ATTACHMENT 16

WILDFIRE EMERGENCY RESPONSE PLAN

POINT MOLATE

Wildfire Emergency Response Plan

CITY OF RICHMOND | JUNE 2020

WINEHAVEN LEGACY
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DRAFT

POINT MOLATE MIXED-USE PROJECT
WILDFIRE EMERGENCY RESPONSE PLAN

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
Bay	San Francisco Bay
BMP	Best Management Practice
CAL FIRE	California Department of Forestry and Fire Protection
CAER	Community Awareness and Emergency Response
CBC	California Building Code
Central HPA	San Francisco Bay Central Hydrologic Planning Area
CERT	Community Emergency Response Team
City	City of Richmond
County	Contra Costa County
CWS	Community Warning System
CWPP	Community Wildfire Protection Plan
CCHS	Contra Costa Health Services
EAS	Emergency Alerting System
EDIS	Emergency Digital Information System
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
FMAG	Fire Management Assistance Grant
General Plan	City General Plan 2030
HOA	Homeowners Association
I-580	Interstate 580
IC	Incident Command
ICS	Incident Command System
LID	Low Impact Development
MHERP	Multi- Hazard Emergency Response Plan
MeG	Millsholm Loam
NIMS	National Incident Management System
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
OA	Operations Area
OAEOP	Operations Area Emergency Operations Plan
OES	Office of Emergency Services
Project	Point Molate Mixed-Use Project
PRC	Public Resources Code
REACT	Richmond Emergency Action Community Teams
RFD	Richmond Fire Department
RPD	Richmond Police Department
RMC	Richmond Municipal Code
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SEIR	Supplemental Environmental Impact Report
SEMS	Standardized Emergency Management System
SSO	Site Safety Officer
TENS	telephone emergency notification system
Ub	Urban Land

Acronym/Abbreviation	Definition
USGS	United States Geological Survey
WERP	Wildfire Emergency Response Plan
WUI	Wildland-Urban Interface

Executive Summary

Over the last three years, California has experienced five of the deadliest wildfires and seven of the most destructive wildfires in state history. More than 3.7 million acres burned, more than 34,000 structures were destroyed and tragically, more than 140 lives were lost (California Office of the Governor, 2020).

Despite the number of state emergency declarations remaining at a generally stable rate, the federal Fire Management Assistance Grant (FMAG) that the state has received has increased substantially in recent decades, from an average of fewer than five per decade in the 1970s, 1980s, and 1990s to an average of about ten per year (100 per decade) since 2000. (Legislative Analyst Office, 2019).

Considering the wildfire occurrence increases over the last two decades, the importance of wildfire preparedness cannot be understated. Wildfire preparedness refers to the preventive measures taken to reduce the severity of impacts that can result from a wildfire event. The goal of wildfire preparedness is to lessen the impact of a wildfire on vulnerable populations, to ready an organization for an influx of activity, and to design a coordinated plan that reduces the waste of resources, time, and efforts. Wildfire preparedness has the potential to save the maximum number of lives and property during a wildfire, and it aims to return the affected populations to normalcy as quickly as possible. An Emergency Response Plan, such as this one, provides guidance and outlines responsibilities of preparedness activities specific to an organization or community.

In order to comply with the required Supplemental Environmental Impact Report (SEIR) Mitigating Measures for the Point Molate Mixed Use Project (Project), this site-specific Wildfire Emergency Response Plan (WERP) has been developed to guide community preparedness efforts and pre- and post-wildfire response measures. The WERP is a companion document to the Project's Multi-Hazard Emergency Response Plan (MHERP) prepared by Dudek (May 2020), which focuses on safe evacuations of the Project Site during potential emergency scenarios in a manner that does not interfere with existing evacuation plans and procedures for sheltering in place. While the MHERP also addresses wildfire, the focus of that document is earthquake and chemical release hazards, which, although rare in occurrence, are the most likely hazards to impact the Project Site.

The WERP is a tool to be utilized by the Project's HOA, community members, and local emergency responders to support a communitywide understanding of the Project Site's wildfire risk (Chapter 4), the community's wildfire management approach (Chapter 5), plan implementation and preparedness functions and responsibilities (Chapter 6), and community response action guides (Chapter 7).

Note that Chapter 7 is a quick reference guide for Project residents and business owners, providing recommended disaster-specific response procedures.

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1 Introduction, Purpose, and Objectives

Wildfire poses an evolving threat to lives and property in an increasing number of communities across the United States (FEMA, 2012). While wildfires are a natural part of California's landscape, the fire season in California is starting earlier and ending later each year, and is now considered a year-round threat. In 2017 and 2018, California experienced the deadliest and most destructive wildfires in its history. The size and intensity of these wildfires, fueled by drought, an unprecedented buildup of dry vegetation and extreme winds, caused the loss of more than 100 lives, destroyed thousands of homes and exposed millions of urban and rural Californians to unhealthy air. Climate change is considered a key driver of this trend. Warmer spring and summer temperatures, reduced snowpack, and earlier spring snowmelt create longer and more intense dry seasons that increase moisture stress on vegetation and make forests more susceptible to severe wildfire. The length of fire season is estimated to have increased by 75 days across the Sierras and seems to correspond with an increase in the extent of forest fires across the state (CAL FIRE, 2020).

In 2019, the California Department of Forestry and Fire Protection (CAL FIRE) documented 7,860 wildfires statewide, which burned an estimated 259,823 acres. Of these wildfires, 9 occurred within Contra Costa County and burned an estimated 1,317 acres. The severity of wildfires realized across the state has resulted in a need for increased planning and preparedness within each jurisdiction to improve wildfire resistance, which will ultimately protect lives and safeguard new and existing communities.

1.1 Purpose

This Wildfire Emergency Response Plan for the Point Molate Mixed Used Project assesses wildfire risk within the project area, defines a wildfire management approach, and outlines wildfire preparedness functions and responsibilities. Ultimately, the purpose of the WERP is to establish pre- and post-wildfire response measures to provide for the community's effective wildfire emergency response.

1.2 Plan Goals and Objectives

The primary goal of this WERP is to improve the Project's resiliency to wildfire through a well-defined management approach, which includes both pre- and post-wildfire response measures. Pre-wildfire response measures consist of actions to reduce damage to property anticipated from wildfire events and ensure evacuation routes are maintained operational (e.g., sandbags to mitigate possible landslide and flood damage). Post-wildfire response measures will include fire suppression damage repair and emergency stabilization measures. The WERP also includes standards for a five-year, long-term recovery and restoration plan to rehabilitate burned areas.

Additionally, this WERP includes an analysis of the Project Site's design to confirm that it does not unnecessarily expose the site's population to unsafe conditions. The wildfire threat is evaluated and the appropriate responses, given the site's unique location and response alternatives are defined. This WERP must also comply with and complement existing emergency response and evacuation plans, adopted by local and regional agencies charged with responding to wildfire emergencies on or impacting the Project Site. Other goals of this plan include:

- Protect lives and property;
- Ensure the safety of community residents and visitors to the community;
- Respond to emergencies promptly and properly;

- Ensure coordination with local authorities, emergency operations plans and community resources;
- Provide emergency response plans, services, and supplies to businesses and residents; and
- Restore normal services as quickly as possible.

In order to achieve these goals, the WERP's recommendations meet the following objectives:

- Reduce wildfire hazard within the Project area;
- Reduce the likelihood of ignitions and extreme fire behavior to enhance public and firefighter safety;
- Implement practices to avoid or minimize impacts to open space; and
- Identify preparedness functions and responsibilities to reduce wildfire hazard within the Project area.

Further, the WERP addresses the following, per the Project's SEIR Mitigation Measure 4.7-3:

- Establish pre- and post-wildfire response measures.
- Establish standards for a five-year long-term recovery and restoration plan to rehabilitate any burned areas.

2 Site and Project Description

2.1 Project Location and Site Description

The Project Site is owned by the City of Richmond (City) and is located on the San Pablo Peninsula within the City limits in Contra Costa County (County) (**Figure 1 and Figure 2**). The Project Site is bound by the San Francisco Bay (Bay) to the west, open space parcels to the north and south, and the Chevron®-Richmond Refinery to the east, with the 480-foot tall hillsides of Potrero Ridge separating the refinery from the Project Site. Approximately 136 acres of the approximately 412-acre Project Site are submerged in the Bay, leaving approximately 276 acres above water. The Project Site is approximately 1.5 miles north of Interstate 580 (I-580) and the Richmond-San Rafael Bridge, and has direct freeway access via Stenmark Drive, a City-owned roadway. The Assessor's Parcel Number of the Project Site is 561-100-008.

Historically (20th Century), the Project Site was used primarily for fishing, commercial, and most recently, naval activities. The Project Site is now in caretaker status, with the City providing maintenance of the remaining buildings and facilities. Multiple small businesses currently hold licenses to utilize space on the Point Molate Site, but these licenses will be reevaluated for feasibility and may be terminated to allow Project development. The City currently uses approximately 18 acres of the southwest portion of the Project Site for Point Molate Beach Park. The park includes a paved parking area, picnic tables, portable toilets, and shoreline access. Public use is allowed at the Point Molate Beach Park during specified hours. The Project would retain Point Molate Beach Park for public use.

The vicinity surrounding the Project Site is dominated by industrial uses and open space. Current uses on the peninsula include the Chevron®-Richmond Refinery, a chemical plant, railroad terminals, parks, and a yacht harbor. The Chevron® refinery facilities are spread over half of the peninsula (City of Richmond, 2012), including lands adjacent to the Project Site. To the north of the Project Site is open space that serves as a buffer for Chevron® oil operations, a rod and gun club for Chevron® employees, and a marina. Further to the north lies the Point San Pablo Yacht Harbor. To the east is Potrero Ridge, dominated on its east side by above-ground storage tanks and refinery facilities owned and operated by Chevron®.

2.2 Project Overview

The Project identifies eight Planning Areas within the Project Site that could be developed with the proposed mixed-use community, as shown in **Figure 3**. Potential development areas would be limited to no more than 30 percent of the total above-water Project Site area (approximately 82.74 acres) by the Project's entitlements. Development within the Winehaven Historic District would include rehabilitation and adaptive reuse of the existing historic buildings. The Project proposes to rehabilitate all the contributing buildings to the Historic District per the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Any structures located on site that are not considered contributing elements of the Historic District may be demolished. Grading for hillside stability would be conducted in "Hillside Grading Areas" outside the Planning Areas, which would be revegetated and designated as Open Space after construction. No permanent structures other than retaining walls would be located in the Hillside Grading Areas.

The Planning Areas within the Project Site would be assigned General Plan land use designations that exist in the current General Plan, consisting of Medium Intensity Mixed-Use, Medium-Density Residential, and Low-Density Residential, and rezoned pursuant to a Planned Area Development Plan. The Project would make minor text amendments to the Medium Intensity Mixed-Use designation to make it compatible with the existing historic

buildings in the Historic District and to provide flexibility on the height limits and the Medium-Density Residential designation to provide flexibility on the density range. The Project's zoning would further refine the development regulations proposed by its proposed General Plan land use designations. The hillside open space will be assigned a General Plan land use designation of Open Space and the shoreline open space would be designated as Parks and Recreation.

The Project proposes a mixed-use community that would include the following components:

- 1,452 residential units, comprised of the following unit types:
  - 185 Single Family Homes
  - 241 Townhomes
  - 1,026 Apartments and Condominiums
- 453,774 square feet of nonresidential uses:
  - 55,000 retail/restaurant uses
  - 10,000 square feet of civic uses, including a fire station and police substation
  - 5,000 square feet water transit service terminal
  - 383,774 square feet office/RandD

The above mix of uses would occupy new construction and approximately 374,572 square feet of existing, historic buildings. The remainder of the Point Molate Site would remain as open space (approximately 193.06 acres), including recreational areas, parks, trails (including an approximately 1.5-mile portion of the San Francisco Bay Trail along the shoreline), vista overlooks, and other similar spaces that are open to the public.

The Project also would include new roads to serve the development within the Project Site, including widening Stenmark Drive from the Project Site to I-580 Ramps, and construction of utility and infrastructure needed to support the proposed development.

2.2.1 Land Use

As represented in **Figure 4**, the Project proposes a mix of land use designations, including Low-Density Residential, Medium-Density Residential, Medium-Intensity Mixed-Use, Parks and Recreation, and Open Space. Currently the Draft EIR studies two options—Option 1 and Option 2—that both propose parks and recreational land use along the shoreline and open space land use along the hillside land in the northeastern portion of the Project Site. The Project application proposes the mix of uses described in Section 2.2 above.

SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 1

Regional Location

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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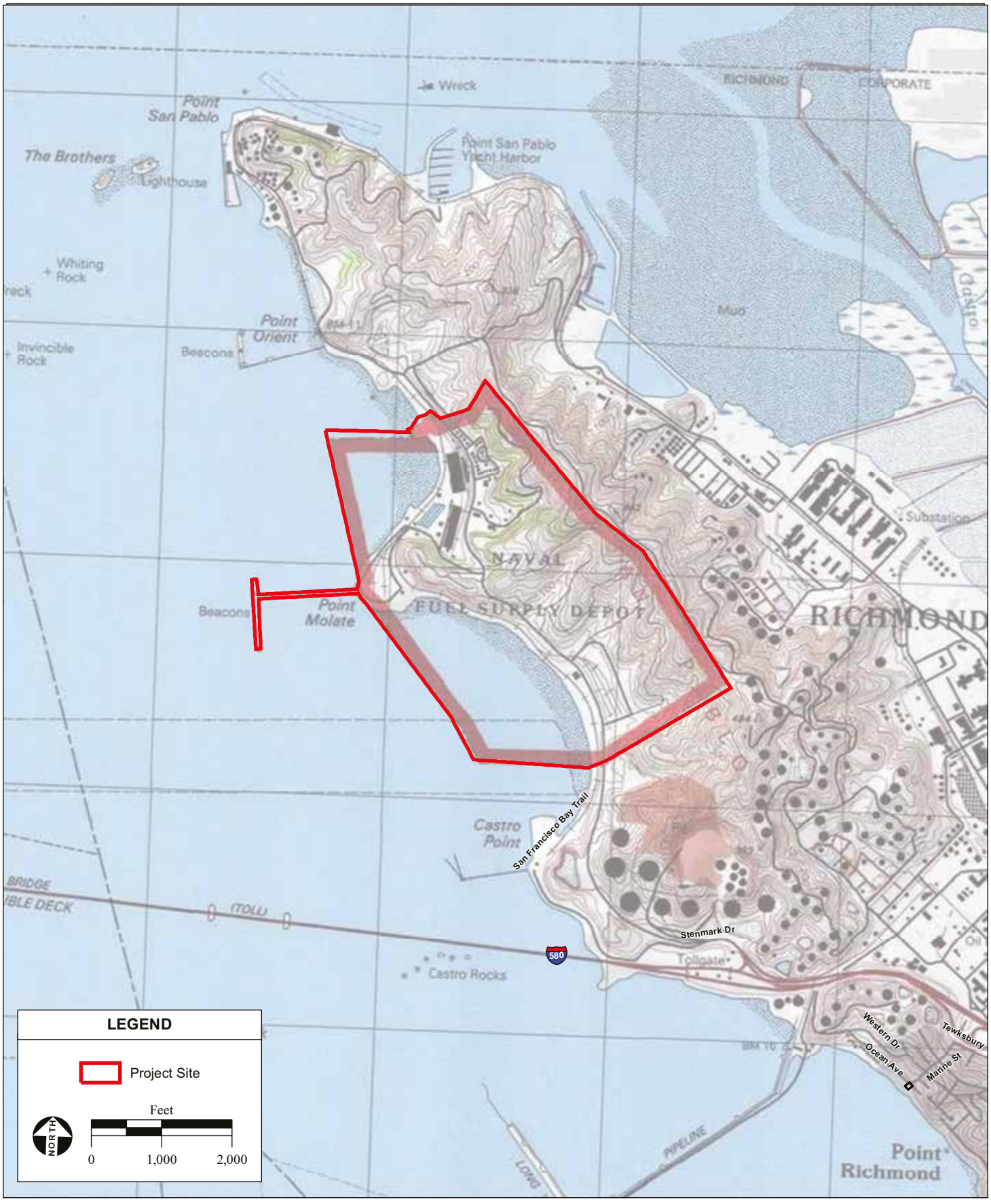

SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 2

Site Vicinity

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 3

Planning and Development Areas

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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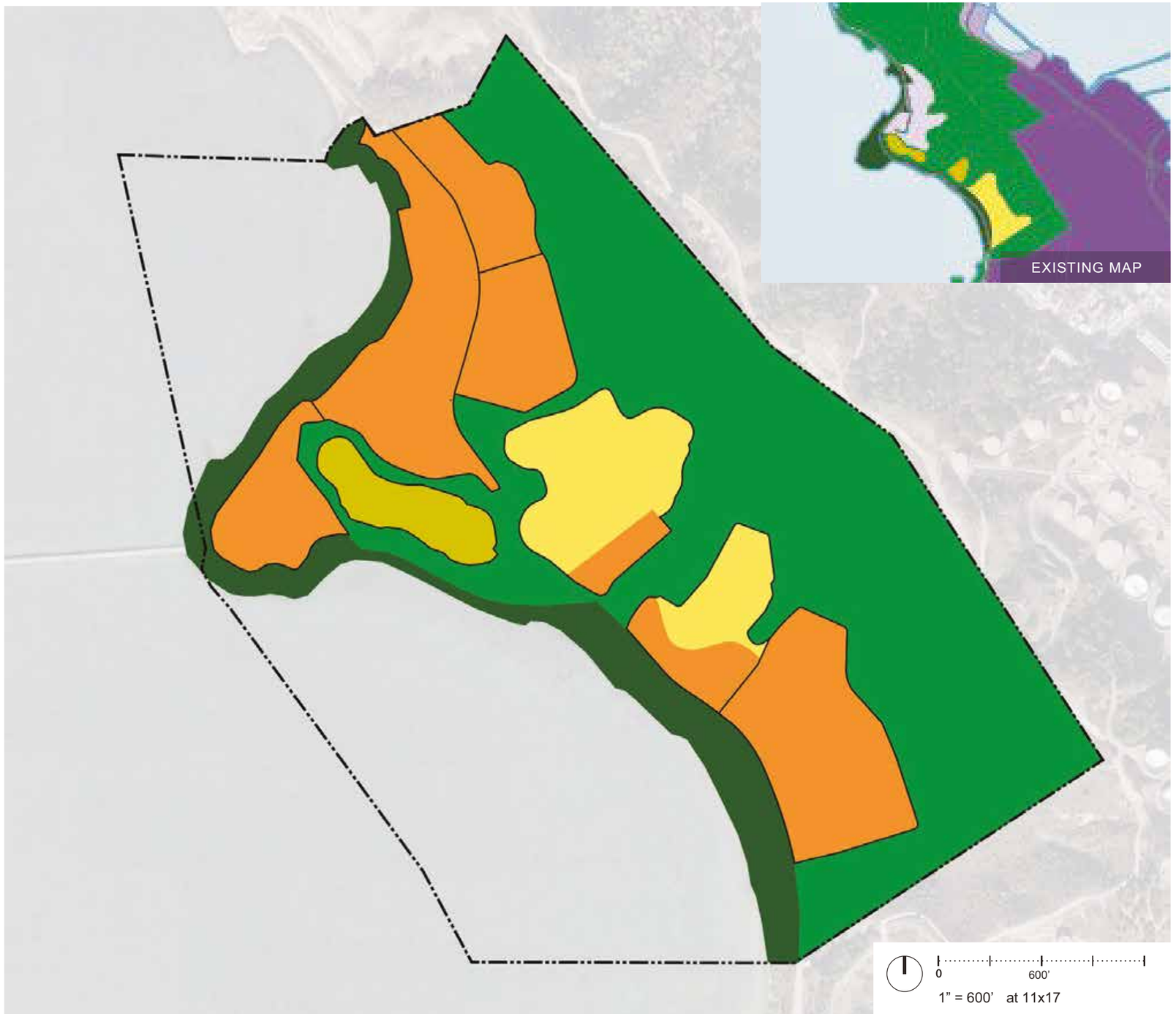
Land Use - General Plan Designations

- Low Density Residential
- Medium Density Residential
- Medium Density Mixed Use
- Open Space
- Parks & Recreation



SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 4
Proposed General Plan Land Use Designations
Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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2.2.2 Circulation/ Transportation

The Project would be accessed by Stenmark Drive, which is the only access road that serves the Point San Pablo and Point Molate areas. Due to anticipated traffic increases, the Project proposes to widen Stenmark Drive to accommodate 11- to 13-foot vehicle travel lanes, bicycle facilities/multi-use path, planter strips for street trees and verge plantings, and pedestrian sidewalks. The type of bicycle facilities along Stenmark are based on the adjacent uses, available right-of-way (ROW), safety, and other concerns. Bicycle facilities may include a 10 to 12-foot multi-use path (Class I) separated by a landscape area, portions of which will be accessible to emergency vehicles; or where constrained by a narrow ROW, shared vehicular/bike travel lanes (Class III).

Additionally, Stenmark Drive would be widened to accommodate two southbound lanes from 500 feet north of the Dutra Materials Road intersection to the I-580 ramps. **Figure 5** provides an illustration of the proposed improvements to Stenmark Drive. The Project also proposes the installation of a traffic signal at Dutra Materials Road to address potential queuing issues and to provide a controlled pedestrian crossing for the San Francisco Bay Trail. While the majority of the widening of Stenmark Drive would be developed within the existing ROW, these improvements would require additional ROW be acquired from the adjacent landowner on Stenmark Drive. **Figure 6** illustrates the approximate locations of the ROW expansions to accommodate the proposed road widening. Undergrounding or relocating existing utility power poles along Stenmark Drive from the easterly boundary to freeway connection (I-580) would occur to accommodate completion of the anticipated Stenmark Drive improvements.

Internal Circulation

Access to the Planning Areas would be provided by secondary and tertiary streets branching off Stenmark Drive as presented in **Figure 7**. Access to the beach park would be provided via a new single driveway directly off Stenmark Drive near the southern boundary of the Project Site. Roadway rights-of-ways within the Planning Areas would range between approximately 30 feet and 67 feet wide while the roadbed within ROW's ranges between 22 and 42 feet to accommodate emergency vehicles and, in certain areas, street parking.

Water Transit

The existing fuel pier and the associated water transit terminal would be retrofitted for passenger use. The pier may be reconfigured to provide a more appropriate berthing area for water taxis by eliminating a portion of the southernmost end of the "T," and adding square footage in an equal or lesser amount to what would be eliminated in other sections of the pier. **Figure 8** presents a conceptual plan-view of the reconfigured pier. The reconfigured pier could be used for water evacuations in the event of an emergency.

2.2.3 Vegetation Management and Defensible Space

Article VIII Fire, § 8.16.080 of the Fire Ordinance in the Richmond Municipal Code (RMC) designates regulations applicable to any area of the City which is designated as a Very High Fire Hazard Severity Zone. The goal is to minimize danger to the public health and safety caused by building in an area with a high risk of grass and brush fire. These regulations include a variety of measures to maintain reduced fire fuel levels and low building susceptibility to fire risk. Specifically, for new developments and existing buildings in Very High Fire Hazard Severity Zones, these regulations include a buffer zone that must be 100 by 30 feet on vacant lots, building standards for reducing fire risk (e.g., slanted roofs to prevent vegetation debris accumulation and ignition resistant construction),

and vegetation management for reducing fuel loads, as detailed in City Resolution 192-95. Vegetation management standards outlined in Resolution 192-95 include ornamental planting with low-risk fire plants, fuel reduction measures, disposal requirements for vegetation, and more. Such landscaping and fuel management can help mitigate fire risk. During implementation of the Project, and following build out, all regulations pertaining to developing and maintaining development in a Very High Fire Hazard Severity Zone would apply.

Landscaping and removal of vegetation will not occur within the designated Open Space except as provided within the Open Space Plan or for safety purposes. Additionally, vegetation management will be included as a component of the Covenants, Conditions, and Restrictions of the Homeowners Association (HOA). The HOA will be responsible for ensuring that the following are achieved related to vegetation management:

- Landscaping established and maintained by the Homeowner's Association shall be consistent with the aesthetics and functionality of the landscape with an emphasis on the use of native plants within landscaping designs. Trees planted in these areas shall consist of those species native to the Project Site; and
- Native vegetation will be sourced locally as feasible.

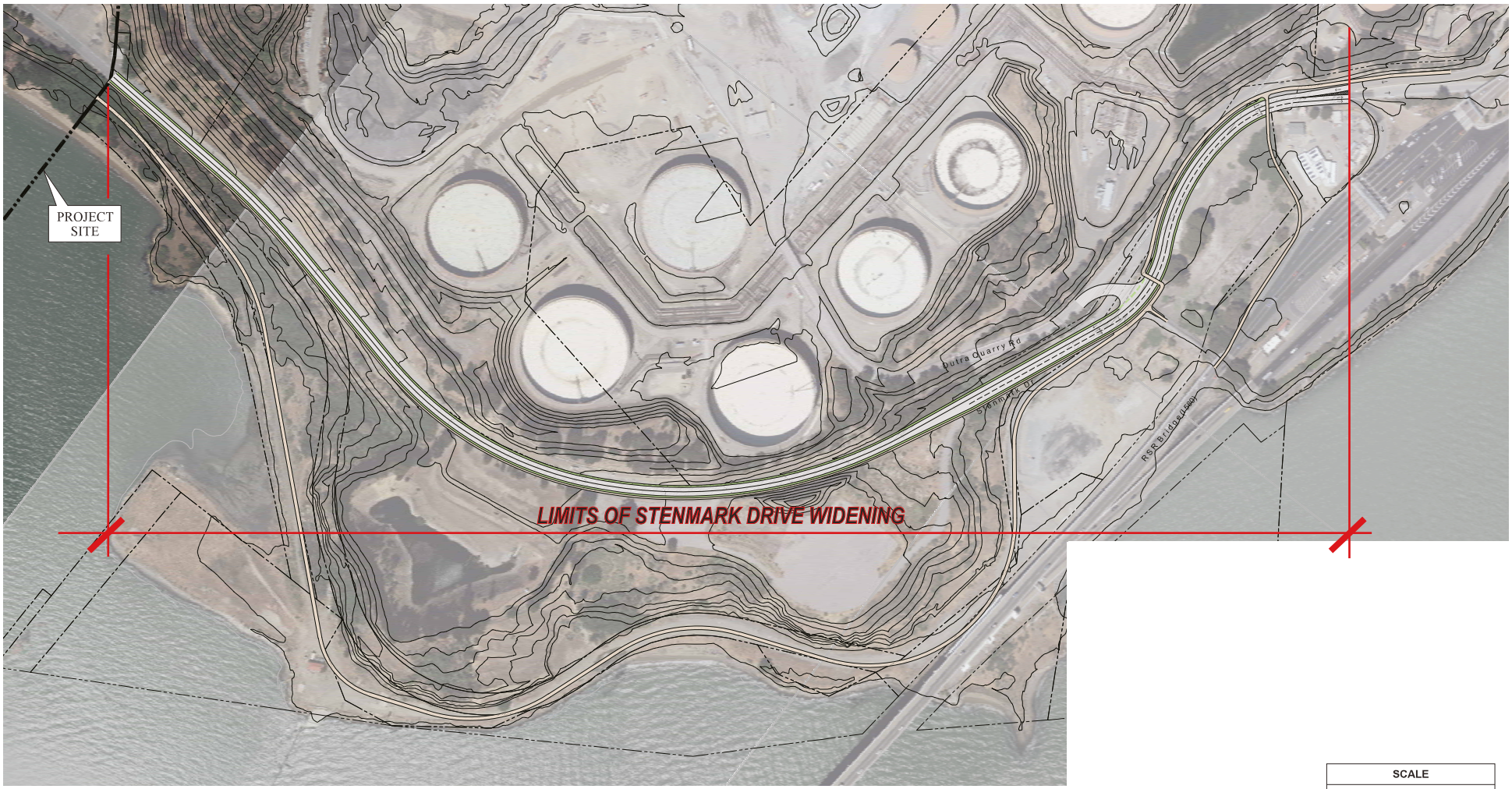
Further, the HOA shall ensure that residences minimize overall impacts to sensitive habitats through the following measures:

- The HOA shall provide new residents with information on native species and encourage their use on private landowner parcels.
- The HOA shall provide new residents with information on the sensitive habitats present on the Project Site and the importance of these habitats.
- The HOA shall prohibit the planting of non-native tree species.
- The HOA shall annually hire a 3rd party Fuel Modification Zone (FMZ)/Wildland-Urban Interface (WUI) Inspector to confirm that FMZ maintenance has been provided and that the FMZ would function as intended.

