes.**

Wildfires, such as the 2017 Tubbs Fire and the 2019 Kincade Fire, can create favorable conditions for other hazards, such as flooding and landslides during the rainy season. Wildfires on hillsides can burn the vegetation that stabilizes the slope and create hydrophobic conditions that prevent the ground from absorbing water, causing water to run off and affect downslope or downstream areas. A project would result in a significant impact if—due to slopes, drainage patterns, or postfire slope instability—it would expose people or structures to significant risks from landsides, debris flows, or flooding.

As discussed in Chapter 4.10, *Hydrology and Water Quality*, of this Draft EIR, approximately 168 acres in the EIR Study Area are within the 100-year floodplain and about 284 acres are in the 500-year floodplain. As shown on Figure 4.10-3, *Potential Flood Hazards,* in Chapter 4.10 of this Draft EIR, these areas are primarily located along the creeks that run through the city, including Spring Creek, Matanzas Creek, Colgan Creek, Naval Creek, Roseland Creek, and Kawana Springs Creek. These areas are generally outside of the fire-prone areas of the Very High FHSZ and the WUIFA.

As discussed in Chapter 4.7, *Geology and Soils*, of this Draft EIR, the topography of the EIR Study Area varies from steep slopes in the hillsides of the eastern and southern portions to generally flat in the western portion, sloping towards the Laguna de Santa Rosa to the west. The steeply sloped area largely coincides with the fire-prone areas in the EIR Study Area. These areas are considered susceptible to landslides from precipitation and other causes. This overlap could cause areas outside of a flood hazard or landslide-susceptible zone to be affected by runoff, post-fire slope instability, or drainages changes following a wildfire.

Chapter 5, *Safety, Climate Resilience, Noise, and Public Services and Facilities*, of proposed General Plan 2050 provides guidance to help protect the community and mitigate potential impacts from natural and human-caused hazards. In addition to the proposed goals, policies, and actions identified under impact discussions WF-1 and WF-2, the following goals, policies, and actions would serve to minimize potential adverse impacts related to postfire slope instability or drainage changes upstream:

- Goal 5-2: Effectively manage the potential effects of flooding and dam failure.
  - Policy 5-2.1: Ensure land use strategies consider flood impacts and stormwater management tactics to reduce the effects of future inundation.
    - Action 5-2.1: Ensure land use strategies consider flood impacts and stormwater management tactics to reduce the effects of future inundation.
    - Action 5-2.2: Complete and implement the Storm Drain Master Plan.
    - Action 5-2.3: Coordinate with Sonoma Water regarding flood zones, land use, and flood mitigation strategies.
    - Action 5-2.4: Employ flood mitigation strategies in the development of plans and projects along creeks and waterways.
  - Policy 5-2.2: Promote the enhancement and expansion of open space for flood management and passive recreation where appropriate and safe.
    - Action 5-2.5: Protect floodplains by retaining and expanding, as feasible, open space areas that can retain stormwater, recharge groundwater/aquifers, and prevent/reduce flooding.
    - Action 5-2.6: Limit the use of areas designated for flood control to passive recreation activities (e.g., hiking, fishing, bike riding), consistent with requirements to maintain the integrity of these areas to protect public safety.
  - Policy 5-2.3: Comply with all applicable FEMA flood-management regulations and requirements.
    - Action 5-2.7: Continue to maintain and periodically update flood hazard data, and coordinate with federal, State, and local agencies responsible for flood hazard analysis and management activities.
    - Action 5-2.8: Continue to incorporate into public works projects features and appropriate standards that reduce flooding hazards, including daylighting culverts in urban areas such as downtown.
  - Policy 5-2.4: Ensure that the design of new development in a flood zone provides adequate flood protection without negatively impacting adjacent or downstream properties.

    - Action 5-2.9: Require an evaluation of flood hazards and appropriate on-site mitigation options by a qualified professional for any project in a FEMA- and Department of Water Resources (DWR)– designated flood zone during the development review process.
  - Policy 5-2.6: Manage, maintain, and improve stormwater drainage and capacity.
    - Action 5-2.12: Require dedication, improvement, and ongoing maintenance of stormwater management and retention areas as a condition of development approval.
    - Action 5-2.13: Identify and collect development impact fees needed to pay for mitigation of stormwater management impacts for new development.
    - Action 5-2.14: Require improvements that maintain and improve the storm drainage system citywide and prioritize areas needing significant investment, consistent with the Santa Rosa Citywide Creek Master Plan goals of preserving natural conditions of waterways and minimizing channelization of creeks.
    - Action 5-2.15: Ensure creek-side paths and trails are consistent with the Citywide Creek Master Plan and Active Transportation Plan and are incorporated into stormwater improvement projects along creek corridors.
  - Policy 5-2.7: Provide storm drainage facilities that accommodate increased development and enhanced water quality.
    - Action 5-2.16: Cooperate with Sonoma Water and the Northern California Regional Water Quality Control Board on assessments of stormwater drainage facilities to ensure adequate capacity to accommodate increases in residential and commercial development.
    - Action 5-2.17: Require implementation of best management practices for all new development to reduce discharges of nonpoint-source pollutants to the storm drain system.
- Goal 5-9: Provide adequate and high-quality city services for water, wastewater, recycled water, stormwater, and solid waste.
  - Policy 5-9.1: Ensure water quality, water service delivery, and wastewater treatment are sufficient to meet the needs of current and future residents.
    - Action 5-9.3: Maintain water, wastewater, and recycled water system integrity and capacity by continuing to prioritize maintenance and preserve funding for maintenance, rehabilitation, and replacement of existing infrastructure.
  - Policy 5-9.2: Maintain water quality and encourage Santa Rosa Water customers to save water.
    - Action 5-9.13: Require new development projects to provide water-efficient landscaping in accordance with the City's Water Efficient Landscape Ordinance.
    - Action 5-9.15: Promote water efficiency through public education, incentives, rebates, technical assistance, customer programs, and information about indoor and outdoor water use efficiency measures.
  - Policy 5-9.4: Ensure that adequate wastewater capacity is available to serve existing and future needs of the city.