2.2.4 Structural Protection and Building Ignition Resistance

The California Department of Forestry and Fire Protection has developed Fire Hazard Severity Zones maps to classify Very High Fire Hazard Severity Zones within Local Responsibility Areas. Local Responsibility Areas are defined as areas outside CAL FIRE jurisdiction that fall within city or county fire protection responsibility. The Project Site falls within the Richmond Fire Department's jurisdiction area. The CAL FIRE mapping program classifies lands according to whether a very high fire hazard is present and identifies measures to mitigate the rate of spread and reduce the potential intensity of uncontrollable fires (CAL FIRE, 2007).

Amended in coordination with the Office of the State Fire Marshal, California Building Code (CBC) § 701A.3 states that all new buildings located in any fire hazard severity zone within the State Responsibility Areas, local agency Very High Fire Hazard Severity Zone, or any Wildland-Urban Interface Fire Area must comply with Chapter 7A of the CBC, which requires compliance with all applicable State and local building standards, including those for materials and construction methods for wildfire exposure, as well as State vegetation management requirements. This amendment to the CBC was incorporated to protect against damage caused by destructive wildfires within the wildland urban interface (WUI) zone.



SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 5

Stenmark Drive Widening

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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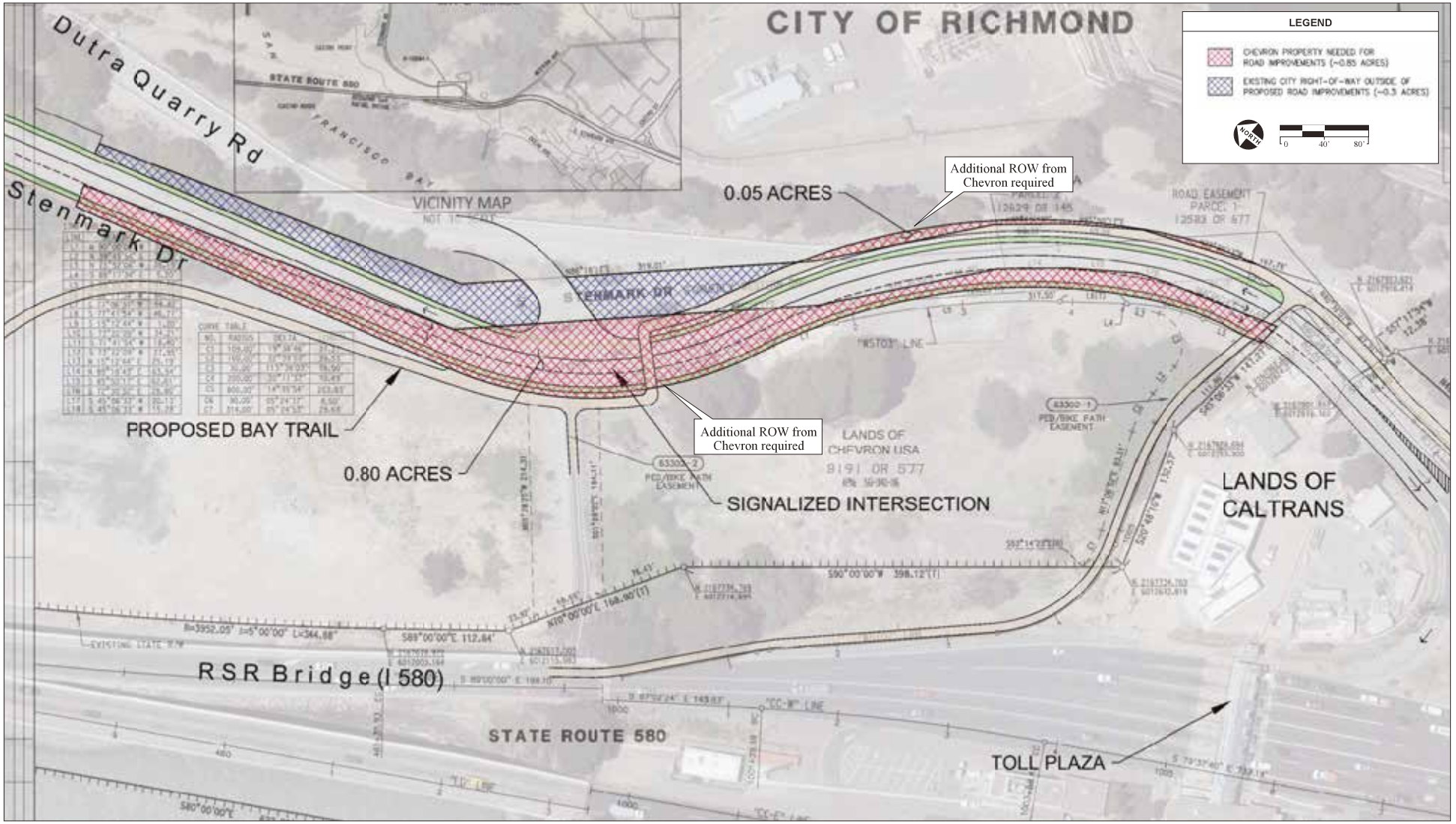

SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 6

Stenmark Drive Right-of-Way Expansion

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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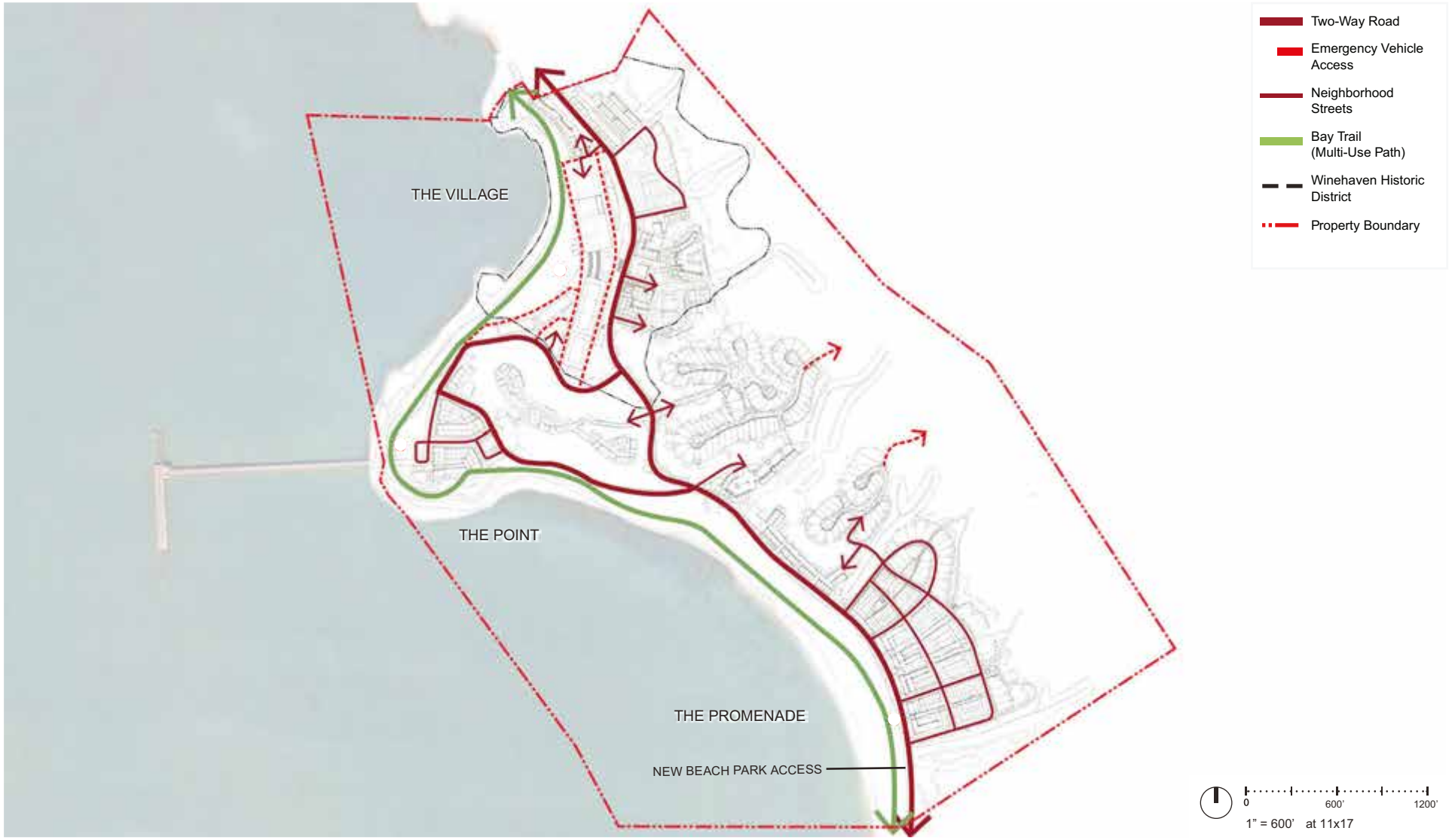

SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 7

Circulation and Access

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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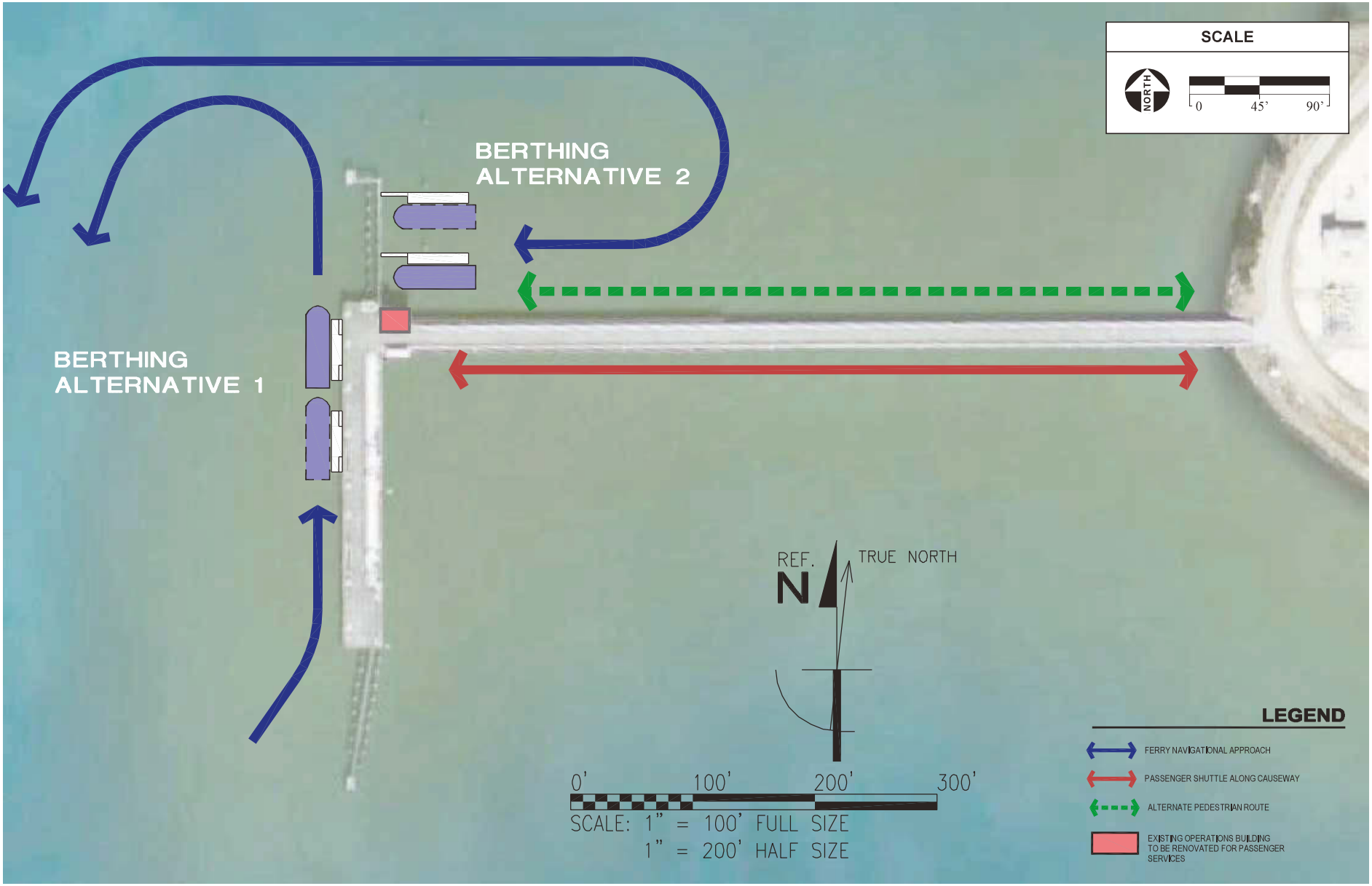

SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 8

Pier Reconfiguration Alternatives

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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3 Existing Plans and Policies

In addition to the SEIR and related Project documents, existing plans and policies prepared by or for local regulatory agencies were reviewed to assist in preparing this WERP, and relevant information has been incorporated as appropriate. The following is a complete list of the plans, reports, and technical information that were reviewed when preparing this update and how they were incorporated in this plan.

3.1 City of Richmond General Plan

The Project Site and all adjacent parcels to the Project Site are covered by the City General Plan 2030 (General Plan) that was adopted on April 25, 2012. The General Plan is a comprehensive guide for decisions about land use, economic development, transportation, natural resources, and public health and safety, which includes goals and policies for future growth of the City. Further, the General Plan provides direction that is the foundation of the WERP. Specifically, the Public Safety and Noise Element identifies and evaluates public health and safety hazards, and outlines means of limiting unreasonable risks and minimizing losses that can occur as a result of natural or human-caused disasters. The Element addresses emergency preparedness and coordinated response, police and fire protection, and emergency services. Additionally, the Public Safety and Noise Element defines goals, policies, and implementing actions to address public safety issues. These goals and policies include:

- Emergency and Disaster Preparedness
- Risk Management of Natural and Human-Caused Disasters
- Geologic and Seismic
- Hazardous Materials Operations
- Fire Safety

3.2 City of Richmond Municipal Code

The Richmond Municipal Code contains the city's local laws and includes codes and ordinance applicable to development and construction including Land Use, Subdivisions and Zoning. Specifically, floodplains and building safety are addressed along with Buildings and Construction, Fire prevention and life safety, Health and Safety, Public Services, water and wastewater treatment, and regulations to address drought. The RMC is an important regulatory tool for implementation of mitigations aimed at standards for public health and safety.

Article VIII Fire, § 8.16.080 of the Fire Ordinance in the RMC designates regulations applicable to any area of the City which is designated as a Very High Fire Hazard Severity Zones in order to minimize danger to the public health and safety caused by building in an area with a high risk of grass and brush fire. These regulations include a variety of measures to reduce fire fuel levels and low building susceptibility to fire risk.

The Project will comply with all applicable code requirements.

3.3 City Council Resolution 192-95

City Council Resolution 192-95 is the fire hazard reduction vegetation management standards. The vegetation management standards address local community fire protection planning in order to reduce the level of fire hazards in the City's wildland interface/intermixed areas. There are three specific goals for the vegetation management

planning where fire poses the greatest risk to life and property: 1) keep all fires small, 2) limit the speed that any fire will grow, and 3) make it difficult for fires to ignite and spread. Sections included in the fire hazard reduction vegetation management standards include hazard zones, ornamental landscaping, vegetation management standards, and structural fire standards. These fire safe vegetation management standards are applicable to the entire City on both vacant and developed lots. For properties within the Very High Fire Hazard Severity zones, there are special vegetation management standards, including, but not limited to, the following.

- Fire breaks must be created and maintained in areas within 30 feet of any occupied dwelling.
- Fuel breaks must be created and maintained in areas extending from 30 to 100 feet surrounding any structure.
- Fuel breaks must be created and maintained on vacant lots 30 feet wide along the property line and 100 feet from neighboring structures.

3.4 City of Richmond Emergency Operations Plan

The City of Richmond's Emergency Operations Plan (EOP) was developed to ensure the most effective, efficient and economical allocation of resources for the maximum benefit and protection of people and property in time of emergency, and defines the City's planned response to extraordinary emergency situations associated with any type of disaster, natural, technological or otherwise. This EOP establishes the emergency organization, assigns tasks, specifies policies and general procedures, and provides for coordination of planning efforts of the various emergency staff and service elements utilizing both California's Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). As an extension of the California Emergency Plan, the objective of the EOP is to incorporate and coordinate all Richmond facilities and personnel into an efficient organization capable of responding effectively to any emergency.

Additionally, the EOP includes four annexes: 1) Evacuation Planning, 2) HazMat Notification, 3) Mass Care and Shelter for PWD/E (People with Disabilities/Elderly), and 4) Terrorism Plan. Each of these annexes provides additional specific response checklist and operational data for emergency responders.

3.5 Contra Costa County Operations Area Emergency Operations Plan

The Contra Costa Operational Area (OA) Emergency Operations Plan (OAEOP) addresses the response to emergency incidents within Contra Costa County. The Contra Costa OAEOP consists of the cities/towns, special districts, reclamation districts, municipal improvement districts and the unincorporated areas within the county. Additionally, the EOP addresses integration and coordination with other governmental, non-government, faith-based organizations, community-based organizations, and the private sector, when required. Further, the OAEOP establishes the emergency management organization required to mitigate any significant emergency or disaster affecting the Contra Costa OA, and establishes the overall operational concepts associated with the Contra Costa County's EOC activities and response process.

Based on the functions and principals of SEMS, NIMS, and the Incident Command System (ICS), the plan identifies how the Contra Costa County emergency operational system fits into the overall California and National risk-based, all hazard emergency response and recovery operations plans.

As noted in the OAEOP, during the Incident Evaluation process the initial emergency responders will assess the incident and determine the need for actions necessary to safeguard public health (shelter-in-place, evacuation) and determine the incident's CWS level. The CWS will be used to disseminate information to the public in the event of a release or threatened release of a hazardous material (sirens, media, weather radios, phone notification, etc.).

Siren activation, phone call activation and weather radios are used to alert the public during Level 3 incidents only. Level 3 hazardous material incidents have off-site impacts that may include irritation to the general population, or includes fire, explosion or smoke impacts, or when the Incident Commander (IC) requests such notification.

3.6 Contra Costa County Hazard Mitigation Plan and City of Richmond Specifics

An update to the 2011 Contra Costa County Hazard Mitigation Plan, the current Contra Costa Hazard Mitigation Plan was adopted in 2018 and aims to reduce risks from natural disasters within the Contra Costa County OA, which covers the unincorporated county, 10 municipalities, and 25 special purpose districts. A planning partnership was formed by engaging eligible local governments within the Contra Costa County OA, for which the City of Richmond was a participating partner. The plan includes long- and short-term policies, programs, projects, and other activities to alleviate death, injury, and property damage that could result from a disaster.

Risk assessment models were used to determine the potential loss of life, personal injury, economic injury and property damage from natural hazards, as a means to determine the vulnerability of people, buildings, and infrastructure to natural hazards. Risk assessment for the County Hazard Mitigation Plan included: hazard identification and profiling; assessment of the impact of hazards on physical, social, and economic assets; identification of areas of vulnerability; and estimates of the cost of potential damage. It was determined that earthquake hazard and landslides were the highest risk, while severe weather, wildfire, dam and levee failure, and flood posed medium risk for the county. Sea-level rise, tsunami and drought were rated at the lowest risk level county-wide.

Ultimately, the goal of the County's Hazard Mitigation Plan is to reduce the vulnerability from hazards within the planning area in a cost-effective manner, within the capabilities of the planning partners. The planning partnership selected a range of appropriate mitigation actions to work toward achieving this goal. Mitigation actions include activities designed to reduce or eliminate losses resulting from natural hazards. A total of 522 mitigation actions were identified for implementation by individual planning partners. Additionally, countywide actions were identified to benefit the partnership as a whole. Implementation and maintenance of the plan includes annual progress reports, continued public involvement, a commitment to plan integration with other relevant plans and programs, and a commitment from the planning partnership to actively maintain the plan over the five-year performance period.

3.6.1 City of Richmond

As a planning partner, the Contra Costa County Hazard Mitigation Plan includes an annex for the City of Richmond, in which the annex provides a jurisdiction-specific hazard profile. According to the hazard risk assessment and similar to the county-wide assessment, it was determined that the City of Richmond highest risks are earthquake and landslides, while severe weather, sea level rise, flood, dam and levee failure, and wildfire posed medium risk, and tsunami and drought were rated at the lowest risk level.

3.7 Contra Costa County Community Wildfire Protection Plan and City of Richmond Specifics

The Contra Costa County Community Wildfire Protection Plan (CWPP) responds to the National and State Fire Plans, the Federal Emergency Management Agency Disaster Mitigation Act of 2000 and several locally developed documents, which mandate community-based planning efforts, coordination, project identification, prioritization, funding review, and multi-agency cooperation. The purpose of the CWPP is to protect human life, critical infrastructure and natural resources and reduce wildfire-caused property loss. Additionally, the CWPP aims to help agencies, communities and local homeowners define, plan and prioritize types of actions that will limit the damage associated with an inevitable wildland fire event.

The CWPP provides recommendations for fuel management and structure ignition resistance within the Wildland Urban Interface (WUI). Fuel management recommendations include pulling or cutting vegetation, mowing and selective tree removal, grazing, herbicides, and prescribed burns. Recommended treatments for structural ignitability include managing vegetation, creating defensible space, construction design, the use of fire-resistant building materials, and the removal of combustible materials stored near structures.

3.7.1 City of Richmond

As an annex to the Contra Costa Countywide CWPP, the Richmond Fire Department, in conjunction with the Diablo Fire Safe Council, prepared the City of Richmond CWPP, which provides an analysis of the City's WUI wildfire hazards and risk, including adjacent unincorporated areas such as East Richmond Heights. Similar to the County's CWPP, the City's CWPP uses standards established by the federal Healthy Forest Restoration Act to identify and prioritize fuel reduction opportunities and address structure ignitability. Based on analysis, the City's CWPP provides recommendations to aid stakeholders in reducing the wildfire threat. The CWPP complements local agreements and existing plans for wildfire protection and a coordinated effort in determining appropriate fire management actions.

3.8 Contra Costa County Community Warning System

The Contra Costa County Community Warning System is recognized as one of the nation's most modern and effective all-hazard public warning systems. The CWS is a partnership of the Office of the Sheriff, the Health Services Department, other government agencies, industry, news media and the non-profit Community Awareness and Emergency Response (CAER) organization, all striving to deliver time-sensitive and potentially life-saving information to the Contra Costa County populace (Contra Costa County, 2020).

The CWS is a computer-integrated alerting and notification system that incorporates safety sirens, emergency responder pagers, Emergency Digital Information System (EDIS), the Emergency Alerting System (EAS), and a telephone emergency notification system (TENS). EDIS, and EAS are different ways of getting messages to emergency responders, including law enforcement, the media, and the National Weather Service (which transmits information to NOAA Weather Radios). The TENS calls households and businesses and transmits short messages about the incident and recommended protective actions. In addition to these tools, the CWS delivers text messages, make phone calls, send e-mail alerts to individuals that register their phones. The CWS alert messages are broadcasted over Facebook and Twitter. Information about an incident can be found at the time of the incident at https://cwsalerts.com/, including areas that are being requested to shelter-in-place (Contra Costa Heath Services, 2016).

Sirens

The CWS may use sirens to alert to a possible area hazard. The siren is used for a wide range of hazards and is sounded to draw attention away from daily activities. No matter the hazard, the CWS indicates that the best, first protective action is to Shelter, Shut and Listen. Although it is not stated where persons should tune into to find details, it is presumed that local media, social media and other specific messaging to registered telephone lines and email addresses would occur during an emergency.

Voice, Text and Email Alert Messages

The CWS can alert residents and businesses within Contra Costa County that are impacted or are in danger of being impacted by an emergency. The CWS message will include basic information about the incident and what specific protective actions (shelter in place, lockdown, evacuate, avoid the area, etc.) are necessary to protect life and health. CWS is generally not used for traffic notifications or other non-life-threatening incidents.

Residents can register to receive voice, text and email alerts. In addition, the CWS Telephone Emergency Notification System is used for call-out in case of emergency. A computerized system makes telephone calls to the known telephone numbers in the vicinity of the hazard based on the incident specific issues. To streamline for fast activation in emergency, the areas around known places were predefined, so activation is faster. These predefined areas are the "TENS Zones"; the Project Site is in the Chevron Refinery, Richmond 0 zone.

3.9 Emergency Access

The Project includes construction of an on-site fire station, which would be the primary responder to emergencies onsite. In the case of large emergencies, off-site emergency responders would access the Project Site via Stenmark Drive, which is proposed to be widened, from north of the Dutra Materials Road intersection to the I-580 ramps, as part of the Project. Widening of Stenmark Drive would accommodate a 12-foot vehicle travel lane, 5-foot bicycle lanes in each travel direction, and a 5-foot sidewalk along the western alignment of Stenmark Drive (Figure 5). This would ensure that emergency vehicles have unimpeded access to the Project Site and Point San Pablo in the event of traffic congestion on the two-lane segment of Stenmark Drive. All lane widths within the Project would meet the minimum width that can accommodate an emergency vehicle. Access to the Planning Areas would be provided by secondary and tertiary streets branching off Stenmark Drive as shown on Figure 7. Access to the beach park would be provided via a new single driveway directly off of Stenmark Drive near the southern boundary of the Project Site. Roadways within the Planning Areas would range between approximately 22 feet and 42 feet wide to accommodate emergency vehicles and some street parking, where practical. Parking would be developed consistent with Ordinance No. 30-18 N.S of the Richmond Municipal Code.

3.10 Existing Fire Department Response

The Richmond Fire Department (RFD) provides fire protection and emergency medical services (basic life support level) within the City incorporated areas, including the Project Site. The RFD retains aid agreements with County Fire and El Cerrito Fire (City of Richmond, 2018). The department is comprised of six divisions: administration, support services, fire prevention, emergency services, training, and emergency operations. In total, there are 90 sworn officers and five non-sworn employees within the RFD. Within the Emergency Operations division, there are three platoons that are operated by eight companies, seven engines, and one truck. The companies are staffed by 24 personnel who are supervised by one battalion chief.

Fire personnel are allocated to seven City fire stations. Department apparatus and personnel includes seven engine companies, one truck company, one cross-staffed truck company, two rescue units, a hazardous materials unit, one breathing support unit, and one fire boat. The closest station to the Point Molate Site is Station 61, located at 140 W. Richmond Avenue, approximately three miles to the southeast. The next two closest stations are Stations 62 and 67. Station 64 houses the HazMat Response team along with equipment and supplies (Contra Costa County, 2009). Hazardous materials response team/decontamination members are trained to the level of Hazardous and Materials Technician. Company members are trained to the level of First Responder.

In addition to providing basic emergency care, the RFD Office of Emergency Services leads comprehensive emergency management. This includes planning and preparedness for, response and recovery from, and mitigation of natural, man-made, and accidental incidents involving a major aftermath. The Office of Emergency Services coordinates with neighboring agencies across the County and the nation to collaborate on and establish the best emergency response and recovery efforts in the event of a major disaster. As part of its operations efforts, the Office of Emergency Services maintains the City Emergency Operation Center and Community Emergency Response Teams program a state of operational readiness.

Further, the Richmond Fire and Police Departments will provide fire protection, emergency medical services, and police services to the Project Site. The Project would include up to a 10,000-sq. ft. on-site joint fire and police substation that is proposed within the boundaries of the Winehaven Historic District, and to be operated by the City. The fire station would be sized to house all necessary fire apparatus and equipment to meet all the Project's emergency response needs of the Project. The joint substation would provide fire protection and emergency medical services to the Project Site operating 24 hours a day. Consequently, the response time for emergencies within the Project Site would meet the City of Richmond Fire Department's goal of under four minutes for response to a fire suppression incident, and turnout time would be less than 80 seconds for fire incidents and less than 60 seconds for EMS incidents. Further, in an emergency, the pier could be used to provide emergency access to the Project Site via the Richmond Fire Department's fire boat; the fire boat would dock and launch at the end of the pier.

4 Description of Wildfire Risk

A wildfire is an uncontrolled fire spreading through vegetative fuels and threatening or possibly consuming structures, and often begins unnoticed and spreads quickly. Naturally occurring and non-native species of grasses, brush, and trees, especially when dry, fuel wildfires. A wildland fire is a wildfire in an area in which development is essentially nonexistent, except for roads, railroads, power lines and similar facilities. A Wildland-Urban Interface fire is a wildfire in a geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels. The project proposes significant development in the Point Molate area, which is located adjacent to Potrero Ridge, and has been designated by the City as a Very High Fire Hazard Severity Zone (**Figure 9**).

Once burning, wildfires will behave according to the fire environment within which they are burning. Wildfire behavior is based on three primary factors: fuel, topography, and weather. The type, and amount of fuel, as well as its burning qualities and level of moisture affect wildfire potential and behavior. The continuity of fuels expressed in both horizontal and vertical components is also a determinant of wildfire potential and behavior. Topography is important because it affects the movement of air (and thus the fire) over the ground surface. The slope and shape of terrain can change the speed at which a fire travels, and the ability of firefighters to reach and extinguish a fire. Weather affects the probability of wildfire and has a significant effect on its behavior. Temperature, humidity and wind (both short and long term) affect the severity and duration of wildfires.

The Project Site's topography includes hilly and mountainous areas, such as the San Pablo Ridge, as well as low-lying regions throughout, and exhibits the characteristics of both the uplands in the coastal range and the tidal flats of the Bay. When fueled by shrub overgrowth, occasional "Diablo Winds" and unique localized wind patterns, and high temperatures, creates a potential wildland fire threat at the site. Extreme weather conditions such as high temperature, low humidity, and/or winds of extraordinary force may cause an ordinary fire to expand into a "Mega-Fire", although at the Point Molate site, there is a limited expanse of fuel and the site is surrounded by water and dense urbanized areas, limiting the potential for a Mega-Fire, but possibly resulting in complete consumption of existing fuels and potential for structural ignitions downwind.

Large fires would likely have several indirect effects beyond those that a smaller, more localized fire would include. These may include air quality and health issues, road closures, business closures, and others that increase the potential wildfire related losses.

4.1 Site Specific Risk Assessment

The Project Site is characterized by steep slopes and the presence of several vegetation communities, including annual grassland, coastal scrub, mixed riparian, eucalyptus woodland, and invasive scrub. On-site fuel loading is significant given the wide distribution of eucalyptus woodlands and associated ladder fuels. The Project Site is bound by the Bay to the west, open space parcels to the north and south, and the Chevron®-Richmond Refinery to the east, with the 480-foot hillsides of Potrero Ridge separating the refinery from the Project Site. Site topography is steep in the eastern portion and rises up and away from the Project. Steep terrain can facilitate wildfire spread upslope due to vegetation pre-heating that occurs from the flames' positioning on a slope. Flame and heated air rise and the vegetation adjacent to burning vegetation upslope becomes heated, dries and volatile compounds vaporize, which then ignite, facilitating the fire's spread upslope. During a typical weather day, when the winds, if any, are coming off the Bay, the air is humid and internal plant moisture is high. This results in a higher vegetation ignition resistance as it takes higher heat and prolonged durations to vaporize the volatile compounds. However, if a vegetation fire ignited, the on-shore winds and up-sloping terrain would facilitate fire spread away from the Project site.

During an extreme fire weather day, when Diablo Winds are blowing and humidity is low, vegetation internal moisture would be low and ignition potential would be high for some fuel types. During this condition, the up-sloping terrain's fire influence may be partially offset by the winds blowing down the slope. At the very least, the fire's advance up the slope would be slowed. The fire may also burn down the slope toward the Project with strong enough winds and readily ignited fuels along with airborne embers starting spot fires ahead of the flaming front.

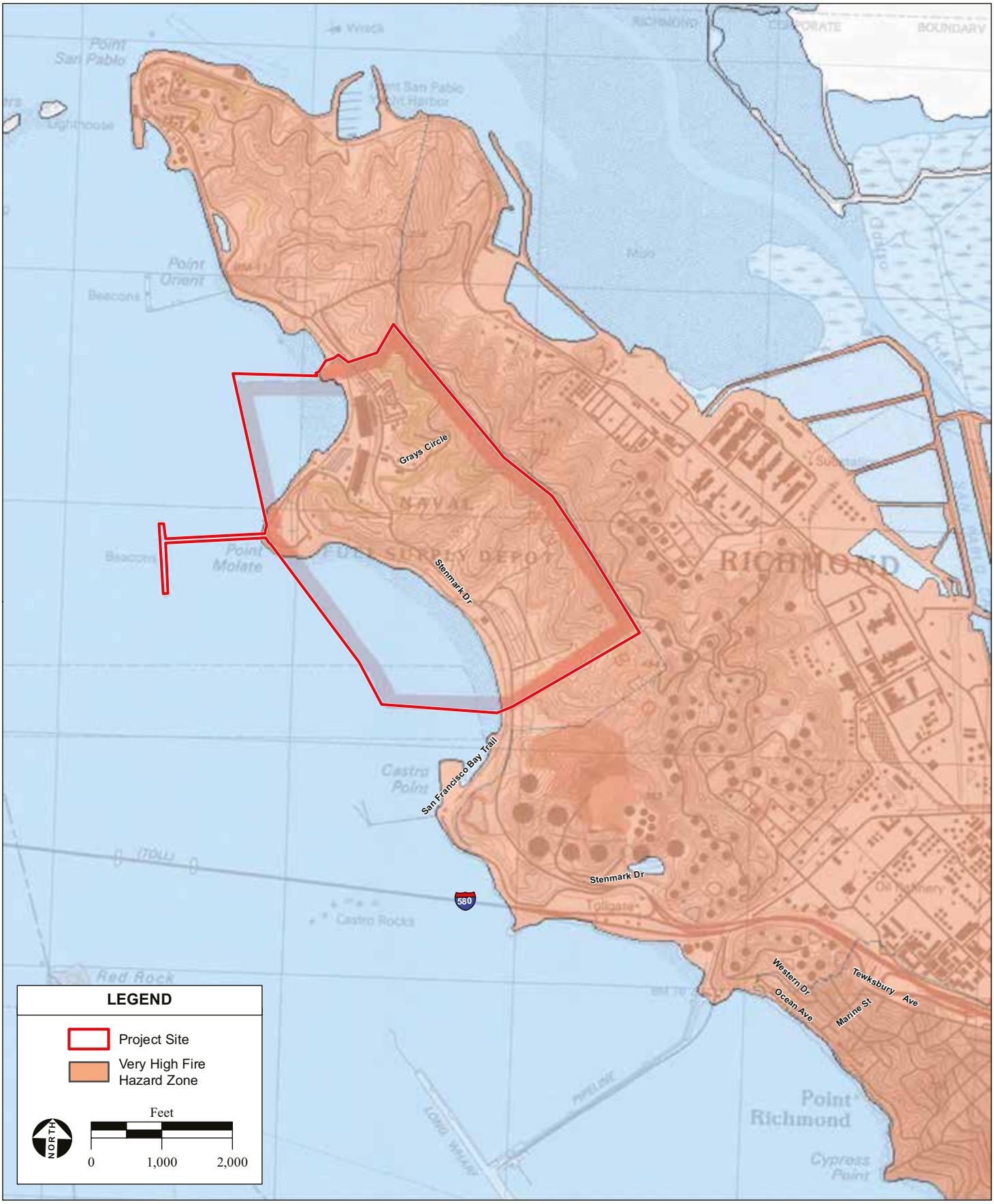
These scenarios highlight the importance of maintained fuel modification zones to act as buffers between wildfires and the built environment and to minimize the likelihood that a structure or other on-site fire escapes to the open space area fuels. It also highlights the importance of ignition resistant construction since the provided fuel modification zones will keep the most intense heat and flame separated from the site's structures, but do not address the ember issue. Ignition resistant construction, including specific ember resistant vents, as defined in Chapter 7A of the California Building Code and provided by vendors including Brandguard, Vulcan, and O'Hagin, provides a significant protection from airborne embers, the leading cause of wildfire structure loss.

4.1.1 Fire Environment

Several factors comprise the fire environment. Fires can occur in any environment where conditions are conducive to ignition and fire movement. The three major components of fire environment are climate, topography, and vegetation/fuels. The state of each of these components and their interaction with each other determine the potential characteristics and behavior of a fire at any given moment. Understanding these existing conditions is necessary to understanding the potential for fire within and around the Project Site.

Wildfires are a regular and natural occurrence in most of California. However, increasing numbers of fires and acres burned annually has been experienced over the last decade. These wildfires are mostly human-caused, suggesting that the historic fire interval has been artificially affected across large areas. In addition, wildfire suppression efforts over the last several decades may have aided in the accumulation of fuels in some natural communities (Minnich 1983; Minnich and Chou 1997) resulting in larger and more intense wildfires. Large wildfires have had, and will continue to have, a substantial and recurring role in native California landscapes (Keeley and Fotheringham 2003), in part because (1) native landscapes become highly flammable each fall, (2) the climate in the region has been characterized by fire climatologists as the worst fire climate in the United States (Keeley 2004) with "Diablo Winds" occurring during autumn after a 6-month drought period each year, and (3) ignitions via anthropogenic sources have increased or are increasing in many wildland or WUI areas.

Based on available information and an understanding of the fire environment of the region, it is expected that large wildfires will periodically occur. On the Project Site, a large fire would be one that burns through the open space areas outside the development footprint. In comparison to large wildfires, this "large" fire would be relatively small in acreage, but could have significant localized impacts to the open space and the Project Site.



SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 9

Very High Fire Hazard Severity Zone Map

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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4.1.1.1 Vegetation Dynamics and Fuel Loads

Utilizing site vegetation maps, field evaluations were conducted to evaluate fuel loading and classify vegetation types into fuel models (Anderson 1982; Scott and Burgan 2005; Weise and Regelbrugge 1997). Fuel model assignments are presented in **Table 1** by vegetation type and are graphically presented in **Figure 10**. Certain vegetation types increase fire hazard based on plant physiology (resin content), biological function (flowering, retention of dead plant material), and/or physical structure (leaf size, branching patterns).

In addition, non-native invasive plants can increase the frequency of fires by providing more continuous fuels that are more easily ignited (Brooks et al. 2004). Invasive plants also present hazards when located adjacent to neighboring structures or within fuel modification zones that are meant to provide defensible space. Non-native invasive species of the greatest concern within the Project Site include annual grasses, French broom, and eucalyptus.

Table 1. Vegetation Communities and Associated Fuel Models for the Point Molate Project

Vegetation Community/Land Cover	Fuel Model	Acres	Percentage
Urban/Developed	0	88.98	32.60%
Coastal Scrub	5	58.21	21.33%
Eucalyptus Woodland	10	45.34	16.61%
Grassland	1	39.13	14.34%
Invasive Scrub	5	25.71	9.42%
Beach Strand	NA	6.49	2.38%
Landscape Plantings	8	5.12	1.88%
Mixed Riparian	10	3.83	1.40%
Tidal Marsh	NA	0.11	0.04%
	Total	**272.92**	**100.0%**

Source: City of Richmond, 2020a
Note: Approximately 136 acres of the Project Site are submerged in the Bay.

Vegetation Dynamics

Vegetation plays a significant role in fire behavior and is an important component of the fire behavior models discussed in this report. A critical factor to consider is the dynamic nature of vegetation communities. Fire presence and absence at varying cycles or regimes affect plant community succession, or the natural sequential replacement of vegetation types over time.

The following sections summarize vegetative fire hazard according to the primary vegetation types observed within the Project Site. As stated, hazardous fuels include live and dead vegetation that exists in a condition that readily ignites; transmits fire to adjacent structures or ground, surface, or overstory vegetation; and/or is capable of supporting extreme fire behavior. All vegetation will burn, however, some plants exhibit characteristics that make them more flammable than others.[1] Flammability can be defined as a combination of ignitability, combustibility, and sustainability, where ignitability is the ease of or the delay of ignition, combustibility is the rapidity with which a fire burns, and sustainability is a measure of how well a fire will continue to burn with or without an external heat source (White and Zipperer 2010). Flammability is influenced by several factors, which can be classified into two groups: physical structure (e.g., branch size, leaf size, leaf shape, surface-to-volume ratio, and/or retention of dead

[1] Highly flammable plants are also referred to as pyrophytes or pyrophytic.

material) and physiological elements (e.g., volatile oils, resins, and/or moisture content) (Moritz and Svihra 1996; UCCE 2016; UCFPL 1997; White and Zipperer 2010). Plants that are less flammable have low surface-to-volume ratios, high moisture contents, and minimal dead material or debris, while those that are more flammable have high surface-to-volume ratios, exhibit low moisture contents, contain volatile oils, and have high levels of dead material or debris (Moritz and Svihra 1996; UCFPL 1997; UCCE 2016; White and Zipperer 2010). Plant condition and maintenance is also an important factor in flammability. Some plants that have more flammable characteristics can become less flammable if well maintained and irrigated, but can also be explosively flammable when poorly maintained, or situated on south-facing slopes, in windy areas, or in poor soils (Moritz and Svihra 1996). In general, most vegetation within the Plan Area is not regularly irrigated or maintained for the purposes of promoting overall plant health.

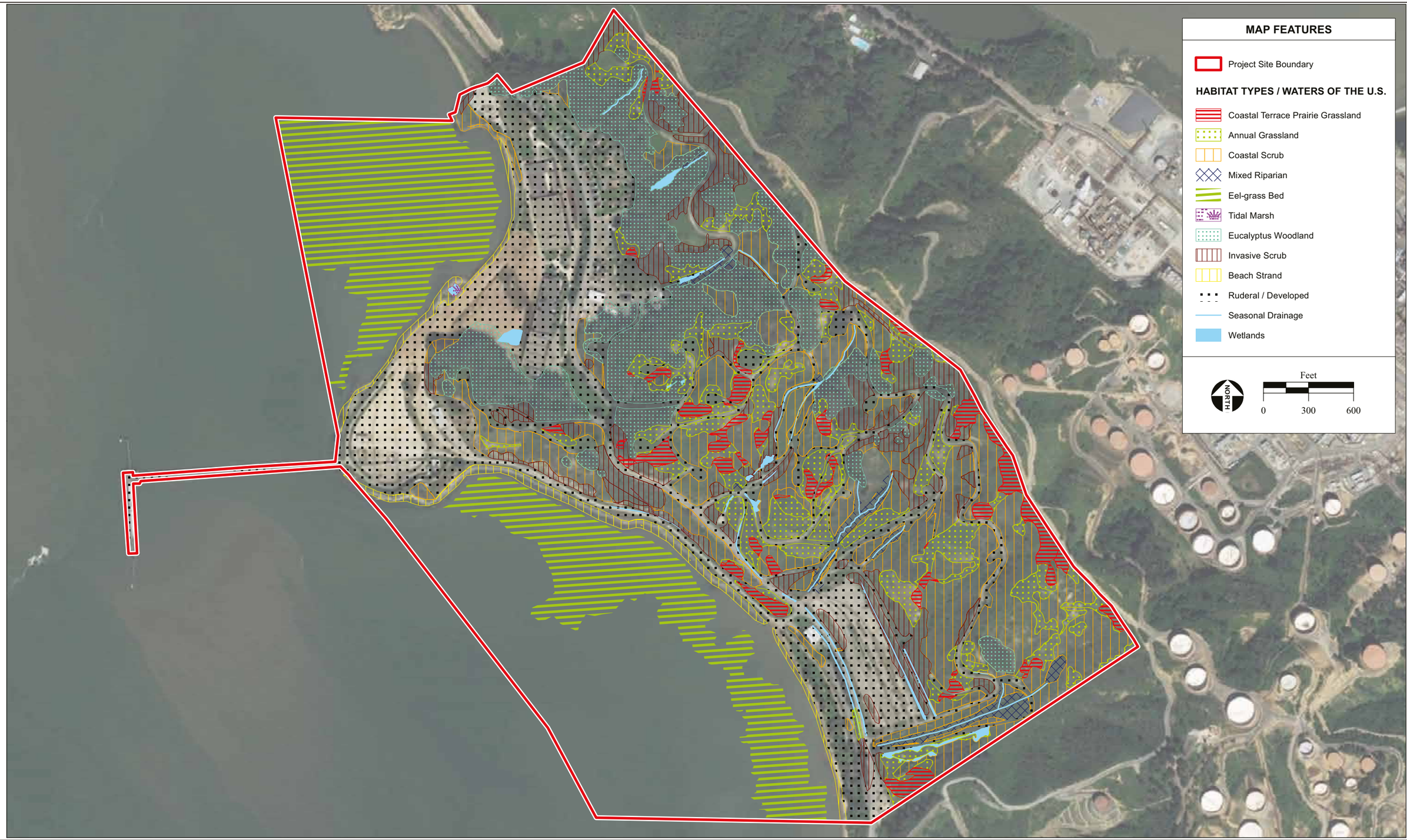
Eucalyptus Fire Effects

Eucalyptus stands are composed of fuel structures ranging from fine to heavy, and may include an understory of grass, brush, eucalyptus seedlings, saplings, and small trees, and eucalyptus leaf, twig, branch and bark litter. Eucalyptus litter is generally moderately compacted with heavy to very heavy fuel loads; fuel loads in eucalyptus stands can reach between 45 and 100 tons per acre (Agee et al. 1973). Fuel buildup in blue gum eucalyptus stands is very rapid, exceeding that of native tree species, and its litter (dead leaves and debris) is especially flammable (Agee et al. 1973; NPS 2006; Wolf and DiTomaso 2016). Fuel reduction programs in eucalyptus stands are typically recommended to maintain low fuel load levels (USFS 2013).

Eucalyptus is highly flammable; the bark catches fire readily, and deciduous bark streamers and lichen epiphytes tend to carry fire into the canopy, which tends to produce embers that can be carried by strong winds. These flying embers are carried downwind and result in the development of spot fires that have ignited in receptive fuel beds in advance of the fire's leading edge (Ashton 1981; USFS 2015). Peeling bark is typical of many eucalyptus species and contributes to ground-based fuels (litter) when it falls. Peeling bark is also retained for a period of time on tree trunks, where it can facilitate ground to canopy fire transition (ladder fuel). Eucalyptus litter has a moderate surface area to volume ratio, requiring moderate heat to remove fuel moisture and raise fuel to ignition temperature. Eucalyptus litter is subject to seasonal drying in the late summer and fall, but fog drip, solar shading, and windbreaks provided by the eucalyptus canopy can sustain high fuel moisture content in the summer when fog is present.

Like chaparral, eucalyptus also has a higher content of VOCs. Eucalyptus leaves produce a volatile (Gabbert 2014), highly combustible oil, and flammable gasses may be released from trees at very high temperatures, further increasing fire hazard (Gross 2013). The live fuel moisture content reaches its low point in the late summer and early fall months. Dead fuels consist of 1-hour (litter and duff < 0.25 inches in diameter), 10-hour (twigs and small stems 0.25 inches to 1 inch in diameter), 100-hour (branches 1 inch to 3 inches in diameter), and 1,000-hour (large stems and branches > 3 inches in diameter) sizes. Features that promote fire spread include heavy litter fall, flammable oils in the foliage, and open crowns bearing pendulous (i.e., downward-hanging) branches, which encourage maximum updraft (USFS 2015). Given average weather conditions and terrain, eucalyptus has potential for a high rate of spread, torching and crown fire,[2] and extreme fire behavior.

[2] A crown fire is a forest fire that advances often at great speed from tree top to tree top.



SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 10
Vegetation Map
Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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Coastal Scrub Fire Effects

Coastal scrub is considered a moderately fine fuel that is loosely compacted with a moderate fuel load. Coastal scrub has a high surface area-to-volume ratio, requiring less heat to remove fuel moisture and raise fuel to ignition temperature. It is subject to early seasonal drying in the late spring and early summer, but does not fully cure in the way that grasses do. Compared to chaparral, coastal scrub tends to have a lower content of VOCs. The live fuel moisture content reaches its low point in the late summer and early fall months. Dead fuels consist mainly of 1-hour and 10-hour fuel sizes, or twigs and small stems ranging from 0.25 inches to 1 inch in diameter. Coastal scrub has potential for a high rate of spread, rapid ignition, and extreme fire behavior.

Grassland/Herbaceous Fire Effects

Grassland/herbaceous fuels in the Project Site are represented by the annual grassland and perennial grassland vegetation community/land cover types. Grassland types may include scattered and widely spaced trees and/or shrubs, although grasses are the dominant cover type. Grasses are fine fuels that are loosely compacted with a low fuel load. Grasses have a high surface area-to-volume ratio, requiring less heat to remove fuel moisture and raise fuel to ignition temperature. They are also subject to early seasonal drying in late spring and early summer. Live fuel moisture content in grasses typically reaches its low point in early summer, and grasses begin to cure soon after. Due to these characteristics, grasses have potential for a high rate of spread, rapid ignition, and facilitation of extreme fire behavior. Grasses are the vegetation type in the Plan Area with the highest risk for wildfire ignition. Their low overall fuel loads typically result in faster moving fires with lower flame lengths and heat output. Untreated grasses can help spread fire into other adjacent surface fuel types (e.g., shrubs) or facilitate surface to crown fire transition where they exist beneath tree canopies.

Fire Behavior

Fire behavior modeling provides reasonably accurate representations of how wildfire would move through available fuels. Fire behavior calculations are based on site-specific fuel characteristics supported by fire science research that analyzes heat transfer related to specific fire behavior. Current and accepted fire research data from several programs that specialize in the study of wildland fire were utilized for the completion of this analysis for the Project Site. To objectively predict flame lengths and intensities, the BehavePlus fire behavior fuel modeling system was applied using predominant fuel characteristics from representative fuel models observed on the Project Site. In addition to fuels data, topographic and weather data were utilized in developing fire behavior models for peak Dibalo Wind conditions. Results of fire behavior modeling efforts for the Project Site are discussed in following sections and modeling details, including inputs, are presented in **Appendix C**. The following sections describe various Project Site and surrounding area factors informing the fire behavior modeling effort.

4.1.1.2 Climate

The climate of the Bay Area is characterized as Mediterranean, with cool, wet winters and relatively warm, dry summers. The climate is slightly warmer than the coastal areas of San Francisco, the Peninsula, and Marin County; it is however more temperate than areas further inland. The average highs range from 57 °F (14 °C) to 73 °F (23 °C) and the lows between 43 °F (6 °C) to 56 °F (13 °C) year round. On average the hottest and coldest months respectively are September and January. The highest recorded temperature in Richmond was 107 °F/41.6 °C in September 1971 while the coldest was 24 °F/-4.4 °C in January 1990.

Like most of the Bay Area, Richmond is made up of several microclimates. Southern parts of the city and the ridges receive more fog than northern areas. Summer temperatures are higher in inland areas, where the moderating influence of San Francisco Bay is lessened. The average wind speed is 6 to 9 miles per hour with stronger winds from March through August; the strongest winds are in June. Morning humidity is 75 percent to 92 percent year-round; afternoon humidity is more variable. This percentage is in the high 20s to mid-30s May through October (the summer months) and climbs or descends through 40 to 70 percent during the winter.

Annual rainfall in this region is variable depending on the year, with an average of approximately 24 inches per year. The rainy season begins in late October and ends in April with some showers in May. Most of the rain occurs during stronger storms which occur between November and March and drop 3.3 to 4.91 inches of rain per month. January and February are the rainiest months. Long-term precipitation records indicate that wetter and drier cycles, lasting several years each, are common in the region. Floods in the Bay Area generally result from intense rainstorms following prolonged rainfall that has saturated the ground. Peak flows are usually of short duration.

Prevailing wind directions in the Bay Area are westerly or northwesterly during the summer and easterly or westerly during winter. Mean wind speeds are 6 to 10 miles per hour throughout the year with May and June being the highest and November and December being the lowest. However, local geography can influence climatic factors, such as lessening the winds, boosting summer heat, and reducing fog cover (Pacific Gas and Electric [PGandE], 2006). Furthermore, the Bay Area occasionally experiences strong off-shore northeasterly winds known as the "Diablo Winds" that are dry and hot. These winds occur primarily in summer and fall and have been known to exacerbate northern California wildfires (San Jose State University, 2019).