- Action 5-9.28: Improve stormwater management to increase infiltration, provide treatment, promote groundwater recharge, reduce flood risk, capture trash, and enhance the environment.
- Action 5-9.30: Evaluate stormwater capture and reuse consistent with goals of the Santa Rosa Citywide Creek Master Plan and the MS4 National Pollutant Discharge Elimination System (NPDES) permit to preserve natural conditions of waterways, minimize channelization of creeks, and protect water quality, and identify, educate, and label to promote community awareness that storm drains flow untreated into creeks.
- Action 5-9.32: Employ a multibenefit "one-water" approach for new capital projects to include stormwater quality (low-impact development features) on a large scale, flood mitigation, creek restoration, and increased groundwater recharge.

Furthermore, all new development in the EIR Study Area would be required to comply with State and local regulations, such as the CBC and SRCC, both of which have provisions to reduce flooding and landslides in existing and new development. For example, CBC Section 1803 (SRCC Chapter 18-16) requires a geotechnical investigation that must assess existing landslide susceptibility on a project site. In addition, SRCC Chapter 20-32 and proposed General Plan 2050 *Policy 5-1.1, *Action 5-1.1, and *Action 5-1.2 include requirements for hillside development and the preparation of geotechnical reports that identify and mitigate impacts from the potential from landslides such that there would not be a significant impact.

New development complying with state and local regulations, as well as the proposed General Plan 2050 goals, policies, and actions identified above would not expose people or structures to downslope landslides or downstream flooding due to postfire hazards. Furthermore, as identified under impact discussions WF-1 and WF-2, potential future development over the buildout horizon of the proposed project must also comply with best management practices regarding wildfire prevention, action, and recovery as outlined in the Santa Rosa EOP, Sonoma County MJHMP, and the Sonoma County CWPP. All future development, regardless of the location, is required to comply with adopted local, regional, and State plans and regulations addressing wildfire prevention, which would minimize risks of postfire hazards. Compliance with these policies, actions, and regulatory requirements would ensure that impacts from postfire instability would be *less than significant*.

Significance with Mitigation: Less than significant.

WF-5	**In combination with past, present, and reasonably foreseeable projects, implementation of the proposed project could result in a cumulatively considerable impact to wildfire impacts.**

The cumulative setting includes potential future development in the EIR Study Area and the surrounding region. Future development over the buildout horizon of the proposed project would not impair an adopted emergency response plan or emergency evacuation plan; would not exacerbate wildfire risks due to the installation or maintenance of infrastructure; and would not cause downslope or downstream post-fire flooding or landslide hazards. Cumulative development in the surrounding unincorporated county, local jurisdictions, and State lands would be subject to the same State regulations applicable to future

projects over the buildout horizon of the proposed project. Although federal lands would not be subject to State regulations, they would still be subject to the National Cohesive Wildfire Management Strategy and the NFPA Standards.

However, the proposed project would result in significant and unavoidable impacts where it would potentially expose project occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire due to slope, prevailing winds, or other factors, as described under impact discussion WF-2. The addition of other proposed development projects in adjacent jurisdictions in similar environments that are sloped and contain high fuel loads would have the potential to contribute to cumulative wildfire risks. These projects would have the potential to result in significant environmental impacts and they could also potentially expose project occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire due to slope, prevailing winds, or other factors. These would potentially result in cumulatively considerable impacts when taken into consideration with the proposed project. Future potential development in the EIR Study Area and the surrounding region would be required to comply with the same State regulations, such as SRA and Very High FHSZ Fire Safe Regulations, PRC Section 4291, CBC, and CFC. Lands throughout Sonoma County would also implement wildfire reduction strategies through implementation of the Sonoma County CWPP and the Sonoma County MJHMP. However, the increase of potential development projects within the SRA in the Sphere of Influence and Urban Growth Boundary and unincorporated County lands outside of the EIR Study Area, along with the VHFHSZ or WUIFA, would result in a cumulatively significant impact due to the inherent risk of any increased human activity in these areas. Therefore, cumulative wildfire impacts would be considered *significant*.

Impact WF-5: Potential development over the buildout horizon of the proposed project could, in combination with other surrounding and future projects in the State Responsibility Areas (SRA), Very High Fire Hazard Severity Zones (FHSZ), or Wildland-Urban Interface Fire Areas (WUIFA), result in cumulative impacts associated with the exposure of project occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire due to slope, prevailing winds, or other factors.

> Significance with Mitigation: Significant and unavoidable. Same as Impact WF-2, even with implementation of the proposed General Plan 2050 goals, policies, and actions, including proposed *Action 5-3.8, the only way to fully avoid the cumulative wildfire impact is to prohibit development in the SRA, Very High FHSZs, and WUIFA throughout the region. As a full prohibition of development in these areas is not feasible in the region, this impact is *significant and unavoidable*.