4.1.1.3 Topography

Generally, the topography of Contra Costa County includes hilly and mountainous areas, such as the San Pablo Ridge and Mount Diablo, as well as low-lying regions throughout. The topography of the Project Site exhibits the characteristics of both the uplands in the coastal range and Bay tidal flats. Elevations on the Project Site range from mean sea level, along the western shoreline of the Project Site, to approximately 350 feet above mean sea level along the crest of the Potrero Ridge, which forms the Project Site's eastern border. The Project Site slopes range from relatively flat within the open shoreline areas to over 30 percent along the steep Potrero Ridge hillsides, as shown in **Figure 11**.

4.1.1.4 Watershed Description

The Project Site lies within the San Francisco Bay Central Hydrologic Planning Area (Central HPA) as designated by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) (SFBRWQCB, 2017). The Central HPA surrounds the central Bay with the City of Richmond along the eastern boundary, the City of San Francisco along the southern boundary, and the Marin area (San Rafael, Larkspur, and Mill Valley) comprising most of the western boundary. Drainage in the Central HPA varies depending upon the side of the Bay. The Project Site is situated within the northeastern boundary of the Central HPA. Surface water runoff in the vicinity of the Project Site flows westward from the higher elevations of the Potrero Ridge toward the Bay. There are no water resources (streams, creeks, rivers, ponds, or lakes) designated by the SFBRWQCB within the Project Site, except for natural and man-made drainages forming watersheds isolated from the surrounding region that cascade down the upper elevations located on the interior of the Project Site and discharge into the Bay.

4.1.1.5 Erosion Potential

The NRCS Web Soil Survey map shows that the majority of the Project Site has a severe potential for erosion. This is likely due to the steep slopes and low infiltration rate on the Project Site. Areas proposed for construction and development are not anticipated to occur on steep slopes; therefore, erosion potential is lower but still high, particularly if the soils are exposed after a wildfire or similar event. As part of the Project, approximately 300,000 cubic yards of soil would be exported and corrective grading would not exceed a slope of 2:1 to accommodate project components (BKF Engineers, 2020). While many of the affected areas have already been disturbed by previous development, potential impacts of the Project would be prevented through the implementation of BMPs for erosion control and a site-specific SWPPP for temporary impacts during construction as required by an NPDES General Construction Permit. Additionally, the City's Excavation, Grading, and Earthwork Construction Ordinance requires preparation of interim and final Erosion and Sediment Control Plans, including construction and permanent erosion control measures. Further, the site-specific SWPPP and Low Impact Development (LID) feature implementation and avoidance of potential impacts from sediment-laden stormwater transported offsite.

Soils

During the past century, mud flats along the shoreline have been artificially filled to create the low-lying areas of the Project Site (Terraphase Engineering, 2019). Virtually all fills in the Bay region have been placed on top of soft sediments known as "Bay Mud" (BCDC, 2019). The Natural Resources Conservation Service (NRCS) maps soil properties on a broad scale in Web Soil Survey. There are two NRCS soil classifications on the site: Millsholm Loam (MeG) and Urban Land (Ub).

MeG (Millsholm Loam) –The MeG series of soil covers most of the Project Site. Millsholm Loam is typically a well-drained soil formed from sandstone and shale. Millsholm Loam is classified as hydrologic group D, which includes soils that have a very slow water infiltration rate when thoroughly wet and a very slow rate of water transmission. Hydrologic group D soils primarily consist of clays that have a high shrink-swell potential (classified as expansive), soils that have a high water table, soils that have a clay pan or clay layer at or near the surface, and soils that are shallow and located over nearly impervious material. Because of the clay content and steep slopes, these soils have a high rate of surface water runoff and thus severe erosion potential. Additionally, this soil has a moderate potential to corrode concrete and steel (NRCS, 2019).

Ub (Urban Land) –The soils in areas designated as Ub have been so modified that the maps no longer provide accurate information.

4.1.1.6 Fire History

Fire history is an important component in understanding fire frequency, fire type, significant ignition sources, and vulnerable areas. The topography, vegetation, and climatic conditions associated with the Project Site combine to create a situation capable of supporting wildfires. The history of wildfires in the Project Area is graphically portrayed in **Figure 12**.

The Project Site has had no documented cases of wildfire between 1900 and 2018. Within a five-mile radius there have been three documented fires, all of which occurred west of the Project Site, across the San Francisco Bay. The most recent of these fires occurred in 2012 within the Ring Mountain Preserve. There have been no documented fires within five-miles east of the Project Site.

The lack of recorded Project Site wildfire occurrence may be related to a number of different reasons, including, 1) the site was historically largely devoid of vegetation, 2) the site's low population and land uses did not facilitate vegetation ignitions, 3) small vegetation fires may have been put out and not recorded, 4) dense vegetation has developed over time and more recently has become a higher potential hazard for ignition, and 5) the site's coastal location results in higher vegetation internal moisture content, resulting in higher ignition resistance.

Future wildfire probability can be based on a variety of factors including primarily the changing climate and changes in the land use to include higher populations and human presence. Absent specific measures to reduce vegetation ignitions, it would be anticipated that vegetation ignitions would occur at higher levels, simply through accidental human causes, including potentially from malfunctioning vehicles, tossed cigarettes, and structural fires, amongst others. Given these and other ignition sources associated with the Project, and the vegetation that will remain adjacent to the developed areas, it is probable that absent mitigation future wildfires would occur at the site.

However, given the specific project design features to minimize the potential for vegetation ignitions, it is considered a rare possibility that a vegetation fire would ignite in the open space areas and become a significant wildfire. Among the factors informing this professional opinion are:

- Limited number of Del Diablo wind days – a 17-year study of Del Diablo events indicates a mean annual frequency of 2.5 events (Fire Weather Research Laboratory 2020)
- Del Diablo winds blow toward the Project from the north (down the adjacent ridge) – would tend to blow fire toward the project, but the slope with the vegetative fuel facilitates fire's ability to spread rapidly upslope and away from the Project.
- Wide, maintained fuel modification zones that are meant to protect structures by setting them back from unmaintained vegetation areas also protects open space areas from Project Site ignitions.
- Limited overall fuel bed – the vegetative fuels are limited to the sloped area to the north and east of the Project Site. This area could support a wildfire, but the duration of that fire would be limited due to the limited size and the isolation of the fuel bed by developed/urban landscapes and the San Francisco Bay.
- Increased number of humans provides greater area awareness, discourages arson and results in reporting of suspicious or reckless behavior to law enforcement
- Early detection of ignitions due to the increased population, resulting in fast response by RFD (and new RFD station on the project site)

4.2 Fire Behavior Modeling

Following field data collection efforts and available data analysis, fire behavior modeling was conducted to document the type and intensity of fire that would be expected adjacent to the Point Molate Project Development and Planning Areas, given characteristic site features such as topography, vegetation, and weather. Dudek utilized BehavePlus software package (Andrews, Bevins, and Seli 2008) to analyze potential fire behavior for the northern, eastern, and southern edges as appropriate of the site, with assumptions made for the pre- and post-project fuel conditions. Results are provided below and a more detailed presentation and explanation of the BehavePlus analysis, including fuel moisture and weather input variables, is provided in Appendix C.

4.2.1 Fire Behavior Modeling Analysis

An analysis utilizing the BehavePlus software package was conducted to evaluate fire behavior variables and to objectively predict flame lengths, intensities, and spread rates for four modeling scenarios. These fire scenarios incorporated observed fuel types representing the dominant vegetation on and adjacent to the proposed development, in addition to measured slope gradients, and wind and fuel moisture values for strong Diablo wind extreme weather (off-shore winds). Modeling scenario locations were selected to better understand different fire behavior that may be experienced on or adjacent the site. Identification of fire scenarios' locations is presented graphically in **Figure 13**.

Vegetation types, which were derived from the field assessment for the Project Site, were classified into fuel models. Fuel Models are simply tools to help fire experts realistically estimate fire behavior for a given vegetation type. Fuel models are selected by their vegetation type; fuel stratum most likely to carry the fire; and depth and compactness of the fuels. Fire behavior modeling was conducted for vegetative types that surround the proposed development. Fuel models were selected from *Standard Fire Behavior Fuel Models: a Comprehensive Set for Use with Rothermel's Surface Fire Spread Model* (Scott and Burgan 2005). Fuel models were also assigned to the perimeter fuel management areas to illustrate post-project fire behavior changes. Based on the anticipated pre- and post-project vegetation conditions, four different fuel models were used in the fire behavior modeling effort presented herein. Fuel model attributes are summarized in **Table 2**.

Table 2. Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
1	Prairie Grass	Represents grasses on and adjacent to the property.	<2.0 ft.
5	Coastal sage scrub	Coastal sage scrub occurs on hillsides on and adjacent to the property.	<4.0 ft.
8	Compact litter	Irrigated landscapes and fuel modification zones in proposed development.	<2.0 ft.
10	Eucalyptus woodland	Stands of eucalyptus trees occurs on hillsides and lower portions of the property.	35+ ft. = tree heights

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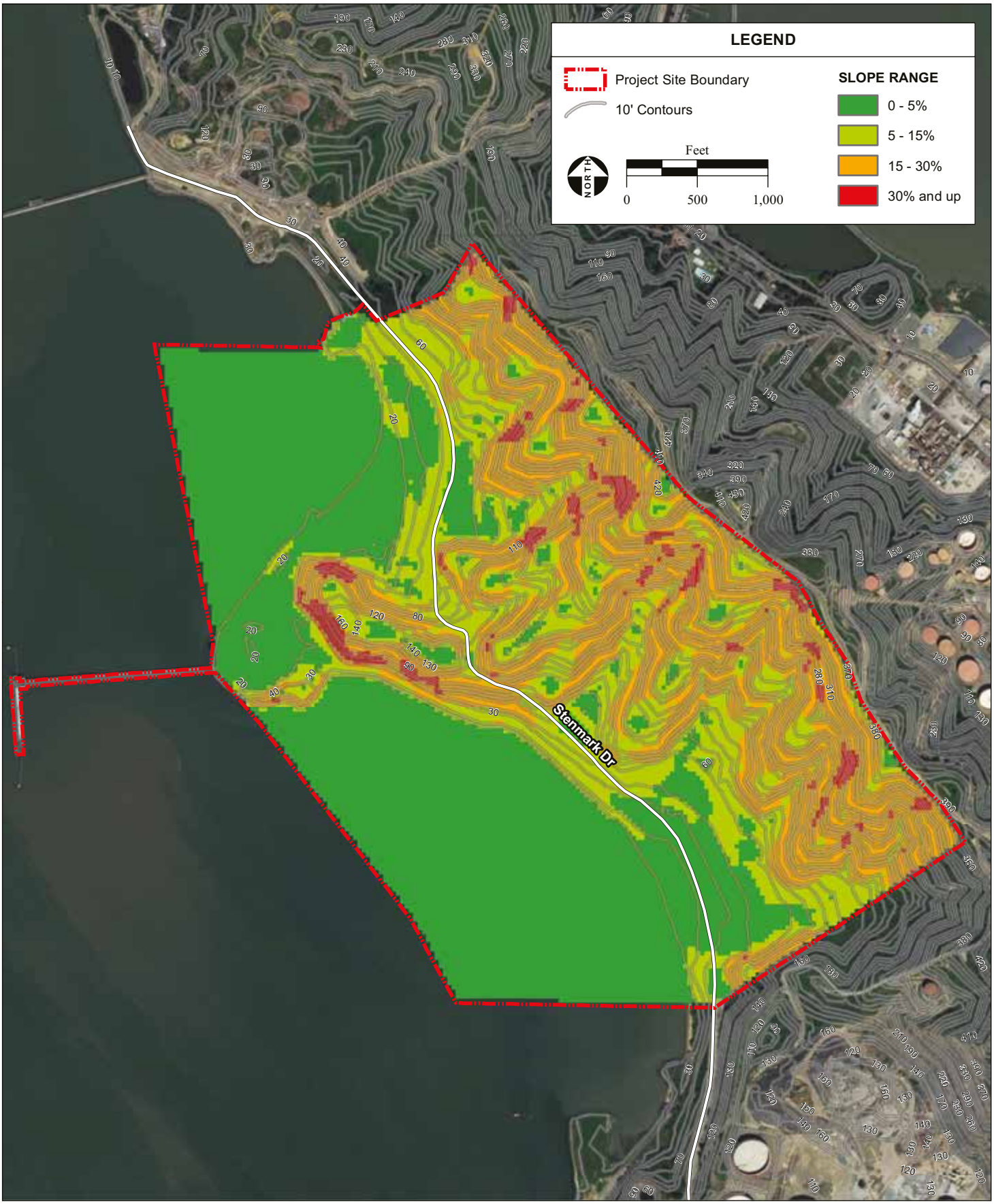

SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 11

Slopes

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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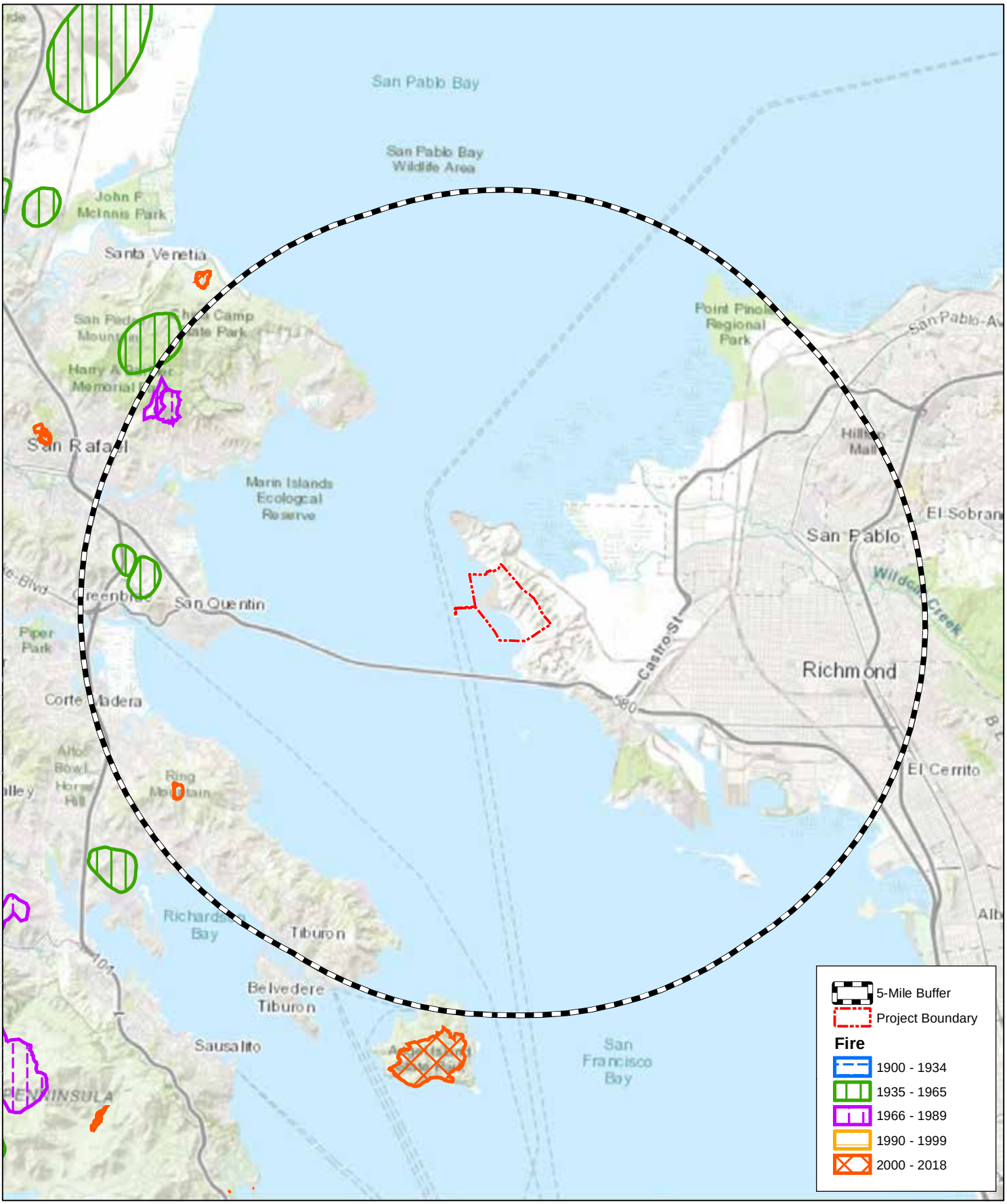

SOURCE: BASE-USGS; FIRE DATA-CALFIRE 2018

FIGURE 12

Fire History Map

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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Table 1: BehavePlus Fire Behavior Model Variables

Variable	Input Values
1h Moisture	1%
10h Moisture	2%
100h Moisture	6%
Live Woody Moisture	50%
20-ft Wind Speed	40 mph
Wind Adjustment Factor (BehavePlus)	0.4
Wind Direction	135 degrees
Slope Steepness	Variable by run (18% to 30%)
Canopy Height*	40 feet
Downwind Canopy Height*	40 feet
Downwind Canopy Cover*	Closed
Canopy Base Height*	20 feet
Canopy Bulk Density*	0.01 lb./ft^3

*For crown fire modeling run only (Scenario 1)

Table 2: Pt. Molate BehavePlus Fire Behavior Model Results
Surface Fire

Fire Scenarios	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spread Rate (mph)	Spotting Distance (miles)
Scenario 1:Eucalyptus woodland, south-facing, 18% slope				
Fuel Model 10	17.1	2,712	1.1	0.8
Scenario 2: Coastal sage scrub, south-facing, 27% slope				
Fuel Model 5	20.9	4,195	3.3	1.2
Scenario 3: Annual grassland, west-facing, 24% slope				
Fuel Model 1	12.7	1,415	8.3	0.9
Scenario 4: Coastal sage scrub, north-facing, 30% slope				
Fuel Model 5	20.5	4,051	3.2	1.2

Table 3: Pt. Molate BehavePlus Fire Behavior Model Results
Active Crown Fire

Fire Scenarios	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spread Rate (mph)	Heat per Unit Area (BTU/ft^2)
Scenario 1:Eucalyptus woodland, south-facing, 18% slope				
Fuel Model 10	133.7	17,277	3.5	3,335

SOURCE: AERIAL-BING MAPPING SERVICE

DUDEK

0 500 1,000 2,000 Feet

FIGURE 13

BehavePlus Analysis Map

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

Path: Z:\Projects\d260800\MAPDOC\DOCUMENT\Wildfire Emergency Response\FIG 13 BehavePlusAnalysisMap.mxd

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The results of fire behavior modeling analysis are presented in **Table 3** for pre-project conditions and **Table 4** for post-project conditions. Post-project conditions include modified fuel model characteristics to represent the reduced fuels, high plant moisture, and irrigated landscapes that result in reduced flame lengths, spread rates, and fire intensity.

Table 3. BehavePlus Modeling Results - Existing Conditions

Fire Scenario	Flame Length (ft)	Spread Rate (mph[1])	Fireline Intensity (Btu[2]/ft/s)	Spotting Distance[3] (mi)	Surface Fire to Tree Crown Fire
Scenario 1: Eucalyptus woodland, 18% downhill slope, 40 mph high wind speed					
Fuel Model 10	17.1	1.1	2,712	0.8	No
Fuel Model 10 - Crown	133.7	3.5	17,277	0.8	Crowning [4]
Scenario 2: Coastal sage scrub, 27% downhill slope, 40 mph high wind speeds					
Fuel Model 5	20.9	3.3	4,195	1.2	No
Scenario 3: Grasslands, 24% downhill slope, 40 mph high wind speeds					
Fuel Model 1	12.7	8.3	1,415	0.9	No
Scenario 4: Coastal sage scrub, 30% downhill slope, 40 mph high wind speeds					
Fuel Model 5	20.5	3.2	4,051	1.2	No

Notes:
1 mph = miles per hour
2 Btu = British thermal unit(s)
3 Spotting distance from a wind driven surface fire.
4 Crowning= fire is spreading through the overstory crowns.

Table 4. BehavePlus Modeling Results - Post-Project Conditions

Scenario	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spread Rate (mph)	Spotting Distance (miles)
Scenario 1: Irrigated landscaping, 3% downhill slope, 40 mph high wind speed				
Irrigated landscaping (FM8)	3.0	62	0.2	0.3
Scenario 2: Irrigated landscaping, 3% downhill slope, 40 mph high wind speeds				
Irrigated landscaping (FM8)	3.0	62	0.2	0.3
Scenario 3: Irrigated landscaping, 3% downhill slopes, 40 mph high wind speeds				
Irrigated landscaping (FM8)	2.6	46	0.1	0.3
Scenario 4: Irrigated landscaping, 3% downhill slopes, 40 mph high wind speeds				
Irrigated landscaping (FM8)	3.0	62	0.2	0.3

The results presented in Tables 4 and 5, which are described in further detail below (see Section 4.3, Wildfire Behavior Summary), depict values based on inputs to the BehavePlus software and are not intended to capture changing fire behavior as it moves across a landscape. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis, but the models provide a worst-case wildfire behavior condition as part of a

conservative approach. For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design. Model results should be used as a basis for planning only, as actual fire behavior for a given location would be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

4.3 Wildfire Behavior Summary

4.3.1 Existing Conditions

As presented in Table 3 the maximum flame lengths anticipated in untreated, surface fuels, including grasslands and Coastal sage scrub, could reach 12.7 to 20.9 feet, respectively, in height with rates of spread between 3.3 and 8.3 mph under extreme weather conditions, represented by Diablo winds blowing at gusts of 40 mph. Should ignition in the eucalyptus woodland occur, the understory would be expected to burn aggressively due to the presence of large amounts of biomass from dead debris and stands of shrubs. Modeling outputs indicate a transition to crown fire is expected from a fire burning in the understory, since the canopy heights to lowest branch are roughly five feet above ground and in most situations the canopies touch the ground. Under such conditions, expected surface flame lengths in surface fuels would ignite the tree canopies with flame lengths estimated at 133.7 feet. Embers could be generated from both surface and crown fires resulting in ignition of receptive fuel beds 0.8 mile or more downwind.

A wildfire in Coastal scrub is modeled to generate flame lengths of 20.9 feet and spread at 3.3 mph. Modeling outputs indicate flame lengths in the eucalyptus understory would transition to a crown fire with flame lengths estimated at 133.7 feet. Spotting distances, where airborne embers can ignite new fires downwind of the initial fire, range from 0.8 to 1.2 miles.

4.3.2 Post-Development Conditions

As presented in Table 4, Dudek conducted modeling of the Project Site for post-project landscaping and vegetation management recommendations for this Project. Fuel modification includes establishment of irrigated and maintained areas on the periphery of the development areas. For modeling the post-project condition, fuel model assignments were re-classified to Fuel Model 8 for irrigated landscaping. The FMZ areas experience a significant reduction in flame length and intensity. The 20.9-foot (Coastal scrub fuel bed) and 12.7-foot (grass fuel bed) tall flames predicted during pre-treatment modeling during extreme weather conditions are reduced to 3.0 feet tall near the structures of the development due to the higher fuel moisture contents. Fuel model assignments for all other areas remained the same as those classified for the existing condition. As depicted, the fire intensity and flame lengths in untreated, open space areas would remain the same.

4.4 Project Area Fire Risk Assessment

Wildland fires are a common natural hazard in most of California with a long and extensive history. California landscapes include a diverse range of plant communities, including vast tracts of grasslands and shrublands, like those found adjacent to the Project Site. Wildfire in this Mediterranean-type ecosystem ultimately affects the structure and functions of vegetation communities (Keeley 1984) and will continue to have a substantial and recurring role (Keeley and Fotheringham 2003). The type of wildland fire anticipated in the vicinity of the Project Area is a wind-driven fire from the north/northeast, moving through the non-native grasses and sage scrub shrubs

found on the slopes. With conversion of the landscape to ignition resistant development, wildfires may still encroach upon and drop embers on the Project Site, but would not burn through the Site due to the lack of available fuels. Wildfires starting on the Project Site would not be anticipated to increase from existing levels due to the ignition-resistant landscapes, perimeter fuel modification zones which are designed to protect the Project while also minimizing the likelihood that an on-site fire escapes into wildland areas, interior fire sprinklers which are highly effective at controlling structure fires (and subsequently, minimizing ember production that could ignite wildfires), and fast fire department response from nearby stations that are documented to minimize fire spread.

Therefore, it will be critical that the latest fire protection technologies, developed through intensive research and real-world wildfire observations and findings by fire professionals, for both ignition-resistant construction and for creating defensible space in the ever-expanding WUI areas, are implemented and enforced. The Project, once developed, would not facilitate wildfire spread and would reduce projected flame lengths to levels that would be manageable by firefighting resources for protecting the Project Site's structures, especially given the ignition resistance of the structures and the planned ongoing maintenance of the Site's landscapes. In addition, the proposed landscaping and vegetation management would be nearly five times as wide as the longest calculated flame lengths during Diablo wind conditions for portions of the proposed developed area that abut Coastal scrub or grasslands.

The very tall flame lengths modeled for the eucalyptus dominated areas is based on the ability for ground-based fire to transition into the eucalyptus tree crowns. The projected flame lengths exceed the width of the proposed FMZs. Although this appears problematic, it should be noted that a crown fire in these trees would be at heights of 50 or more feet above ground, above the nearest structures' ignition resistant roofs and would be expected to include a short active burn duration of several minutes up to 20 minutes. Further, the Project will remove a large portion of the eucalyptus stands and replace them with urbanized, ignition resistant landscapes and structures surrounded by the 100 feet wide FMZ areas.

Because the potential for eucalyptus crown fire represents the most significant potential outcome related wildfire at this site, **It is further recommended that the following actions are made project conditions to reduce the likelihood of crown fire**:

1. Provide eucalyptus tree crown raising to separate the lowest branches of the crowns from the understory plants by a minimum of 3x the height of the understory plants
2. Thin/remove the understory shrubs beneath eucalyptus tree crowns
3. Provide tree separation via breaks in the retained eucalyptus forest of a minimum 20 feet, strategically placed, to reduce the potential for crown to crown fire spread (a eucalyptus forest management plan is recommended for these trees to help guide this effort)
4. Ensure that the nearest eucalyptus tree(s) to Project Site structures are set back a minimum of 150 feet.
5. Annual maintenance to reduce the fire threat and maintain the preceding crown fire reduction actions
6. Annual RFD or 3rd party FMZ/WUI inspection to confirm that the eucalyptus forest and the Project Site's FMZ areas are maintained in a low ignition potential and low fuel condition.

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5 Wildfire Management Approach

5.1 Project WERP Mitigation Measures

SEIR Mitigation Measure 4.7-3 outlines requirements of the Project's WERP. Those requirements include coordination with the Richmond Fire Department, pre- and post-wildfire response measures, and long-term recovery and restoration plans.

In addition, SEIR Mitigation Measure 4.7-1 outlines multiple elements that the MHERP must address "to ensure safe evacuation of the Project Site during an emergency in a manner that does not interfere with existing evacuation plans and procedures for sheltering in place." Those elements include evacuation protocols, emergency supply kits, warning system, refuge area locations, emergency evacuation routes, shelter-in-place locations, and emergency plan coordination with CCHS and WETA.

The related SEIR Mitigation Measure 4.3-13 requires that the Project Site HOA CCandR's include vegetation management as a component along with landscaping, native vegetation, and maintaining consistency with the Open Space Plan.

The WERP addresses the requirements of the above mitigation measures and incorporates the specific elements in the response strategy to ensure safe evacuation of the Project Site in coordination with existing plans and procedures. Earthquake and chemical release related measures and safety approaches are detailed in the Point Molate Multi-Hazard Emergency Response Plan (Dudek 2020).

5.2 Mitigation Goals

The goals of the mitigation measures are 1) coordination with the Richmond Fire Department for pre- and post-wildfire response measures along with long-term recovery and restoration plans, 2) to ensure safe evacuation of the Project Site during an emergency in a manner that does not interfere with existing evacuation plans and procedures for sheltering in place, and 3) include vegetation management in the HOA CCandR's.

5.3 Pre-Wildfire Response Measures

This section identifies pre-fire efforts that can reduce the likelihood of fire as well as the likelihood of fire spread. Designated FMZs would receive ongoing maintenance as the most important component of the perimeter fire protection. This maintenance shall include annual removal of dead and dying plants, maintenance of understory plants, and raising tree crowns to allow for appropriate separation between understory and crowns, which will minimize likelihood of crown fire.

Per the SEIR's Mitigation Measures 4.3-12 and 4.3-13, an Open Space Plan/Habitat Mitigation and Monitoring Plan and Vegetation Management Plan will be prepared for the open space areas beyond the Project's footprint. The Open Space Plan/Habitat Mitigation and Monitoring Plan will identify opportunities for habitat mitigation, including the removal of invasive broom and eucalyptus, which will be restored to native coastal scrub and grasslands. This habitat restoration will result in reduced fire hazard by removing a potential crown fire source. Further, the Vegetation Management Plan will consider and address the following pre-wild-fire response measures. The adjacent

open space areas, which would include vegetated slopes, would also be managed to augment the FMZs by employing some of the vegetation management approaches discussed within this section.

Identifying the methods in the "tool box" to reduce or otherwise modify the type and quantities of available fuel that wildfires need to grow and spread is a critical component to any wildfire hazard reduction plan. Strategies for modifying fuels include changing the arrangement of fuels to disrupt fuel continuity, decreasing the total volume of available fuels, reducing the amount of volatile materials in the fuel load, and decreasing the available surface area across which fire can spread. Given the type of fuel within the Project Site (discussed above), the following fuel reduction methods are described in this chapter for designated FMZs and as possible, for open space areas to reduce overall fuel loads:

- Hand Labor;
- Mechanical Treatment;
- Chemical Treatment; and
- Grazing

For each of these methods this chapter provides a discussion of: 1) specific techniques, 2) personnel and equipment requirements, 3) the timing of the treatment cycle, 4) special considerations and limiting factors associated with the method, and 5) best management practices (BMPs) to reduce potential adverse environmental effects associated with the use of each method.

5.3.1 Hand Labor

Hand labor methods involve pruning, cutting or removal of trees, shrubs, and grasses by hand or using hand-held equipment; other hand labor methods involve bark pulling, removing dead wood and litter, mulching, and establishing new fire-resistant or low risk plants. This process allows for selective removal of targeted species and has little impact beyond the removal of these targeted plants, leaving native species or other desirable vegetation in place, and is often used in conjunction with other fuel modification techniques.

Hand labor can be the preferred fuel reduction method where heavy equipment use is undesirable or impractical. Hand labor can also be used to remove selected trees and reduce the overall number of trees (solarization, covering stumps in plastic, hand labor to remove eucalyptus sprouts, high-pressure hot water system, and use of a radiant heat weeder are techniques to be considered as an alternative to chemical use in select circumstances).

Hand labor generates debris when pulling, pruning, and cutting vegetation; this debris is not always removed from the site when it is needed for erosion control and will result in an acceptable amount of fuel loading. Hand labor techniques typically have minimal environmental effects although large volumes of foot traffic, specifically in areas of steep slopes, can result in surface soil erosion or compaction and, as such, care should be taken to mitigate these effects. Chippers are often used in conjunction with hand labor to process cut materials into mulch for on-site disposal.

The need to repeat hand labor treatment varies depending upon the vegetation being targeted as well as the rate and location of growth of the plant materials. The following can serve as basic guidance for when these activities should occur to maximize their effects on fuel reduction:

- Weed removal and mowing of native grasses is required on an annual basis, but timing is critical to maximizing effectiveness: if weeds are cut too early they will continue to grow, but if they are removed too late, seeds may already have been produced and distributed.
- Shrub removal depends on the specific type being targeted, but the time between treatments varies from annually to once every three to five years.
- Limbing lower branches to remove ladder fuels is the most long-lived treatment with a potential interval lasting as long as 10 years. The typical optimum treatment cycle is every 5 years.

Special Considerations

The following considerations pertain to hand labor techniques for fuel reduction:

- Hand labor techniques allow for targeting of specific plant species for pruning or removal.
- These techniques can be used in most physical conditions; conditions that would eliminate other treatment methods are often still treatable via hand labor techniques.
- These techniques cannot be used effectively for all plants and plant types.
- Follow-up treatment or debris removal may be required.
- Hand labor techniques can constitute follow-up treatment for aesthetic purposes (e.g., from mechanical treatment or goat grazing).
- These techniques can be combined with other treatments (e.g., hand falling, then mechanical skidding and loading).

Best Management Practices

Based on site-specific conditions and the type of action proposed, the HOA and its contractors would consider one or more of the following BMPs when hand labor techniques are used as the fuel reduction method:

- Use OSHA-compliant equipment, including personal protection equipment and hand tools.
- Provide or contract for adequate training and oversight of hand labor activities to ensure that hand labor personnel are familiar with safety requirements, equipment use, and any topographic or site-specific conditions.
- Treatment actions shall not be conducted during storms.
- Treatment actions shall avoid, when feasible, excessive foot traffic on steep slopes which could cause compaction and/or erosion to occur.
- Hand labor personnel shall avoid driving support and haul trucks off established roads. If such traffic is determined by EBRPD and hand labor personnel to be necessary, inspection will be conducted to ensure that the ground is not saturated prior to traveling off-road, and that the ground can fully support the vehicles without excessive rutting of surface soils. Any ruts created as a result of off-road activities will be repaired and covered with mulch and/or wood chips to reduce potential runoff from these areas and reduce their potential for erosion.
- Hand labor personnel shall take care to handle fuels and lubricants such that spilling and runoff of these substances does not occur.

- Personnel performing hand labor should be sufficiently trained prior to initiating any treatment action such that personnel are familiar with and able to identify protected species requiring avoidance measures, best management practices or other precautions prior to treatment.
- Avoid bird nests at all times during treatment to reduce any adverse impacts to these resources.
- Nest surveys will be conducted by qualified personnel prior to treatment if such treatment is proposed between February and July. Where nests are identified, treatment will include the protection and avoidance of nests until nestlings have fledged. Treatment actions where nests are found will include sufficient buffer areas to these nests (specifically for raptor species) the area of which should be determined by qualified biologist personnel according to site-specific conditions and mitigation measures.
- Personnel performing hand labor should be trained to identify and treat invasive pest species using appropriate treatment methods designed to prevent re-introduction and encourage long-term management.
- Require that all tools and equipment be cleaned of any remaining mud as well as plant or other biological materials following treatment of invasive or otherwise targeted species to avoid seed spread to other areas.
- Hand labor treatment actions should be timed to prevent the spread of invasive or otherwise targeted species. Such timing would generally require that treatment occur prior to seed setting of the invasive or otherwise targeted species or sufficiently after seed drop of these species to ensure maximum efficiency of the treatment action. Timing of proposed treatment actions will be determined by qualified personnel to avoid periods where seed setting is likely to occur or where seed drop has recently occurred.
- Exclude documented cultural resources in the treatment area from hand labor that involves ground disturbance and comply with relevant cultural resource mitigation measures.

5.3.2 Mechanical Treatment

Mechanical treatment involves cutting grasses and removing weeds, shrubs, and trees up to 24 inches in diameter through the use of a tractor or other machinery, including such operations as grading, mowing, mulching, chipping, mastication, and crushing. Other supporting activities include hand felling larger trees, establishing landings, creating skidding trails, and various yarding techniques.

Heavy machinery is often used where terrain and the presence of numerous trees to be retained do not prohibit travel. Generally, using heavy machinery for mechanical treatment is faster than hand labor and relatively inexpensive. There is, however, limited control over which plants are cut during mowing operations; but machines can be guided around isolated areas of concern. Additionally, collateral impacts to small vegetation can also occur when machinery operates on top of these plants. Heavy machinery can also create excessive disturbances to surface soils when the ground is soft, leaving ruts and bared soil.

Mechanical treatments need to be selected according to a site's topography, access, vegetation type, and potential for negative environmental impacts. These treatment techniques are often used in combination with other fuel management methods, particularly hand labor (prior to mechanical treatment) and prescribed burning (following mechanical treatment.) Mechanical treatments require supervision and specialized training to ensure the desired results and minimize negative impacts.

Chippers, mowers, brush cutters, grinders, fellerbunchers, tub grinders, hauling trucks, and yarders with a grappling hook are all types of equipment that can be specified for mechanical treatment techniques, as needed. As with hand labor, personal protection equipment is required and includes long pants and long-sleeved shirts, gloves, safety goggles, approved hearing protection, hard hats, and sturdy boots.

This technique can be used almost any time of year when the top soil is dry, but is faster when done in the summer or fall when brush is brittle and grass has cured. Because mechanical treatment methods almost always utilize equipment with metal blades, combustion engines, and corollary fuels, they should be used with special precautions during high fire danger periods as the machines themselves (and metal blades striking rocks) can inadvertently start fires. Also, vehicles and equipment undercarriages should be cleaned, if necessary, prior to arrival and removal from the work site to reduce the risk of transferring unwanted material, disease (such as sudden oak death), or seeds to other areas.

Special Considerations

The following considerations should be taken into account when determining if mechanical treatment is appropriate for fuel reduction in an area.

- While some newer machinery types can operate on extended slopes of 45 percent or more, equipment generally cannot perform well on steep slopes or other difficult physical or topographical site conditions, such as on rocky terrain or other irregular surfaces.
- Maneuverability limits use of some machinery within stands of trees or near rocky outcrops.
- These treatments are effective in large, flat areas and those covered by invasive species such as blackberry, poison oak, hemlock, or mustard, as well as in areas with other species potentially harmful to workers.
- Machine use could inadvertently distribute unwanted seeds, destroy ground nesting habitat, and spark wildfires.
- Topography and wet ground may limit access to trees and limit options for hauling felled material.

Best Management Practices

Mechanical treatment techniques generally result in increased ground disturbance relative to hand labor techniques, and therefore require the use of additional BMPs to mitigate potential effects. For all mechanical treatment actions that could result in substantial ground disturbance, implement erosion control BMPs that are consistent with the San Francisco Bay Regional Water Quality Control Board's standards. Based on site specific conditions and the type of treatment action proposed, contractors should consider one or more of the following BMPs, at a minimum to be included in any necessary erosion control plan, where mechanical treatment techniques will be used for fuel management:

- Use caution when conducting any mechanical treatment actions during the area's rainy season. Treatment actions shall be stopped temporarily if rainfall or other inclement weather makes access inadvisable, or if continued vehicular travel or mechanical action is determined to cause unacceptable damage to roads, trails, or other lands.
- Surveys shall be conducted that identify and delineate on-site soil and hydrological conditions prior to initiation of any mechanical treatment techniques. Any planned mechanical treatment actions shall include all necessary measures to minimize activity in sensitive areas that could be wetter than normal, or in areas near hydrological resources. Wet areas will be clearly marked for high visibility and avoided by treatment operations until such time as they are determined to be sufficiently capable of supporting any mechanical treatment activities without causing excess rutting, erosion, or sedimentation to occur.
- All mechanical treatment actions shall use equipment, methods, and/or techniques that minimize ground disturbance and alterations to the existing soil structure.
- Heavy equipment use (e.g., tractor-based yarding activities) shall be concentrated at primary skid trails and landings. Skidding shall be allowed only along clearly designated skidding trails. Mechanical treatment

actions shall be temporarily stopped and alternative treatment or removal methods considered if a single pass of equipment produces ruts deeper than 6 inches across a significant area of the site beyond primary skid trails and landings.

- Personnel will avoid driving support and haul trucks off of established roads. Where this is necessary, personnel shall ensure that the ground is not saturated before traveling off-road and that the ground can support the vehicles without excessive rutting. Any ruts created shall be repaired and covered with mulch and/or wood chips.
- Personnel will install and use waterbars, brush barriers, vehicle turnouts, or other methods as needed to control and capture potential runoff resulting from mechanical treatment actions. Other methods for controlling and capturing potential runoff could include broad-based dips, creating ditchlines inside of current drainage patterns (i.e., closer to treatment actions to capture runoff prior to reaching the drainage area), crossdrains, filter areas, sediment traps or pits, silt fences, hay bales, check dams or the in/outsloping and crowning of roads.
- All solid waste and trash generated by any treatment actions must be removed from the treatment site and organic waste (such as removed trees) must be disposed of at a commercial recycling or composting facility (and not at a landfill). Leftover materials can create a water pollution risk if they remain on site and are later washed into water bodies through runoff.
- Maintain all roads in a desirable condition to prevent problems that may result from their use, such as washouts, slumping, clogging or bending culverts, and drainage erosion. Any damages that occur to roads as a direct result of treatment actions shall be repaired upon completion of the treatment action.
- Upon abandonment of an access road or skid trail, all refuse and unstable fill material must be removed and road banks restored to original contours. Road banks must also be revegetated or have permanent waterbars installed.
- Refueling areas will be designated for larger projects requiring mechanical treatment actions. Fuel tanks and refueling areas will be provided with secondary containment, where feasible. Materials and supplies needed to promptly clean up spills will be adequately maintained and located onsite, and personnel will be familiar with proper cleanup and disposal techniques. Examples of containment and cleanup methods and materials include using drip pans and absorbent pads for all vehicle and equipment fueling; equipping all fuel nozzles with automatic shut-off capability to contain fuel dripping and leakage; ensuring all vehicle fueling operations are not left unattended; inspecting vehicles and equipment each day to identify any fuel, oil, or hydraulic leaks; and repairing any identified leaks immediately prior to further use or storage of the leaking equipment to minimize further impact to the site. Vehicles with persistent or recurring leaks will be removed from the site until such leaks are properly repaired. On-site fueling of vehicles and equipment will only be performed when off-site fueling is determined to be impractical.
- Preference in contracting for mechanical treatments should be to trained, experienced personnel. As previously noted, personnel should be sufficiently trained prior to initiating any treatment action such that personnel are familiar with and able to identify invasive or otherwise targeted species for treatment, and protected or otherwise identified species to be avoided during treatment.
- Mechanical treatment personnel will avoid bird nests at all times during treatment to reduce any negative impacts to these resources.
- Following the requirements outlined in the Project's SEIR Mitigation Measure 4.3-5, nesting bird surveys should be conducted by qualified personnel prior to treatment if such treatment is proposed between February 15 and September 15. Where nests are identified, treatment will include the protection and avoidance of nests until nestlings have fledged. Treatment actions where nests are found to occur should

include sufficient buffer areas to these nests, specifically for raptor species, the area of which should be determined by qualified biologist personnel according to site-specific conditions.

- All machinery and other equipment should be cleaned of any remaining soil, plant or other biological materials following treatment of invasive or otherwise targeted species to avoid seed spread of these species to other areas.
- Mechanical treatment actions will be timed to prevent the spread of invasive species. Such timing would generally require that treatment should occur prior to seed setting of the invasive species or sufficiently after seed drop of these species to ensure maximum efficiency of the treatment action. Timing of proposed treatment actions will be determined by qualified personnel on a site-specific basis to avoid periods where seed setting is likely to occur or where seed drop has recently occurred.
- No mechanical treatment actions should take place during Red Flag warnings; machinery has the potential to start fires during periods of high fire danger. The fire department may specify extra precautions to allow continued equipment activity. The requirements listed in California Public Resources Code (PRC) sections 4427, 4428, 4431, 4435, 4442, and 4437 must be followed where any mechanical treatment action is planned. Weed-eaters, chain saws, small mowers, and other internal combustion engine-powered equipment must comply with these regulations, including that they must be equipped with approved spark arrestors. Equipment powered by properly maintained exhaust-driven, turbo-charged engines as well as those equipped with scrubbers at properly maintained water levels do not require spark arrestors. Motor vehicles, if equipped with approved and properly installed and routed muffler systems (as described in the California Motor Vehicle Code) do not require spark arrestors.
- The following fire suppression equipment must always be available and in adequate working condition at the treatment site, as well as on all mowers, per PRC section 4427(b):
    - One (1) round-pointed shovel with overall length not less than 46 inches
    - One (1) 5-gallon backpack water pump to serve as a fire extinguisher
    - One (1) fully-charged fire extinguisher, UL-rated at 4-BC or more, per truck, tractor, grader, or other heavy equipment located on site One (1) two-way radio or mobile telephone or pager equipped with “walkie-talkie” capabilities to enable reporting of fires or emergencies from the scene or when in an area of potential ignition.
- Following the requirements outlined in the Project’s SEIR Mitigation Measure 4.4-3 and 4.4-4, p a qualified archeologist will be retained to conduct a pre-treatment field review site assessment to identify previously documented and undocumented cultural resources, and will demarcate (i.e., flag) the boundaries of any potentially significant and sensitive cultural resources in the treatment area. Where it is deemed necessary for additional study (i.e., subsurface investigation) to be undertaken, the qualified archaeologist will provide recommendations regarding the documentation and protection of the cultural resources prior to project actions.
- Treatment actions will avoid the demarcated cultural resources.
- As identified in the Project’s SEIR Mitigation Measure 4.4-5, in the event that prehistoric or historical archaeological sites or artifacts; paleontological resources; or human remains are encountered during the project, all ground disturbing activities will be halted within at least 50 feet and the finds will be protected in place (in accordance with State and federal law) until the find is evaluated by a qualified resource consultant, and appropriate mitigation, such as curation, preservation in place, etc., if necessary, is implemented. In the case of human remains, the requirements of Health and Safety Code §7050.5 will be met, which involve coroner, Native American Heritage Commission, and Most Likely Descendant notification and coordination.

5.3.3 Grazing

This treatment method involves using grazing animals to consume, break off, or trample vegetation in order to reduce the amount or density of fuels and is most effective in grasslands (cattle or sheep) or shrublands (goats). While cattle and sheep do not effectively create fuel reduction zones, they can be used to maintain these features by shortening grasses and shrubs and removing vegetation debris, and can be used to do the same to the understory of tree stands; goats, by contrast, can and routinely are used to create fuel reduction zones. This method is particularly effective where the plants are palatable to the animals selected. As a fuel reduction technique, grazing does not need to be conducted each year if the intent is to control shrubs or maintain understory fuels; if the intent is to reduce grassland fuels in highly ignitable locations, grazing should be used annually.

Focused grazing is a feasible alternative on this Project Site, but it would need to be highly managed to avoid introducing and spreading non-native species, overgrazing, or escape grazing. Control of livestock movements and prevention of the impacts of overgrazing, including increased erosion from ground cover loss, stream bank breakdown, and meadow compaction is critical for successful use of this treatment method. Using professional herders or portable fences may be an alternative to fixed fencing where the treatment is ephemeral. Additional controls are also needed for protection of selected plant materials and riparian zones, and to prevent erosion or other undesirable environmental impacts.

Currently there is no pressing need to introduce grazing. However, the method should remain in the management toolbox for specific applications adjacent to highly sensitive habitats, adjacent roadways, and potentially in areas that are considered fuel modification zones.

Special Considerations

Grazing can be an optimal fuel reduction method when appropriate conditions and desired outcomes align, but the following should be considered regarding grazing as a fuel reduction method:

- Herds that move from one site to another may spread the seeds of invasive alien plants; however, herds can be fed clean feed for three days before moving them to a new site to prevent the spread of undesirable species. This practice is unlikely, though, due to high costs and space considerations required for obtaining and providing certified clean feed as well as space for holding the goats during this quarantine period. As a result, this option may be infeasible or impractical.
- The nature of grazing and the corollary fencing requirements needed typically reduce its use as a viable treatment method for perimeter-only areas (i.e., those areas at the outside edge of larger treatment areas or plant communities.)
- Grazing animals can negatively impact water supplies and riparian areas if these areas are unprotected.
- Slope increases the potential for environmental damage from grazing livestock.
- Erosion concerns exist for each grazing animal: sheep consume plant materials closest to the surface: horses pulling plant roots out can create bare earth through high levels of hoof traffic, and goats browse above-surface vegetation and trample groundcover.
- Residual materials left from grazing can be an important part of erosion mitigation and can be controlled by type of animal, number of livestock, grazing season and length of time.
- Grazing limits the ability to protect individual species from treatment, and livestock will not eat all undesirable plants.
- Availability of some livestock is limited in the Bay Area.

Best Management Practices

In general, BMPs associated with grazing address the potential impacts of exposing bare ground as a result of over-grazing and/or excessive hoof traffic. Grazing BMPs focus on preventing exposure of bare soil by properly managing the grazing activity. Based on site specific conditions and the type of action proposed, the contractors should consider the following BMPs when grazing is considered for fuel reduction:

- Require and implement a site-specific grazing management plan, with an agreement from the livestock tenant that quantifies resource and fuel load (known as residual dry matter, or RDM) goals. The plan will include detailed stocking levels, length of grazing periods, and seasons needed to achieve these goals, as well as monitoring activities and performance criteria to adequately assess the effectiveness of grazing activities.
- Livestock tenants generally install infrastructure improvements, such as water sources and salt blocks, needed to ensure even and consistent grazing patterns across treatment areas. Salt blocks, molasses buckets, and other supplements should be placed at least 400 yards from water sources.
- Prior to the introduction of livestock onto native habitats, all animals (especially goats) will be quarantined and fed only weed-free forage to ensure that invasive or otherwise unwanted plant species from off site are not introduced through contact or carried on animals hooves, or through collection and deposition in animal feces.
- Livestock will generally be excluded from riparian areas. Only during limited circumstances and under the supervision of qualified personnel shall livestock be used to reduce fuel loads in riparian areas.
- Livestock grazing will be closely monitored to determine when performance criteria are achieved. Once goals and desired fuel loads have been reached, livestock shall be removed in a timely manner to avoid overgrazing and/or excessive hoof traffic.
- Inspections will occur with regular frequency and shall pay particular attention to areas where bare ground is being exposed. Inspections shall also note areas where animals are developing worn trails. Where excessive wear is occurring, livestock shall be moved to other areas and alternative treatment methods considered if fuel reduction requirements have yet to be sufficiently reached.
- Services of animal managers with specific experience in grazing operations for fuel reduction should be the preferred provider. These animal managers should ensure that livestock are moved promptly out of areas showing signs of overgrazing and/or excessive hoof traffic.
- Livestock should be excluded from the vicinity of documented cultural resources deemed to be sensitive to grazing activities (e.g., a recorded site with human remains or midden).

5.3.4 Chemical Treatment

Although chemicals can be used safely, it requires significant planning and protections to avoid unintended consequences to non-targeted vegetation. Specifically, the impact of chemical treatments on eelgrass communities has been studied thoroughly (e.g., Gaeckle, 2012, Ralph et al. 2007), and it is well documented that herbicides and pesticides can be incorporated into eelgrass leaves and vascular tissue through assimilation from water and sediments (Schwarzschild et al. 1994). Studies have demonstrated that contaminants accumulate to levels that can cause toxicity, metabolic, physiological, or morphological effects to eelgrass, as well as protected and commercially important species. Correlations between high levels of herbicides/pesticides and damaged and declining seagrass beds has been demonstrated (Bester, 2000). Herbicides containing atrazine have been shown to affect photosynthesis and respiration (Walsh et al. 1982). Other impacts include reduced oxygen production, growth effects, and mortality (Nielsen et al. 2007). If left uncontrolled, studies have documented long-term community shifts in the vicinity of outfall discharge.

Therefore, with consideration for the protection of the eelgrass communities within the Project Area and the known sensitivities and effects of toxic contaminants associated with outfall discharge to eelgrass communities, chemical treatment shall not be used as a method of vegetation management within open space areas in or adjacent to the Project Site.

5.3.5 Prescribed Fire

Prescribed fire occurs in two forms: (1) natural fire, occurring primarily through lightning strikes that are then allowed to burn, and (2) intentional, managed fires. However, prescribed fire is not recommended for the Project for the following reasons:

- Proximity to development and urbanized areas and potential for impacts
- Proximity to Chevron Richmond Refinery
- Air quality impacts
- Relatively small area of open space to be managed would not require this method of management and would not enable compartments for fuel age mosaic creation

5.3.6 Other Considerations

In addition to the methods described above for reducing fuel loads or working in open space areas, the following recommendations shall be implemented by the Project to reduce the risk of wildfire within the Project Site.

5.3.6.1 Project Construction

Red Flag Warnings

Red Flag Warnings are issued by the National Weather Service (NWS) and indicate that conditions are such (low humidity, high winds) that wildfire ignitions and spread may be facilitated. During Red Flag Warning, no site activities will occur unless within an ignition resistant structure.

In order to ensure compliance with Red Flag Warning restrictions, the NWS Web site will be monitored at the site http://www.srh.noaa.gov/ridge2/fire/briefing.php.

Upon announcement of a Red Flag Warning, it is recommended that red flags be prominently displayed along the Project Site access road indicating to residents, employees and contractors that restrictions are in place due to hazardous wildfire conditions.

Basic Fire Safety Training

The Site Safety Officer (SSO) and or Site Supervisors/Foremen shall present basic fire prevention training to all employees upon employment, and shall maintain documentation of the training, which includes:

- This WERP, including how it can be accessed;
- Review of OSHA Fire Protection and Prevention: 29 CFR 1926.24, including how it can be accessed;
- Fire Management: Wildfire Prevention (43 C.F.R. 9212.0 et seq.);

- Proper response and notification in the event of a fire; and
- Instruction on the use of portable fire extinguishers (as determined by company policy in the Emergency Action Plan); hand tools such as shovels, and recognition of potential fire hazards.

The SSO shall train all persons entering the site about the fire hazards associated with the specific materials and processes to which they are exposed, and will maintain documentation of the training. Employees will receive this training:

- Upon first entering the facility;
- Annually during a pre-planned meeting
- When changes in work processes necessitate additional training

Further, prior to Project initiation and each spring prior to the high fire season; all Project supervisors will receive a minimum of one-hour training on Wildland Fire Prevention and Safety. This training will be provided by the SSO or their qualified designee. This training will then be shared with all construction personnel either by the Project supervisors or the SSO.

Each supervisor/foreman shall be trained to understand:

- Fire reporting;
- Extinguishing small fires in order to prevent them from growing into more serious threats;
- Fire prevention;
- Initial Attack Firefighting; and
- Identifying work activities that may result in a fire hazard.

Communication Plan

The ability to communicate with all personnel working on the site is mandatory. The SSO and construction crews will be required to have a cell phone, satellite phone, and/or radios that are operational within the area of work to report an emergency. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities. All fires and medical emergencies will be immediately reported to the Emergency Communication Center for RPD.

Each on-site worker will carry at all times a laminated safety card listing 24-hour contact information, including telephone numbers for reporting an emergency and immediate steps to take if an incident occurs. Information on the safety card will be updated as needed and redistributed to all workers before the initiation of any construction activities. The Project's compliance monitor will provide the safety cards to the site's SSO prior to construction kick-off so that all site staff can be provided training and receive their cards.

5.3.6.2 Fuel Modification Zones

As discussed above, Article VIII Fire, § 8.16.080 of the Fire Ordinance in the RMC designates regulations applicable to any area of the City which is designated as a Very High Fire Hazard Severity Zones in order to minimize danger to the public health and safety caused by building in an area with a high risk of grass and brush fire. Specifically, for new developments and existing buildings in Very High Fire Hazard Severity Zones, these regulations include a buffer zone on vacant parcels that must be 100 by 30 feet, building standards for reducing fire risk (e.g., slanted roofs to prevent vegetation debris accumulation and fireproofing), and vegetation management for reducing fuel

loads, as detailed in City Resolution 192-95. It is recommended that the HOA annually hire a third party, RFD-approved, FMZ inspector to provide annual certification that it meets the requirements of Resolution 192-95.

5.4 Wildfire Response and Evacuation Planning

The RFD would be the primary responders to the Project Site. RFD will follow its internal protocols and pre-fire plan for responses to the Project Site. It is expected that RFD would be the primary agency involved in wildland fire suppression on the Project Site. As discussed above, the Project will include a joint RPD/RFD station. The on-site RFD station will be the first response to emergency events, such as wildfires, within the Project Site and would be supported by additional RFD engine companies, as needed, along with neighboring fire agencies through automatic and mutual aid agreements. RFD currently employs the following firefighting apparatus with associated firefighting personnel, not including the Project's future fire station:

- 7 Fire Stations
- 7 Engine Companies
- 1 Truck Company
- 1 Cross-Staffed Truck Company
- 2 Rescue Units
- 1 HazMat Unit
- 1 Breathing Support Unit
- 1 Fire Boat Victory

If necessary, other nearby agencies may assist via mutual aid agreements, such as Contra Costa County Fire Protection District. However, given the relatively small size of the open space area, that fire typically travels up slope and the Project's development would be at the bottom of the hillside, the likelihood of a wildfire event that would require additional support from other agencies is low.

5.4.1 Primary Actions and Contacts for Wildfire Emergency

RFD should be contacted in the event of a wildfire on the Project Site or for information regarding fire management activities.

Richmond Fire Department:
Emergency: 911
Non-Emergency: 510-307-8031
Website: http://ca-richmond2.civicplus.com/79/Fire-Department

5.4.2 Evacuation Procedures

Wolshon and Marchive (2007) simulated traffic flow conditions in the WUI under a range of evacuation notice lead times and housing densities. To safely evacuate more people, they recommended that emergency managers (1) provide more lead-time to evacuees and (2) control traffic levels during evacuations so that fewer vehicles are trying to exit at the same time. In some emergencies, more lead-time will be possible while in others, it will not. Traffic controls may be possible with longer lead times, but the number of intersections may be limited during short notice events.

Wildfire emergency response procedures will vary depending on the type of wildfire and the available time in which decision makers (IC, RFD, Richmond Police Department (RPD), and/or the Office of Emergency Services (OES)) can assess the situation and determine the best course of action. Based on the development, its road network, and the related fire environment, the primary type of evacuation envisioned is an orderly, pre-planned evacuation process where people are evacuated from the Project to urban areas further from an encroaching wildfire (likely to the city center, east of the Project site) well before fire threatens. This type of evacuation must include a conservative approach to evacuating, i.e., when ignitions occur and weather is such that fires may spread rapidly, evacuations should be triggered on a conservative threshold. This threshold must include time allowances for unforeseen, but possible, events that could slow the evacuation process.

Evacuation is considered by many to offer the highest level of life protection to the public, but it can result in evacuees being placed in harm's way if the time available for evacuation is insufficient (Cova et al. 2011) and the evacuation route is exposed to wildland or other fuels. An example of this type of evacuation, which is highly undesirable from a public safety perspective, is an evacuation that occurs when fire ignites close to vulnerable developments with an unhardened evacuation route. This type of situation is inherently dangerous because there is generally a higher threat to persons who are in a vehicle on a road when fire is burning in the immediate area. Conditions may become so poor, that the vehicle drives off the road or crashes into another vehicle, and flames and heat overcome the occupants. This type of evacuation must be considered a very undesirable situation by law and fire officials in all but the rarest situations where late evacuation may be safer than seeking temporary refuge in a structure (such as when there are no nearby structures, the structure(s) is/are already on fire, or when there is no other form of refuge).

The third potential type of evacuation is a hybrid of the first two. In cases where evacuation is in process and changing conditions result in a situation that is considered unsafe to continue evacuation, it may be advisable to direct evacuees to pre-planned temporary refuge locations, including their own home if it is ignition resistant and defensible, such as those outside the Historic District. If desired, older Historic District buildings may be retrofitted for greater fire hardening and potential for temporary sheltering on a case by case basis. The features that can be most readily addressed include roofs, windows, vents, and interior sprinklers. As with the second type of evacuation discussed above, this situation is considered highly undesirable, but the evacuation pre-planning must consider these potential scenarios and prepare decision makers at the IC level and at the field level for enacting a contingency to evacuation when conditions dictate.

Evacuation orders or notifications are often triggered based on established and pre-determined buffers. These buffers are often hard or soft lines on a map and are based on topography, fuel, moisture content of the fuels, and wind direction. Evacuations are initiated when a wildfire reaches or crosses one of these pre-determined buffers. Evacuations can also be very fluid. The IC, law enforcement, and EMD would jointly enact evacuations based on fire behavior.

5.4.2.1 Contingency Options

As of this document's preparation, no community in California has been directed to shelter in place during a wildland fire. This is not to say that people have not successfully sheltered in place during wildfire; there are numerous examples of people sheltering in their homes, in hardened structures, in community buildings, in swimming pools, and in cleared or ignition resistant landscape open air areas. The preference for the Project will always be early evacuation following the "Ready, Set, Go!" model, but there exists the potential for unforeseen civilian evacuation issues, and having a contingency plan will provide direction in these situations that may result in saved lives.

Potential problems during wildfire evacuation from the Project include:

- Fires that prevent safe passage along planned evacuation routes (particularly for Stenmark Drive and I-580)
- Inadequate time to safely evacuate
- Fire evacuations during peak traffic conditions or when large events are occurring
- Blocked traffic due to accidents or fallen tree(s) or power pole(s)
- The need to move individuals who are unable to evacuate

It is recommended that RPD and RFD conduct concerted pre-planning efforts focusing on evacuation contingency planning for civilian populations when it is considered safer to temporary seek a safer refuge than evacuation.

5.5 Post-Wildfire Response Measures

While most wildfires cause minimal damage to natural or cultural resources, some fires create situations that require special efforts to prevent further catastrophic damage after the fire. Loss of vegetation exposes soil to erosion; runoff may increase and cause flash flooding; sediments may move downstream, causing resource damage; and potentially resulting in risk to the community. Post-wildfire response measures are actions taken to address the immediate hazards that may have resulted from a wildfire event. These response measures are taken prior to the demobilization of the responding agency and within the days following the wildfire event. During and after a wildfire event, the objectives of the HOA and RFD are to:

1. Determine if an emergency condition exists after the fire.
2. Alleviate emergency conditions to help stabilize soil; control water, sediment and debris movement; prevent impairment of ecosystems; mitigate significant threats to health, safety, life property and downstream values at risk.
3. Monitor the implementation and effectiveness of emergency treatments.

There will generally be two types of post-fire actions, depending on the size and severity of the fire. If the fire is small, localized, and does not include a significant footprint, then after fire actions will be determined by RFD. If the fire is large in extent or appears to have significantly impacted natural and/or cultural resources, then the following response measure should be considered, depending on the extent of the damage. A good source for post-fire response actions/alternatives is provided in the Interagency Burned Area Emergency Response Guidebook (Appendix D). The following approach generally follows this guidebook.

The first priority is emergency stabilization in order to prevent further damage to life, property or natural resources, some of these immediate actions include:

- Complete fire suppression damage repair;
- Install water or erosion control devices;
- Plant for erosion control or stability reasons;
- Install erosion control measures at critical cultural sites;
- Install temporary barriers to protect treated or recovering areas;
- Install warning signs;
- Remove critical safety hazards;

- Prevent permanent loss of habitat; and
- Plant grass or other ground cover to prevent spread of noxious weeds.

The initial response is "first aid" – immediate stabilization that often begins before a fire is fully contained and does not seek to replace what is damaged by fire, but to reduce further damage due to the land being temporarily exposed in a fragile condition.

After a wildfire, there may be an immediate need to repair habitats or infrastructure impacted by fire suppression actions. One of the first concerns following wildfire is stabilization of soils in the burn area, especially if sloped areas are included in a burn like they would be on the slopes adjacent the Project Site. A goal should be to have erosion control Best Management Practices (BMPs) in place as soon as possible and prior to the onset of the winter rainy season. There are various erosion control practices available for slowing the rate of erosion. It may be necessary to implement erosion control measures to protect facilities, sensitive resources and downstream watersheds. The HOA and City in conjunction with the RFD should identify repair and erosion control needs and identify feasible and effective management actions that minimize any further impact to natural resources. Examples of short-term management actions that may be required are placement of erosion controlling mats and hydroseeding in key areas and potential installation of water bars along roads and trails to reduce erosion. Recent research indicates that mechanical rehabilitation treatments, including straw mulch, hay bales, flexible structure mats (Enkamat) and jute rolls are more predictable for reducing soil erosion and post-fire hydrological problems than seeding or other treatments (Robichard et al. 2000). Mulching may introduce exotics (Kruse et al. 2004), so erosion potential should be high before the decision to place these erosion mitigating features in the open space is finalized.

Hillslope stabilization treatments are designed to stop or slow post-fire flooding and sediment movement. The objective in using these treatments is to quickly establish ground cover that protects soil from raindrop splash, binds soil particles, increases infiltration and slows surface runoff.

Post-fire seeding with non-native plants to stabilize soils is ineffective and can lead to the invasion of alien plants into native plant communities (Keeley 2006). This practice has substantially impacted native plant communities and should not be used within the open space. Instead, other more effective soil erosion treatments include straw mulch, hay bales, jute rolls, and flexible matrices growing mats. The potential for damage from erosion should be great before erosion measures are implemented, as even straw mulch and hay bales can introduce exotic plant species into wildlands. The use of certified weed-free hay is good policy (Bell 2009).

Fire Suppression Damage Repair

Fire suppression damage repair is a series of immediate post-fire actions taken to repair damages and minimize potential soil erosion and impacts resulting from fire suppression activities and usually begins before the fire is contained, and before the demobilization of an Incident Management Team. This work which is completed by the responding fire department(s) repairs the hand and dozer lines, roads, trails, staging areas, safety zones, and drop points used during fire suppression efforts.

Soil Erosion Control Measures

Wildfires can create immediate and potentially long-term soil erosion. Fires reduce or eliminate plant cover, burn off leaf litter, change soil properties, and expose the soil to the forces of rain drop splash, runoff, and wind. Patches of hydrophobic (water repellent) soils may develop beneath the ground surface, but this is a temporary condition that will be relieved once wet. The greater concern and focus should remain with the exposed soil surface (CNPS 2019). The following are recommendations to be completed by the City, HOA and/or residents will support immediate soil erosion control within the open space and developed areas:

- Ash, debris, fallen heat- or smoke-damaged leaves, and even rocks on a fire-impacted site provide much needed soil protection. Charred remains of plants and garden features (such as retaining walls and rocks) protect the landscape from wind and water erosion and help prevent surviving seeds and plants from drying out. If a fire has burned so severely that no material is left on the ground, consider adding chips or mulch from dead debris or weed-free rice straw.
- On land the fire severity was low to moderate, and in undisturbed areas away from home sites, doing nothing can be the best solution, allowing nature to restore vegetative cover. Also, fire is naturally high intensity in chaparral, so do not employ any unnecessary management action that can compromise the recovery of this ecosystem.
- Prune or remove only high hazard fire-damaged trees capable of falling onto buildings and roads and endangering people and structures. Keep felled trees or prunings on-site. These trees can be a source of mulch if the site needs mulching.
- Keep foot traffic and equipment off burned landscapes, and do not remove burned plants unless they bear a risk to people or property. Activity on slopes will increase the likelihood of erosion by weakening a soil's bonds, dislodging soil particles, and trampling newly sprouted plants. Activity on flat ground can compact the soil and lower its water absorption rates, which increases runoff.
- While minimal disturbance is ideal, it is not always possible, particularly around home sites. Property owners may need to implement erosion control measures in the disturbed areas where debris and foundations are removed, particularly if these areas are on steep slopes. Note: Less disturbance to soil and slopes after fire is better. Plan your work on fire-impacted lands only after a plan for restoration is developed and once the materials and tools are available for use.
- Fast moving water can cause erosion and downstream flooding. Straw mulch is a great way to reduce the impact of rainfall and runoff. Note: A light application of wood chips provides protective cover but can be displaced by runoff and float away.
- Once the rain starts running down a hill slope, well-placed straw wattles, a thin cover of mulch, and branches can help reduce the impact of rainfall and runoff, giving it a chance to seep down into the soil and filter out sediment.
- Maintain the stormwater system by paying attention to how water moves through neighborhoods. Branches and sediment can clog drainage ditches and culverts. Try to clear the stormwater system so that roads don't flood and debris doesn't block drains.
- Taking steps to decrease velocity and/or volume of runoff at culvert and drain outlets (e.g., using rocks at outlets) may be important to help slow down runoff or dissipate large volumes of runoff to prevent soil erosion.
- Also consider detaining runoff and metering it over time to reduce impact on saturated soil and slopes during peak storm events and provide water storage for later use (e.g., irrigation during the dry season). Detention basins, rain gardens, and water harvesting systems are some ways to detain and later use runoff.

5.5.1 Long-Term Recovery Plan Standards

In addition to the immediate post-wildfire response measures, there may also be a need for longer term management activities to assist with recovery of ecosystem processes or to enhance populations of species adversely affected by the fire. These may include invasive weed control measures and active restoration of burned areas. A long-term recovery plan will need to be prepared and should assess the needs of the impacted area over the following five years, and include the following components, as needed:

1. Water Resource Assessment
2. Facilities Assessment
3. Infrastructure Assessment
4. Vegetation Resource Assessment
5. Trails Assessment
6. Cultural Resource Assessment

Each assessment should address objectives, issues, observations, findings, values at risk, and recommendations for long-term recovery efforts, as appropriate.

Further, as part of the long-term recovery plan, the impacted areas should be monitored as restoration and rehabilitation efforts are implemented. If the initial recovery efforts are not meeting the objectives outlined in the recovery plan, the issue area must be reevaluated, and new recovery strategies considered. Lastly, any long-term recovery plan required for the Project Site must be prepared by qualified personnel with burned area restoration expertise and in coordination with and to the approval of the Richmond Fire Department.

6 Plan Implementation, Recommendations and Maintenance Procedures

6.1 Plan Implementation

For wildfire, a specific incident location or site may not exist within the Project Site in the initial response phase as local emergency responders begin initial response actions, such as mobilizing personnel and equipment, while issuing precautionary warnings to the public. Upon residents receiving the initial disaster warning information, the response plan should immediately be implemented. As the potential threat becomes clearer and a specific impact site or sites are identified, response direction and control will become more apparent.

6.1.1 Organization and Assignments

It is the Project's responsibility to provide residents with opportunities for seeking safe refuge from the effects of wildfire events. Residents, guests and visitors share responsibility with the Project's community management entity for identifying and mitigating wildfire hazards as well as preparing for, responding to, and managing recovery from emergency situations that affect the Project Site. Additionally, it is also necessary to provide emergency response education and training opportunities for residents to prepare for an emergency, as discussed in detail below.

To achieve the necessary objectives, wildfire program has been organized that is both integrated (employs the resources of the Project Site, residents, local emergency responders, and organized volunteer groups) and comprehensive (addresses mitigation/prevention, preparedness, response, and recovery). This WERP is one element of the preparedness activities.

This plan is focused solely on wildfire preparedness and response. It addresses general functions that may need to be performed in the event of a wildfire and identifies immediate action protocols as well as guidelines for responding to specific incidents types.

The ICS will be used by responding emergency officials to manage any larger Project Site emergencies that trigger ICS.

The NIMS establishes a uniform set of processes, protocols, and procedures that all emergency responders, at every level of government, will use to conduct response actions. This system ensures that those involved in emergency response operations understand what their roles are and have the tools they need to be effective.

Implementation of the ICS

In the event of a disaster, a specific incident site may not yet exist in the initial response phase and the local EOC may accomplish initial response actions, such as mobilizing personnel and equipment and issuing precautionary warnings to the public. As the potential threat becomes clearer and a specific impact site or sites are identified, an Incident Command Post may be established. This scenario would likely occur during a community-wide disaster.

For most emergency functions, successful operations require a coordinated effort from many personnel. To facilitate a coordinated effort, personnel are assigned responsibility for planning and coordinating specific emergency functions.

6.1.2 Operational Guidance

Initial Response

It is anticipated that Project residents and businesses will usually be first on the scene of an emergency. Therefore, these individuals on-scene will typically make the initial assessment of the emergency and will provide information to the emergency responder agency with legal authority to assume responsibility.

The emergency response plan and the initial response may include:

- Building Evacuation – When conditions are safer outside than inside a building. Requires all employees and/or residents to leave the building(s) immediately, but in an organized, controlled manner. Individuals should go to the nearest evacuation assembly area.
- Off-Site Evacuation – When conditions are safer off the Project Site or the local area. Requires employees and/or residents to leave the area immediately and in and organized process. Individuals should familiar themselves with the Project's evacuation routes and register for alert messages.
- Shelter-in-place – When evacuation from the area is considered less safe than temporarily seeking refuge onsite or inside a building. [Shelter in place has different meanings depending on the type of emergency. For example, severe weather sheltering would include remaining inside buildings in interior rooms away from windows. For hazardous material release outdoors with toxic vapors, employees and residents would remain in buildings with windows and doors sealed and all ventilation systems shut off. Wildfire shelter in place would be a temporary situation where people would remain in a structure until the fire front passes, then evacuate the area with assistance from law and fire officials.]

Notification Procedures

In case of an emergency, the first call should be to 911. Information should include the location, nature of the incident and the impact on the Project Site.

Education and Training

Education and training are essential to the overall emergency response program. To ensure that all community members (residents and employees) are aware of the WERP, educational and training opportunities will be offered. Information addressed in these sessions will include updated information on plans, procedures and personal safety. It is recommended that community members participate in external drills or exercises sponsored by local emergency responders.

6.1.3 Response Functions and Responsibilities

Source and Use of Resources

Trained and capable community members will use available resources to respond to emergency situations until emergency response personnel arrive. If additional resources are required, the following options exist:

- Request assistance from volunteer groups active in disasters (local Community Emergency Response Team (CERT), Red Cross, Salvation Army, etc.).
- Request assistance from industry or individuals who have resources needed to assist with the emergency.

ICS

The IC is responsible for carrying out the ICS function of command—i.e., managing the incident. The IC is generally responsible for field operations, including:

- Isolating the scene.
- Directing and controlling the on-scene response to the emergency and managing the emergency resources committed there.
- Warning residents in the area of the incident and providing emergency instructions to them.
- Determining and implementing protective measures (evacuation or in-place sheltering) for the those in the area of the incident and for emergency responders at the scene.
- Implementing traffic control arrangements in and around the incident scene.
- Requesting additional resources.
- The EOC is generally responsible for:
- Providing resource support for the incident command operations.
- Issuing community-wide warning.
- Issuing instructions and providing information to the general public.
- Organizing and implementing large-scale evacuation.
- Organizing and implementing shelter and massive arrangements for evacuees.

The Emergency Management Coordinator

The HOA should identify an Emergency Management Coordinator who will be responsible for the following pre- and post-emergency:

- Establish an emergency response plan review committee to coordinate all emergency response plans;
- Consult with the City of Richmond to analyze system needs regarding emergency preparedness, planning and education and to ensure coordination of the plan with community emergency plans;
- Provide copies of this plan to businesses and residents;
- Develop and coordinate emergency response education;
- Coordinate local planning and preparedness activities and the maintenance of this plan;
- Prepare and maintain a resource inventory;
- Arrange appropriate training opportunities for emergency response; including annual informational meeting; and
- Coordinate periodic emergency exercises to test emergency plans and training.

During an emergency, the designated Emergency Management Coordinator shall monitor the emergency response, stay in contact with the leaders of the emergency service agencies, and follow directions of the IC.

Emergency Response Team

The Project's HOA will facilitate and encourage participation in the local CERT program (locally referred to as Richmond Emergency Action Community Teams (REACT)). The community's REACT will be responsible for the following:

- Assist during an emergency by providing support and care for affected employees and residents before local emergency services arrive or in the event of normal local emergency services being unavailable.
- Provide the following functions when necessary and when performing their assigned function will not put them in harm's way:
  - Evacuation – assist in the evacuation of all facilities (both building and off-site evacuations) and coordinate the assembly of the employees and residents once an evacuation has taken place.
  - First aid – provide basic first aid to those injured.

6.1.4 Emergency Recovery

If a wildfire occurs, local emergency officials will initiate a recovery effort. Emergency stabilization could include identifying impending threats to safety and property and then actions immediately implemented to mitigate these identified threats. Short-term operations seek to restore vital services to the affected areas and provide for the basic needs. Long-term recovery focuses on restoring the community to its normal state. The recovery process may include assistance to businesses and residents. Examples of recovery programs that may be available include temporary relocation, restoration of services, temporary housing, debris removal, restoration of utilities, and disaster mental health services.

Post-wildfire response measures will include immediate fire suppression damage repair and emergency stabilization measures, including actions to minimize soil erosion impacts resulting from fire suppression activities. These actions will consider the installation of water run-off and erosion control structures, removal of burned vegetation, and installation of warning signs.

Long-term post-wildfire recovery and restoration measures include rehabilitation of any burned areas. These measures include restoring burned habitat, revegetation, monitoring fire effects, and treating noxious weed infestations. A recovery plan would be prepared by qualified personnel with burned area restoration expertise and in coordination with and to the approval of the Richmond Fire Department.

Sections 5.5 and 5.6 of this WERP details immediate and long-term post-wildfire response measures.

6.2 Monitoring and Maintenance

On an as needed basis, the following process will be used to assess the MHERP, enabling community leaders to address the overall effectiveness of the response strategies including:

- Review performance related to response actions;
- Compare WERP strategies to actual hazard responses;
- Identify any necessary changes to existing WERP response actions; and
- Identify new WERP actions to be incorporated into the plan.

6.3 Amendments and Updates

This WERP will be updated based upon deficiencies identified during actual emergency situations and when changes in threat, resources, or capabilities occur. The WERP must be revised or updated as necessary and will address all sections. The following should be considered when considering revisions to the WERP:

- Consult with fire experts to review the WERP wildfire analysis. The update shall include any new information about local wildfire hazards, the Project Site's exposure and vulnerabilities, as well as a review of all loss estimates.
- Measure progress on response actions since the WERP inception.
- Assess inapplicable response actions to determine if they should be removed, retained or rewritten.
- Propose new response actions for the updated WERP.
- Perform a community review process, including input opportunities for community partners and residents.
- Incorporate appropriate feedback and conduct an outreach process.

6.4 Recommendations for Wildfire Preparedness

Wildfire is an increasingly occurring event in the State, which makes community and individual preparedness imperative to ensure impacts from wildfire events are minimized. The following recommendations are provided for consideration as ways to improve wildfire readiness for both residents and business within the Project Site. These recommendations are based on evaluation of the proposed structures, access, fuel modification, nearby potential hazards, and other site-specific factors.

6.4.1 Preparedness Functions and Responsibilities

The HOA and leasing agency will be responsible for establishing and maintaining communitywide emergency preparedness efforts, including, but not limited to:

- Establishing and maintaining designated temporary shelters, with input from RFD, in the event emergency evacuation is not feasible.
- Establishing a location where a Red Flag or sign can be placed when potentially hazardous conditions exist (e.g., red flag warning weather, severe storms with potential flooding, etc.).
- Providing and maintaining emergency evacuation route signage throughout the Project Site.
- Distributing hard copies of the Project's WERP and MHERP to homeowners and business owners, as well as posting both plans on the HOA's and leasing agency's websites.
- Holding an annual emergency and evacuation preparedness informational meeting in partnership with Richmond Fire Department's Office of Emergency Services.
- Providing Emergency Response Plans and maps to Fire, Police, and Marine safety Departments.
- Establishing Project Site community REACT team.
- Coordinating with Richmond first responders for early notifications during potentially hazardous conditions so early evacuations are facilitated.

6.4.2 Wildfire Preparedness

The national "Ready, Set, Go!" program is managed by the International Association of Fire Chiefs (IAFC), and launched nationally in March 2011 at the Wildland-Urban Interface (WUI 2011) Conference. The program helps fire departments teach individuals who live in high-risk wildland fire areas how to best prepare themselves and their properties to adapt to living with fire. CAL FIRE has also established a state-wide campaign to help educate property owners and residents in areas most at risk.

The focus of the "Ready, Set, Go!" program is on public awareness and preparedness, especially for those living in the WUI areas. The program is designed to incorporate the local fire protection agency as part of the training and education process in order to ensure that evacuation preparedness information is disseminated to those subject to the potential impact from a wildfire. There are three components to the program:

- **"READY" –** Preparing for the Fire Threat: Take personal responsibility and prepare long before the threat of a wildfire so you and your home are ready when a wildfire occurs. Create defensible space by clearing brush away from your home as detailed in the CAL FIRE, "READY" brochure. Use only fire-resistant landscaping and maintain the ignition resistance of your home. Assemble emergency supplies and belongings in a safe spot. Confirm you are registered with the Nixle Emergency Notifications (http://www.ci.richmond.ca.us/nixle or end a text message with zip code to 888777). Make sure all residents residing within the home understand the plan, procedures and escape routes.
- **"SET" –** Situational Awareness When a Fire Starts: If a wildfire occurs and there is potential for it to threaten the Point Molate community, pack your vehicle with your emergency items. Stay aware of the latest news from local media, RFD and RPD for updated information on the fire (https://local.nixle.com/richmond-ca/). If you are uncomfortable, leave the area.
- **"GO!" – Leave Early!** Following your Action Plan provides you with knowledge of the situation and how you will approach evacuation. Leaving early, well before a wildfire is threatening your community, provides you with the least delay and results in a situation where, if a majority of neighbors also leave early, firefighters are now able to better maneuver, protect and defend structures, evacuate other residents who couldn't leave early, and focus on citizen safety.

"READY! SET! GO!" is predicated on the fact that being unprepared and attempting to flee an impending fire late (such as when the fire is physically close to your community) is dangerous and exacerbates an already confusing situation.

Situational awareness requires a reliable information source. The Richmond OES operates a program known as Nixle that has the capability to send emergency notifications via text message and email. It is up to individual residents to register their cell phones for Nixle. The registration of cell phones can be done online at http://www.ci.richmond.ca.us/nixle. The HOA will strongly encourage all residents to register telephone numbers.

Further, this WERP is prepared specifically for the Project and focuses on wildfire evacuations, although many of the concepts and protocols will be applicable to other emergency situations, which are discussed further in the Project's MHERP. Ultimately, the WERP and MHERP will be used by the Project's HOA(s) and leasing agency to educate residents, business owners, and employees on their evacuation approach during wildfires and other similar emergencies. It is important for the residents, business owners, and employees to understand the importance of being prepared, so if/when the time comes where evacuation is necessary, they will be able to systematically

implement this evacuation plan. Some actions residents, business owners and employees, can complete in advance include:

- Follow the "Ready, Set, Go!" model developed for wildfire evacuations.
- Create an escape plan from the residence, as well as familiarity with escape routes out of the area.
- Create a car emergency kit, including cell phone charger, flashlight, jumper cables, water, and food.
- Gather important paperwork, including (personal) birth and marriage certificates, passports, Social Security cards; and (business) account information, data storage, and any other important documents.
- As time allows, make sure to secure your residence by locking all doors and windows, and unplugging electrical equipment, such as appliances and electronics.

Sample emergency preparedness resources available to residents, business owners and employees, are provided in Appendices A-1 through A-4 (CAL FIRE, "Ready, Set, Go!" Wildfire Is Coming…Are You Ready? Guides in English and Spanish, RFD OES Community Guide to Emergency Preparedness, and Contra Costa County's Residents Guide to Wildfire Preparedness and Evacuation) and Appendices B-1 through B-4 (Family Disaster Plan and Checklists). In addition, residents, business owners, and employees are encouraged to become familiar with the concepts detailed at the following Websites:

- Richmond Fire Department, Office of Emergency Services, Community Guide to Emergency Preparedness: https://www.ci.richmond.ca.us/DocumentCenter/View/7172/RFD-Community-Guide-July2019?bidId=
- Contra Costa County's Residents Guide to Wildfire Preparedness and Evacuation: https://www.contracosta.ca.gov/DocumentCenter/View/60616/Residents--Contra-Costa--County-Guide
- CAL FIRE's "Ready, Set, Go!" Wildfire Is Coming…Are You Ready? Campaign: https://www.readyforwildfire.org/prepare-for-wildfire/ready-set-go-campaign/
- Family Communication Plan: https://www.fema.gov/media-library-data/1440449346150- 1ff181273456 15d8b7e1effb4752b668/Family_Comm_Plan_508_20150820.pdf
- Red Cross Emergency Planning: http://www.redcross.org/get-help/how-to-prepare-for-emergencies/make-a-plan
- Building a disaster kit: http://www.redcross.org/get-help/prepare-for-emergencies/be-red-cross-ready/get-a-kit
- Making a Plan Checklist: https://www.ready.gov/make-a-plan

6.4.3 Outreach and Training

The HOA and leasing agency will be active in its outreach to residents and business owners regarding fire safety and general evacuation procedures. There are aspects of fire safety and evacuation that require a significant level of awareness by residents, business owners and employees, and emergency services in order to reduce and/or avoid problems with an effective evacuation. Mitigating potential impediments to successful evacuations requires focused and repeated information through a strong educational outreach program. The HOA and leasing agency will work collaboratively to engage residents, business owners, and employees through a variety of methods.

Emergency preparedness materials (Appendix A1-A-4 and Appendix B1-B4) and evacuation procedures will be provided to each homeowner/HOA member and lease holder, as well as being accessible on the HOA's and leasing agency's website. Annual reminder notices will be provided to each homeowner and lease holder encouraging them to review the plan and be familiar with community evacuation protocols. The HOA in partnership with the leasing agency will coordinate with RFD to hold an annual fire safety and evacuation preparedness informational meeting.

Representatives of RFD will be invited to attend, and important fire and evacuation information will be reviewed. One focus of these meetings and the HOA and leasing agency's annual message will be on the importance of each resident and lease holder to prepare and be familiar with their own "Ready, Set, Go!" evacuation plan.

As part of the Project's resident and business fire awareness and evacuation readiness program, information will be delivered in a variety of methods. The HOA and leasing agency will be responsible to provide and distribute to each residence and business a complete copy of the READY! SET! GO! and other preparedness materials included as part of the appendices to this WERP. The HOA is also responsible for ensuring the distribution of copies of the aforementioned materials to those individuals that purchase/rent properties for re-sales and the leasing agency will be responsible for ensuring distribution to the management of non-residential properties. Management of the commercial properties will be responsible for the dissemination of the Evacuation Plan information to their employees.

As part of the approval of this Project, it shall be binding on the HOA to actively participate as a partner with the RFD to assist with the coordination and distribution of fire safety information they develop.

6.4.3.1 Emergency Alerts

The City of Richmond uses a free mass notification system for residents and businesses called Nixle. The City's OES uses the system for notification of an emergency or disaster in communities. Depending on the settings the user selects, these notifications can include everything from critical alerts such as health and safety issues, hazardous materials releases, Shelter-in-Place orders, evacuations to road closures and more. Additionally, this service provides the option to select your preferred language (English or Spanish) for notifications.

In the event of a wildfire or similar emergency within the proximity of the Project Site, the IC will contact the RPD and other law enforcement agencies that may be needed to support an emergency situation (i.e., California Highway Patrol). The RPD and/or RFD coordinate with OES to activate the Nixle system and release an emergency notification to the affected population. Therefore, the Project's community residents and businesses are strongly advised to register their landlines, mobile phone numbers and email addresses with the Nixle system (http://www.ci.richmond.ca.us/nixle) in order to receive emergency evacuation instructions.

Contact the City of Richmond's Office of Emergency Services at (510) 620-6866.

The Project Area is part of the greater San Francisco media market, and the media outlets will also be a good source of information via television and radio. Media outlets cover emergency situations and information is disseminated guiding resident response. In addition to the City of Richmond Nixle alerts, commercial media broadcasts emergency information via 13 radio stations: KCBS AM 740, KATD AM 990, KFRC AM 610, KEAR FM 106.9, KOIT FM 96.5, KFRC FM 99.7, KQED FM 88.5, KSTN FM 107.3, KROW FM 104.1, KYCY FM 93.3, KZWC, Shadow News Services, Metro News Service KFI AM 640, KNX AM 1070, KABC AM 790, KPCC FM 89.3, KCBS FM 93.1, KIIS FM 102.7, KROQ FM 106.7. The City of Richmond also provides residents with wildfire and evacuation information by subscribing to the City's social media pages.

Television news outlets include:

- KCRT Television (TCI Cable) - https://www.ci.richmond.ca.us/3173/KCRT-Media
- Channel 4 (NBC) - https://www.nbcbayarea.com/Channel
- 5 (CBS) - https://sanfrancisco.cbslocal.com/
- Channel 9 (PBS) - https://www.kqed.org/tv
- Contra Costa Television (CCTV) - https://www.contracosta.ca.gov/142/Contra-Costa-Television-CCTV

6.4.3.2 Community Emergency Response Team

Richmond Emergency Action Community Team was implemented and is maintained under the leadership of the City of Richmond, Fire Department Office of Emergency Services. Community Emergency Response Team is the federally and nationally most recognized name for REACT. REACT/CERT students are trained by the Richmond Fire Department and certified volunteer community trainers. REACT/CERT students receive 20 hours of free lifesaving training, plus attend disaster drills yearly. Upon completion of the training and drill, students graduate with a certificate, vest, and a hard hat imprinted with the CERT logo. Residents of the Project are encouraged to form a volunteer REACT through the CERT program (https://www.fire.lacounty.gov/lacofd-cert-program/).

6.4.3.3 Additional Recommendations

In addition to the requirements outlined above, the HOA and leasing agency can take further action to improve readiness within the Point Molate community. The following are additional recommendations to ensure residents and businesses are prepared in the event of a disaster.

Community Workshops/Events

Hosting hands-on workshops and preparedness events are proactive measures that will improve disaster preparedness among all members of the community. The aim of these additional workshops and events is to provide opportunities for community members to have greater access to the information and tools they will need in the event of a disaster. Above and beyond the annual informational meeting, the following hands-on workshops and events are recommended to occur annually:

Wildfire Readiness Workshop – Explain the materials provided in CAL FIRE's "READY, SET, GO" campaign, and provide an opportunity for participants to develop their own plan.

Defensible Space Cleanup Day – In the summer, schedule a day for the whole community to ensure the defensible space around their property is clear of potential fire hazards.

Local and National Emergency Preparedness Programs

In addition to hosting community workshops/events, the HOA should encourage participation in local and national emergency preparedness programs and campaigns, such as:

California Wildfire Preparedness Week – This awareness campaign encourages Californians to prepare for wildfire season and help prevent loss of life and property by taking steps such as ensuring adequate defensible space around homes and buildings, making homes more fire resistant and preparing for an evacuation. Californians can learn more about all aspects of fire safety and preparedness at www.ReadyForWildfire.org and through the improved the Ready for Wildfire web-based app.

California Preparedness Day – This event features emergency preparedness activities as well as a variety of disaster readiness demonstrations, including watch water rescues, safety operations from land, water and air, all in the spirit of becoming a more prepared California. While this specific event takes place in Sacramento, consider holding a similar event at the Project.

National Fire Prevention Week – Since 1922, the National Fire Prevention Association has sponsored the public observance of Fire Prevention Week. In 1925, President Calvin Coolidge proclaimed Fire Prevention Week a national observance, making it the longest-running public health observance in our country. During Fire Prevention Week, children, adults, and teachers learn how to stay safe in case of a fire. Firefighters provide lifesaving public education in an effort to drastically decrease casualties caused by fires.

National Preparedness Month – Each September FEMA's Ready campaign hosts the month-long awareness program. Share this information with residents, and consider focusing outreach efforts, such as the annual information session, during this time.

Ready Campaign Preparedness Calendar – This is a planning tool that marks preparedness activities and provides customizable resources to help promote preparedness throughout the year. Materials can be adapted to hazards the Project Site. Information is available at https://www.ready.gov/calendar.

Communication

There are a variety of ways to communicate with residents and businesses to promote disaster preparedness, and regular communication with residents and businesses is critical for developing disaster readiness among community members. In addition to posting both the WERP and MHERP on the HOA and leasing agency websites, information regarding upcoming events, how to register for emergency alerts, and additional resources should also be provided. Social media platforms, such as Facebook, Instagram, and NextDoor can also help bring awareness and generate interest community preparedness events, the community's emergency response plans, as well as encouraging participation in local and national preparedness programs. Further, similar communication can be provided through direct or electronic mail.

7 Community Response Action Guides

7.1 Emergency protocols

Emergency protocols form the core responses to incidents of wildfire which cause a threat to the Project Site. These are written actions that are most often implemented when an emergency calls for specific response procedures and may include:

- On-site Evacuation
- Off-site Evacuation
- Shelter-in Place

The difference between an emergency protocol and an incident specific procedure is that a single emergency protocol may be utilized in one or more specific emergencies. For example, shelter-in-place may be utilized as one of several responses to a wildfire and may include on site evacuation to an emergency evacuation assembly area and/or an off-site evacuation, depending on the circumstances.

The following responses will be considered for emergency situations affecting the Project Site.

In the event a wildfire or smoke from a wildfire has been detected:

- Immediately call 9-1-1 to report a possible wildfire/vegetation fire.
- If communication with Fire Department is possible, consult with fire officials regarding off-site evacuation. If communication with Fire Department is not possible, conduct community assessment of situation including:
  - Fire location and distance from Project Site;
  - Weather conditions – wind strength and direction, humidity;
  - Fuel conditions – continuous fuels between fire and Project Site, fuel moisture levels;
  - Road conditions – free flowing, heavy traffic, blocked; and
  - Others as appropriate and that may affect timely evacuation.
- If the fire is small, weather conditions are not hot, dry and windy, and roads are not blocked, off-site evacuation in the opposite direction of the fire may be appropriate.
- If fire is close to the Project Site and weather conditions and fuels would promote wildfire spread, roadways are experiencing heavy traffic or is blocked, and there are a high number of people on site, sheltering on-site may be appropriate.
- Employees, residents and visitors should be notified immediately of the evacuation or on-site sheltering plan.

7.2 Evacuation

The type of evacuation response to an emergency varies depending on the nature and location of the hazard. The Project offers the ability to evacuate via an improved primary access road that offers additional vehicle capacity in the outbound direction. The Project also offers the ability to evacuate residents via water to the west from the improved pier. Additionally, the Project offers the ability to provide on-site sheltering for various

types of emergencies. These combined options provide emergency managers with optionality during an emergency, which is an important component of successfully responding to and managing large evacuations. Despite the Project's reliance on one access route, these additional options provide contingency evacuation flexibility that combine to meet the intent of applicable code requirements. Richmond OES will notify residents of the type of evacuation that is required.

Off-site evacuation. Whenever it is determined that it is safer outside the Project Site than within (i.e., wildfire, chemical release). This protocol is used when circumstances require off-site evacuation and relocation to a remote site. **Figure 14** provides an evacuation route map.

On-site evacuation. Whenever it is determined that it is safer outside than inside the building(s) (i.e., fire, explosion, hazardous material spill inside, structural failure, etc.). **Figure 15** provides locations for emergency evacuation assembly areas.

Emergency Evacuation Assembly Areas

An emergency evacuation assembly area is a safe zone away from a building, identified and marked in advance, where people can congregate in the event of an emergency evacuation. This should be at a safe distance from buildings and should be universally known by all occupants. The exit routes to an evacuation assembly area will be marked, properly lit, and be of adequate size to accommodate the number of evacuees expected.

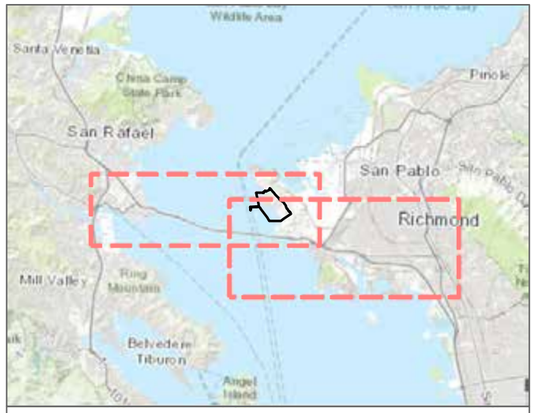
In contrast, an area of refuge is a location in a building designed to hold occupants during a fire or other emergency, when evacuation may not be safe or possible. The City's Building and Safety Department will ensure that refuge areas are included where required during the building permit plan check process.

There are three proposed emergency evacuation assembly areas for the Project Site, one each in the following areas: North Cove, Point Molate, and South Cove (Figure 10). All three locations are in designated open space areas near the waterfront, near the Bay Trail pedestrian pathway, and will be a minimum of 150 feet from all buildings. The exact locations of the assembly areas will depend upon the final approved Project design and building siting. Residents and employees will be notified of all three evacuation assembly areas and informed of the primary and secondary assembly areas for each area of the Project Site. **Table 5** identifies which of the planning and development areas would be served by each of the identified assembly areas. The Project Site HOA will prepare and distribute to residents information regarding the closest assembly areas (see sample below).

> The primary assembly area for the occupants of all buildings located in **North Cove** is **North Cove Park**. The secondary assembly area is **The Point**. These buildings are: **1234 Main Street** and **5678 Second Street**.

Table 5. Emergency Evacuation Assembly Area Locations and Areas Served

Emergency Evacuation Assembly Area	Planning Areas Served	Development Areas Served
North Cove (The Village – Winehaven Historic District)	F, G, H	VI.1, VI.2, VII.1, VII.2
Point Molate (The Point)	C, D, E	III.1, III.2, IV, V
South Cove (The Promenade)	A, B	I, II.1, II.2



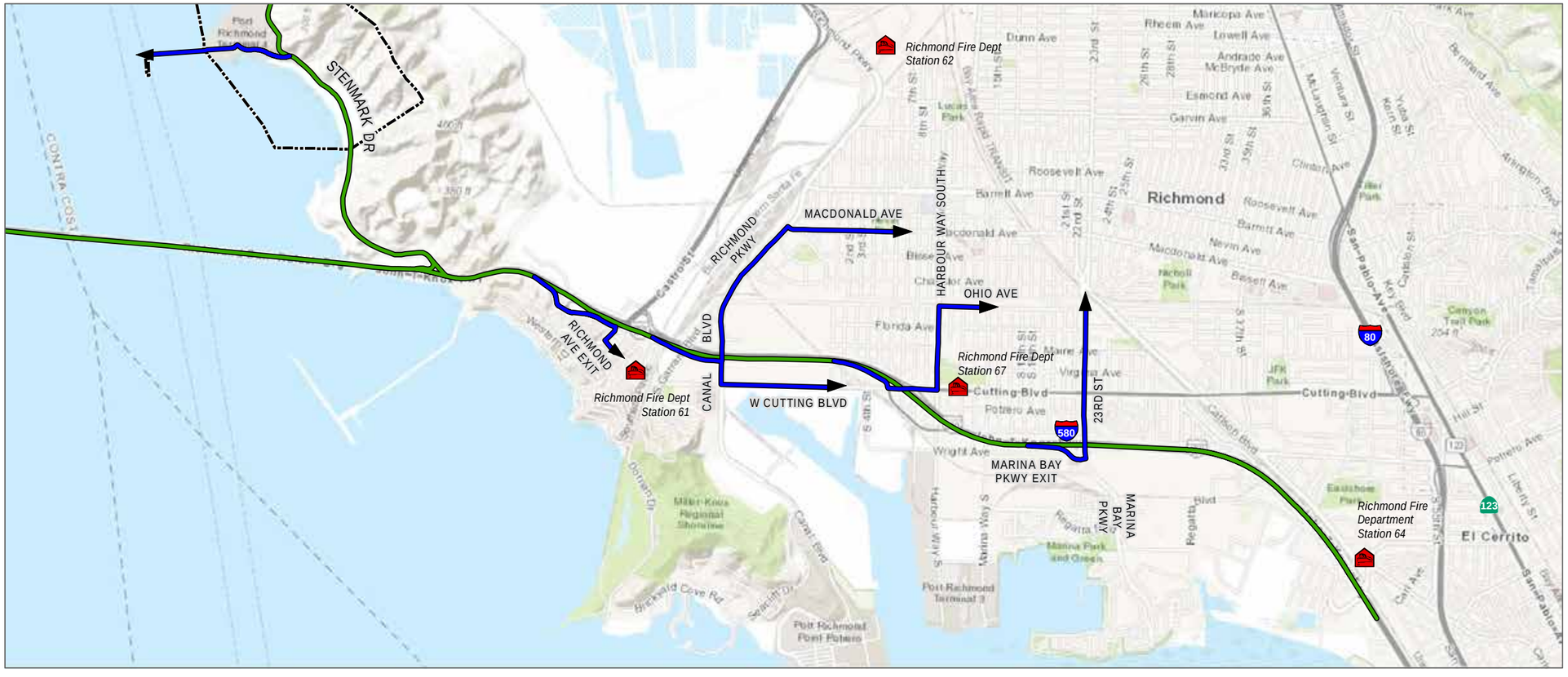
Project Boundary

Fire Station

Evacuation Routes

Secondary Evacuation Route

Primary Evacuation Route



SOURCE: BASE-ESRI

DUDEK

0 1,500 3,000 Feet

FIGURE 14

Evacuation Routes

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

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SOURCE: ANALYTICAL ENVIRONMENTAL SERVICES 2020

FIGURE 15

Evacuation Assembly Areas

Wildfire Emergency Response Plan for Point Molate Mix-Use Development Project

DUDEK

INTENTIONALLY LEFT BLANK

The Point emergency evacuation assembly area will also serve as a gathering site in the event a water escape evacuation is needed utilizing WETA resources and ferries. WETA is a regional public transit agency tasked with operating and expanding ferry service on the San Francisco Bay and with coordinating the water transit response to regional emergencies. The Project shall coordinate with WETA to provide emergency evacuation services to the Project Site.

The existing pier and the associated water transit terminal would be retrofitted for passenger use. Approximately 100 parking spaces would be provided near the pier to serve the watercraft terminal. This parking lot would also be used as an assembly area during an emergency.

Evacuation Signage

The Project's HOA shall be required to provide wayfinding signs throughout the Project Site that assist individuals in locating emergency assembly areas and evacuation routes. Examples of wayfinding signs are shown in **Figure 16**, and suggested locations of these signs throughout the Project Site, along primary road and neighborhood street access routes identified in Figure 7. The actual locations again will be dependent upon the final approved Project design.

Figure 16. Sample signs for Emergency Evacuation Assembly Areas and Access Routes

In the event of fire that leads to an evacuation of the Project Site, the occupants should assemble at the designated assembly areas. Further evacuation may become necessary as directed by law and/or fire officials.

7.3 Shelter-in-place

Evacuation may not always be necessary or advisable and shelter-in-place may be the preferred option. Sheltering in place includes seeking refuge inside an ignition resistant and protected residence or other designated building during a wildfire emergency. This type of response maximizes the safety of occupants when evacuation would place people at risk.

Several "shelter-in-place" areas (areas of refuge) would be located within certain Project Site buildings to provide an alternative to evacuation should emergency managers determine it is the preferred approach. The buildings have not been designated at the time of this WERP's preparation, but it is recommended that large buildings that are built or retrofitted to the latest ignition resistant features of Chapter 7A of the CBC and located west of the primary access spine road be further evaluated as temporary points of refuge. These locations will be supplied by the HOA with earthquake emergency kits, filter masks and other appropriate supplies as recommended by the Richmond Fire Department. In some cases, it may be safest for residents to shelter within their homes, if directed

by officials managing the incident. Therefore, preparedness outreach should also focus on homeowner's readiness and preparation of personal response toolkits.

Certain criteria will be used to determine when to rely on shelter-in-place protection instead of evacuation to protect the community. The following concerns should be considered:

- Wildfire location
- Weather conditions and their potential to result in extreme fire behavior and spread
- Actual speed of onset and persistence of the wildfire
- Road traffic conditions and wildfire exposure
- Proximity of fire or anticipated fire spread direction along evacuation routes;
- Population attributes (age, special needs, mobility, etc.)

Community members should listen for public warning notifications, heed instructions to move to shelter or evacuation points, and keep listening to the radio or other source of information for updated instructions.

8 Limitations

8.1 Assumptions

- The Project Site will continue to be exposed to and subject to the impact of wildfire hazards described previously.
- It is possible for a wildfire to occur at any time in unmaintained vegetation areas. In many cases, dissemination of warning to the public and implementation of increased readiness measures may be possible. However, some emergency situations occur with little or no warning.
- A wildfire emergency could occur at any time without warning and the residents affected cannot, and should not, wait for direction from local response agencies. Action is required immediately to save lives and protect property.
- Residents may sustain injuries of varying degrees of seriousness. However, rapid and appropriate response will reduce the number and severity of injury.
- Outside assistance will be available in most emergency situations. Since it takes time to summon external assistance, it is essential for the Project Site to be prepared to carry out the initial emergency response, as safely as possible, on an independent basis.
- Proper mitigation actions, such as creating situation awareness, pre-planning, and fire inspections, amongst others, can prevent or reduce disaster-related losses. Detailed emergency planning and training can improve the Project Site's readiness to deal with a wildfire event.
- A spirit of volunteerism will result in providing support to emergency response efforts.

8.2 Plan Limits

This Wildfire Emergency Response Plan has been prepared for the Point Molate Mixed-Use Project and is based on available information regarding wildfire hazards that have a possibility to occur within the Project Site. This WERP explores potential hazards that may result in actions by the HOA, leasing agency, residents, business owners and employees. It does not include an analysis and assessment of all possible hazards; however, additional hazards are considered in the Project's Multi-Hazard Emergency Response Plan.

During a wildfire emergency, many variables must be evaluated before making final decisions regarding appropriate actions. This WERP provides standard responses and actions based on emergency response templates available through federal and local government agencies. Actual actions may deviate from those provided herein and should be based on events occurring at the time of the emergency. Whenever possible, communication and coordination with local emergency responders including law enforcement and fire officials should be made prior to making decisions regarding appropriate actions. When communication is not possible, this WERP should be consulted for guidance on the types of actions that should be included in alternative analysis.

This WERP must be maintained and updated as the Project Site and environmental conditions change. Likewise, as situational conditions change, the action plans require updating to improve efficiency and further customize the plans to the Project. In addition to updating and maintaining the WERP, its contents must be distributed to residents and business owners, and training provided so that they understand their responsibilities for their own safety and how to respond to the most typical emergency situations.

This WERP does not imply that hazardous or emergency situations will not occur or that all persons will be safe and out of harm's way. Nor does this MHERP indicate that the provided emergency actions are the only way or the correct way to react to emergency conditions in all circumstances.

Further, no guarantee of a perfect response system is implied by this plan. As emergency situations include events that cannot be entirely predicted, each event includes unique circumstances that make it impossible to completely pre-plan, and personnel and resources may be overwhelmed. The Project endeavors to make every reasonable effort to respond to emergency situations with the resources and information available at the time.

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Appendix A-1

"Ready, Set, Go!" Wildfire Is Coming… Are You Ready? Guides (English)

WILDFIRE IS COMING. ARE YOU READY TO...

GO!

WILDFIRE EVACUATION GUIDE.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885

GIVE YOUR FAMILY THE BEST CHANCE OF SURVIVING A WILDFIRE BY EVACUATING EARLY.

ReadyForWildfire.org

TAKE ACTION IMMEDIATELY WHEN WILDFIRE STRIKES

Follow these steps as soon as possible to get ready to Go!

1. Review your Evacuation Checklist.
2. Ensure your Emergency Supply Kit is in your vehicle.
3. Cover up to protect against heat and flying embers. Wear long pants, long sleeve shirt, heavy shoes/boots, cap, dry bandanna for face cover, goggles or glasses. 100% cotton is preferable.
4. Locate your pets and take them with you.

WHEN TO EVACUATE

Leave as soon as evacuation is recommended by fire officials to avoid being caught in fire, smoke or road congestion. Don't wait to be ordered by authorities to leave. Evacuating early also helps firefighters keep roads clear of congestion, and lets them move more freely to do their job. In an intense wildfire, they may not have time to knock on every door. If you are advised to leave, don't hesitate!

- Officials will determine the areas to be evacuated and escape routes to use depending upon the fire's location, behavior, winds, terrain, etc.
- Law enforcement agencies are typically responsible for enforcing an evacuation order. Follow their directions promptly.
- You will be advised of potential evacuations as early as possible. You must take the initiative to stay informed and aware. Listen to your radio/TV for announcements from law enforcement and emergency personnel.
- You may be directed to temporary assembly areas to await transfer to a safe location.

The terms "Voluntary" and "Mandatory" are used to describe evacuation orders. However, local jurisdictions may use other terminology such as "Precautionary" and "Immediate Threat." These terms are used to alert you to the significance of the danger. All evacuation instructions provided by officials should be followed immediately for your safety.

WHAT TO DO IF YOU BECOME TRAPPED

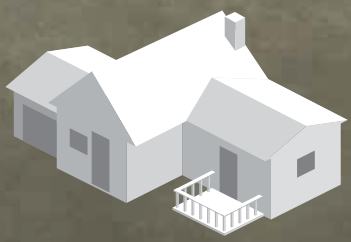
WHILE IN YOUR VEHICLE:

- Stay calm.
- Park your vehicle in an area clear of vegetation.
- Close all vehicle windows and vents.
- Cover yourself with a wool or cotton blanket or jacket.
- Lie on vehicle floor.
- Use your cell phone to advise officials—**Call 911.**

WHILE ON FOOT:

- Stay calm.
- Go to an area clear of vegetation, a ditch or depression on level ground if possible.
- Lie face down and cover up your body.
- Use your cell phone to advise officials—**Call 911.**

WHILE IN YOUR HOME:



- Stay calm and keep your family together.
- **Call 911** and inform authorities of your location.
- Fill sinks and tubs with cold water.
- Keep doors and windows closed, but unlocked.
- Stay inside your house.
- Stay away from outside walls and windows.

PRE-EVACUATION PREPARATION STEPS

When an evacuation is anticipated, follow these checklists (*if time allows*) to give your home the best chance of surviving a wildfire:

OUTSIDE

- ☐ 1 Gather up flammable items from the exterior of the house and bring them inside (patio furniture, children's toys, door mats, trash cans, etc.) or place them in your pool.
- ☐ 2 Turn off propane tanks.
- ☐ 3 Move propane BBQ appliances away from structures.
- ☐ 4 Connect garden hoses to outside water valves or spigots for use by firefighters. Fill water buckets and place them around the house.
- ☐ 5 Don't leave sprinklers on or water running; they can affect critical water pressure.
- ☐ 6 Leave exterior lights on so your home is visible to firefighters in the smoke or darkness of night.
- ☐ 7 Put your Emergency Supply Kit in your vehicle.
- ☐ 8 Back your car into the driveway with vehicle loaded and all doors and windows closed. Carry your car keys with you.
- ☐ 9 Have a ladder available and place it at the corner of the house for firefighters to quickly access your roof.
- ☐ 10 Seal attic and ground vents with pre-cut plywood or commercial seals.
- ☐ 11 Monitor your property and the fire situation. Don't wait for an evacuation order if you feel threatened and need to leave.
- ☐ 12 Check on neighbors and make sure they are preparing to leave.

INSIDE THE HOUSE

- ☐ 13 Shut all windows and doors, leaving them unlocked.
- ☐ 14 Remove flammable window shades and curtains. Close metal shutters.
- ☐ 15 Move flammable furniture to the center of the room, away from windows and doors.
- ☐ 16 Shut off gas at the meter. Turn off pilot lights.
- ☐ 17 Leave your lights on so firefighters can see your house under smoky conditions.
- ☐ 18 Shut off the air conditioning.

ANIMALS

- ☐ 19 Locate your pets and keep them nearby.
- ☐ 20 Prepare farm animals for transport and think about moving them to a safe location early.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NEIGHBORING
PROPERTY

KNOW THE LAW
BE READY TO EVACUATE

CALIFORNIA LAW AUTHORIZES OFFICERS TO RESTRICT ACCESS TO ANY AREA WHERE A MENACE TO PUBLIC HEALTH OR SAFETY EXISTS DUE TO A CALAMITY SUCH AS FLOOD, STORM, FIRE, EARTHQUAKE, EXPLOSION, ACCIDENT OR OTHER DISASTER. REFUSAL TO COMPLY IS A MISDEMEANOR. (PENAL CODE 409.5)

HOW TO BE PREPARED
BEFORE WILDFIRE STRIKES

DEVELOP AN ACTION PLAN THAT INCLUDES:

Where to Go

Have a safe destination planned. It should be a low-risk area, such as a well-prepared friend's or relative's house, an evacuation center, motel, etc.

How To Get There

Plan several travel route options in case one route is blocked by the fire or by emergency vehicles and equipment.

What To Take

Assemble your emergency supply kit long before a wildfire or other disaster occurs. Plan to be away from your home for at least three days. Don't forget to plan for your pets or livestock as well.

For more information on preparing your family, pets and property for wildfire see the Ready for Wildfire "Are You Set?" brochure or visit ReadyforWildfire.org/set.

RETURNING HOME
AFTER A WILDFIRE

Do not return to your home until fire officials determine it is safe. Notification that it is safe to return home will be given as soon as possible considering safety and accessibility.

When you return home:

- Be alert for downed power lines and other hazards.
- Check propane tanks, regulators, and lines before turning gas on.
- Check your residence carefully for hidden embers or smoldering fires.

READY, SET, GO! PREPARATION GUIDES

Preparing for a wildfire starts with three simple steps: Ready, Set, Go! Keep all three wildfire preparation guides on hand as a quick reference for helping your family and property be safe in the event of a wildfire.

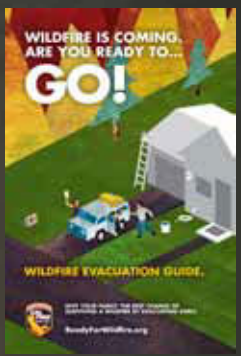
WILDFIRE IS COMING PREPARATION GUIDES:

Step 1:
Is Your Home Ready?

Creating defensible space and hardening your home against wildfire.

Step 2:
Are You Set?

Developing a Wildfire Action Plan.



Step 3:
Are You Ready to Go?

A quick-reference evacuation guide.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885

Go to ReadyForWildfire.org for more detailed information on all three guides to prepare for and survive a wildfire.

WILDFIRE IS COMING. ARE YOU...

READY?

DEFENSIBLE SPACE AND HARDENING YOUR HOME.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885

THOUSANDS OF WILDFIRES STRIKE CALIFORNIA EVERY YEAR. IT'S NOT A MATTER OF IF YOUR HOME IS AT RISK, BUT WHEN.

ReadyForWildfire.org

PLANT AND TREE SPACING

The spacing between grass, shrubs, and trees is crucial to reduce the spread of wildfire. The spacing needed is determined by the type and size of the shrubs and trees, as well as the slope of the land. For example, a property on a steep slope with larger plant life will require greater spacing between trees and shrubs than a level property that has small, sparse vegetation.

VERTICAL SPACING

Remove all tree branches at least 6 feet from the ground.

If shrubs are under trees, additional vertical space is needed. Lack of vertical space can allow a fire to move from the ground to the shrubs to the treetops like a ladder.

FIRE-SAFE LANDSCAPING

Fire-safe landscaping isn't necessarily the same thing as a well-maintained yard. Fire-safe landscaping uses fire-resistant plants that are strategically planted to resist the spread of fire to your home.

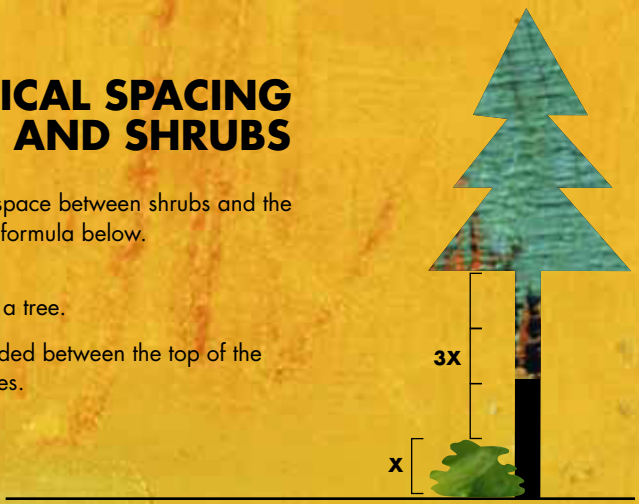
The good news is that you don't need to spend a lot of money to make your landscape fire-safe. And fire-safe landscaping can increase your property value and conserve water while beautifying your home. For more information on fire-safe landscaping, visit: **ReadyForWildfire.org/landscaping**.

MINIMUM VERTICAL SPACING BETWEEN TREES AND SHRUBS

To determine the proper vertical space between shrubs and the lowest branches of trees, use the formula below.

Example:
A five-foot shrub is growing near a tree.

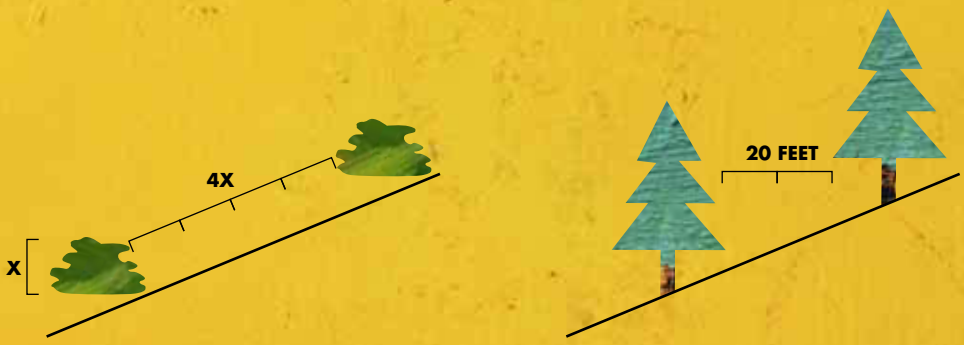
3 x 5 = 15 feet of clearance needed between the top of the shrub and the lowest tree branches.



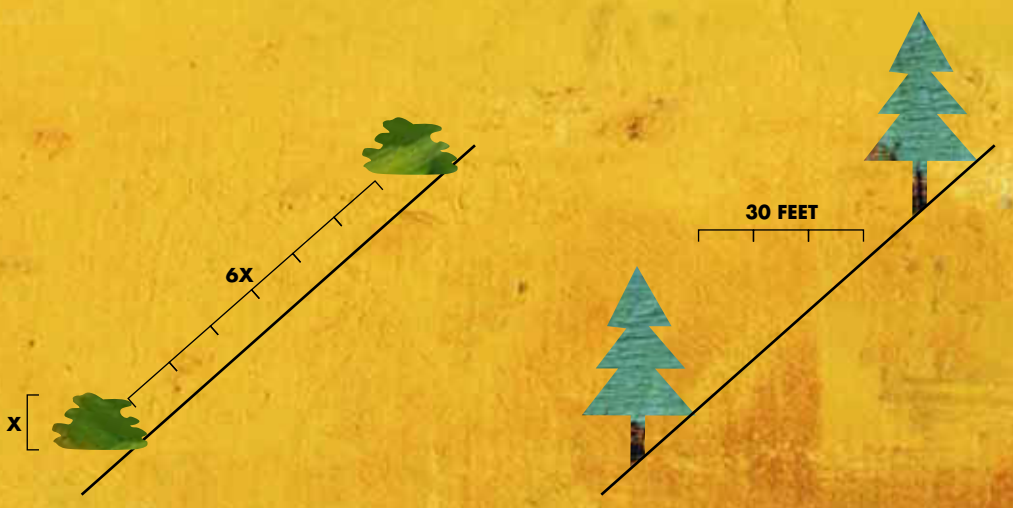
MINIMUM HORIZONTAL SPACING FOR TREES AND SHRUBS

Horizontal spacing depends on the slope of the land and the height of the shrubs or trees. Check the diagrams below to determine spacing distance.

FLAT TO MILD SLOPE (LESS THAN 20%)



MILD TO MODERATE SLOPE (20%–40%)



MODERATE TO STEEP SLOPE (GREATER THAN 40%)

DEFENSIBLE SPACE

Creating and maintaining defensible space is essential for increasing your home's chance of surviving a wildfire. It's the buffer that homeowners are required to create on their property between a structure and the plants, brush and trees or other items surrounding the structure that could catch fire. This space is needed to slow the spread of wildfire and improves the safety of firefighters defending your home.

Two zones make up the required 100 feet of defensible space:

ZONE 1—Extends 30 feet out from buildings, decks, and other structures

1. Remove all dead plants, grass and weeds.
2. Remove dead or dry leaves and pine needles from your yard, roof and rain gutters.
3. Trim trees regularly to keep branches a minimum of 10 feet from other trees.
4. Remove dead branches that hang over your roof. And keep branches 10 feet away from your chimney.
5. Relocate exposed woodpiles outside of Zone 1 unless they are completely covered in a fire resistant material.
6. Remove or prune flammable plants and shrubs near windows.
7. Remove vegetation and items that could catch fire from around and under decks.
8. Create a separation between trees, shrubs and items that could catch fire, such as patio furniture, swing sets, etc.

ZONE 2—Extends 30 to 100 feet from buildings and other structures

9. Cut or mow annual grass down to a maximum height of 4 inches.
10. Create horizontal spacing between shrubs and trees. (See diagram)
11. Create vertical spacing between grass, shrubs and trees. (See diagram)
12. Remove fallen leaves, needles, twigs, bark, cones, and small branches. However, they may be permitted to a depth of 4 inches if erosion control is an issue.

BOTH ZONES—0 to 100 feet from buildings and other structures

13. Mow before 10 a.m., but never when it's windy or excessively dry.
14. Protect water quality. Do not clear vegetation near waterways to bare soil. Vegetation removal can cause soil erosion—especially on steep slopes.

ARE YOU DOING THE RIGHT THING—THE WRONG WAY?

Each year, CAL FIRE responds to hundreds of fires started by Californians using equipment the wrong way. If you live in a wildland area, all equipment must be used with extreme caution.

Lawn mowers, metal-bladed trimmers, chain saws, grinders, welders, and tractors can all start a wildland fire if not used properly. Do your part to keep your community fire-safe.

HERE'S HOW TO DO IT THE RIGHT WAY:

Mowing

Metal blades striking rocks can create sparks and start fires in dry grass. Use caution.

Spark Arresters

In wildland areas, spark arresters are required on all portable, gasoline-powered equipment. This includes tractors, harvesters, chainsaws, weed-trimmers and mowers.

- Keep the exhaust system, spark arresters and mower in proper working order and free of carbon buildup.
- Use the recommended grade of fuel, and don't top it off.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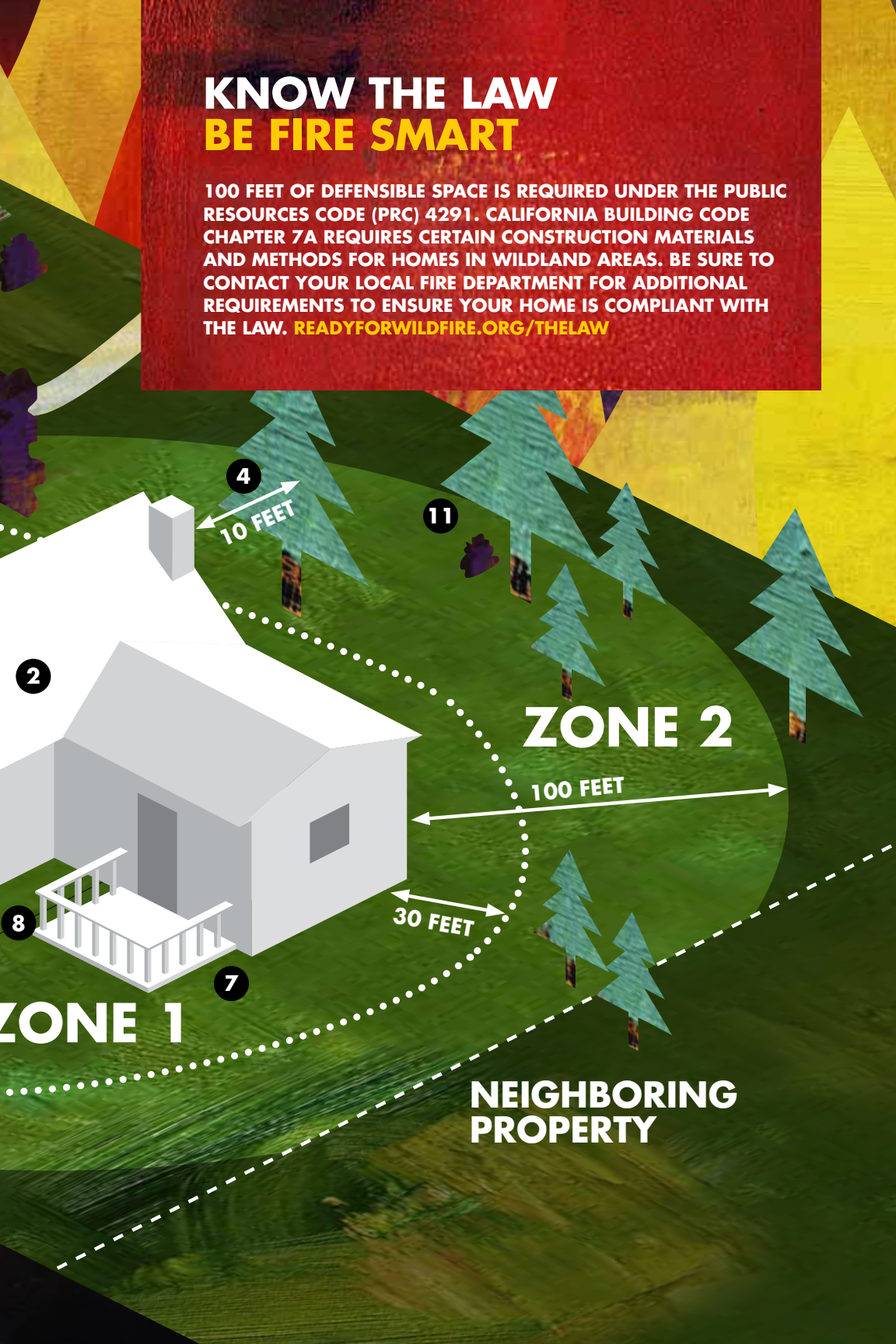
KNOW THE LAW
BE FIRE SMART

100 FEET OF DEFENSIBLE SPACE IS REQUIRED UNDER THE PUBLIC RESOURCES CODE (PRC) 4291. CALIFORNIA BUILDING CODE CHAPTER 7A REQUIRES CERTAIN CONSTRUCTION MATERIALS AND METHODS FOR HOMES IN WILDLAND AREAS. BE SURE TO CONTACT YOUR LOCAL FIRE DEPARTMENT FOR ADDITIONAL REQUIREMENTS TO ENSURE YOUR HOME IS COMPLIANT WITH THE LAW. READYFORWILDFIRE.ORG/THELAW



HARDENING YOUR HOME

FLYING EMBERS CAN DESTROY HOMES UP TO A MILE AHEAD OF A WILDFIRE. PREPARE (HARDEN) YOUR HOME NOW BEFORE FIRE STARTS.

SOME THINGS YOU CAN DO TO HARDEN YOUR HOME:

Roof: Your roof is the most vulnerable part of your home. Homes with wood or shingle roofs are at high risk of being destroyed during a wildfire.

Build your roof or re-roof with materials such as composition, metal or tile. Block any spaces to prevent embers from entering and starting a fire.

Vents: Vents on homes create openings for flying embers.

- Cover all vent openings with 1/8-inch to 1/4-inch metal mesh. Do not use fiberglass or plastic mesh because they can melt and burn.
- Protect vents in eaves or cornices with baffles to block embers. (Mesh is not enough.)

Eaves and Soffits: Eaves and soffits should be protected with ignition-resistant or non-combustible materials.

Windows: Heat from a wildfire can cause windows to break even before the home ignites. This allows burning embers to enter and start fires inside. Single-paned and large windows are particularly at risk.

- Install dual-paned windows with one pane of tempered glass.
- Consider limiting the size and number of windows that face large areas of vegetation.

Decks: Surfaces within 10 feet of the building should be built with ignition-resistant, non-combustible, or other approved materials.

- Remove all combustible items from underneath your deck.

Exterior Walls: Wood products such as boards, panels or shingles are common siding materials. However, they are combustible and not good choices for fire-prone areas.

- Build or remodel your walls with ignition-resistant building materials, such as stucco, fiber or cement siding, fire-retardant-treated wood, or other approved materials.
- Be sure to extend materials from the foundation to the roof.

Rain Gutters: Screen or enclose rain gutters to prevent accumulation of plant debris.

Patio Cover: Use the same ignition-resistant materials for patio covers as a roof.

Fences: Consider using ignition-resistant or non-combustible fence materials to protect your home during a wildfire.

Additional Home Fire Safety Steps:

Go to ReadyForWildfire.org/hardening for more important information on the following:

- Driveways and Access Road Information
- Garage Safety
- Address Visibility
- Water Supply Access
- Equipment Use Safety
- Ignition-Resistant Materials

READY, SET, GO! PREPARATION GUIDES

Preparing for a wildfire starts with three simple steps: Ready, Set, Go! Keep all three wildfire preparation guides on hand as a quick reference for helping your family and property be safe in the event of a wildfire.

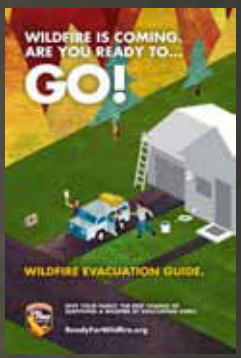
WILDFIRE IS COMING PREPARATION GUIDES:

Step 1:
Is Your Home Ready?

Creating defensible space and hardening your home against wildfire.

Step 2:
Are You Set?

Developing a Wildfire Action Plan.



Step 3:
Are You Ready to Go?

A quick-reference evacuation guide.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885

Go to ReadyForWildfire.org for more detailed information on all three guides to prepare for and survive a wildfire.


WILDFIRE IS COMING.
ARE YOU...
SET?
GET PREPARED TO EVACUATE
BEFORE WILDFIRE STRIKES.
CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885
THOUSANDS OF WILDFIRES STRIKE CALIFORNIA EVERY YEAR. IT'S NOT A MATTER OF IF YOUR HOME IS AT RISK, BUT WHEN.
ReadyForWildfire.org

USE THIS GUIDE TO PREPARE YOUR EVACUATION PLAN AND EMERGENCY SUPPLY KIT

Once you complete your plan, rehearse and discuss it regularly with your family. Consider practicing the plan at night as well. Keep it in a safe, visible place for quick access when a wildfire emergency occurs.

Reminder: In an emergency it is easy to become confused or panicked. Preparing your wildfire action plan in advance will help keep you focused and able to act quickly when evacuation is anticipated or needed.

For more information on wildfire evacuation planning and survival, see the Ready for Wildfire "Go!" brochure or visit ReadyforWildfire.org/go.

KNOW THE LAW
BE READY TO EVACUATE

CALIFORNIA LAW AUTHORIZES OFFICERS TO RESTRICT ACCESS TO ANY AREA WHERE A MENACE TO PUBLIC HEALTH OR SAFETY EXISTS DUE TO A CALAMITY SUCH AS FLOOD, STORM, FIRE, EARTHQUAKE, EXPLOSION, ACCIDENT OR OTHER DISASTER. REFUSAL TO COMPLY IS A MISDEMEANOR. (PENAL CODE 409.5)

CREATE
A WILDFIRE ACTION PLAN

Your Wildfire Action Plan must be prepared and familiar to all members of your household well in advance of a wildfire. Use the checklist below to help create your plan. Each family's plan will be different, depending on a variety of issues, needs and situations.

YOUR WILDFIRE ACTION PLAN CHECKLIST:

Create an evacuation plan that includes:

- ☐ A designated emergency meeting location outside the fire or hazard area. This is critical to determine who has safely evacuated from the affected area.
- ☐ Several different escape routes from your home and community. Practice these often so everyone in your family is familiar in case of emergency.
- ☐ Have an evacuation plan for pets and large animals such as horses and other livestock.
- ☐ A family communication plan that designates an out-of-area friend or relative as a point of contact to act as a single source of communication among family members in case of separation. (It is easier to call or message one person and let them contact others than to try and call everyone when phone, cell, and internet systems can be overloaded or limited during a disaster.)

Be Prepared:

- ☐ Have fire extinguishers on hand and train your family how to use them. (Check expiration dates regularly.)
- ☐ Ensure that your family knows where your gas, electric, and water main shut-off controls are located and how to safely shut them down in an emergency.
- ☐ Assemble an Emergency Supply Kit for each person, as recommended by the American Red Cross. (See next section for details.)
- ☐ Maintain a list of emergency contact numbers posted near your phone and in your emergency supply kit.
- ☐ Keep an extra emergency supply kit in your car in case you cannot get to your home because of fire or other emergency.
- ☐ Have a portable radio or scanner so you can stay updated on the fire.
- ☐ Tell your neighbors about Ready, Set, Go! and your Wildfire Action Plan.

REMEMBER THE SIX "P's"
KEEP THESE SIX "P's" READY IN CASE IMMEDIATE EVACUATION IS REQUIRED:

- **People and pets**
- **Papers, phone numbers, & important documents**
- **Prescriptions, vitamins, and eyeglasses**
- **Pictures and irreplaceable memorabilia**
- **Personal computer hard drive and disks**
- **"Plastic" (credit cards, ATM cards) and cash**

ASSEMBLE
AN EMERGENCY SUPPLY KIT

Put together your Emergency Supply Kit long before a wildfire or other disaster occurs and keep it easily accessible so you can take it with you when you have to evacuate. Plan to be away from your home for an extended period of time. Each person should have a readily accessible Emergency Supply Kit. Backpacks work great for storing these items (except food and water) and are quick to grab. Storing food and water in a tub or chest on wheels will make it easier to transport. Keep it light enough to be able to lift it into your car.

Emergency Supply Kit Checklist:

- ☐ Three-day supply of non-perishable food and three gallons of water per person
- ☐ Map marked with at least two evacuation routes
- ☐ Prescriptions or special medications
- ☐ Change of clothing
- ☐ Extra eyeglasses or contact lenses
- ☐ An extra set of car keys, credit cards, cash or traveler's checks
- ☐ First aid kit
- ☐ Flashlight
- ☐ Battery-powered radio and extra batteries
- ☐ Sanitation supplies
- ☐ Copies of important documents (birth certificates, passports, etc.)
- ☐ Don't forget pet food and water!

Items to take if time allows:

- ☐ Easily carried valuables
- ☐ Family photos and other irreplaceable items
- ☐ Personal computer information on hard drives and disks
- ☐ Chargers for cell phones, laptops, etc.

ALWAYS KEEP A STURDY PAIR OF SHOES AND A FLASHLIGHT NEAR YOUR BED AND HANDY IN CASE OF A SUDDEN EVACUATION AT NIGHT.

FOR MORE INFORMATION ON EMERGENCY SUPPLIES, VISIT WWW.READY.GOV.

SAVE THIS
FAMILY COMMUNICATION PLAN

Fill out this form and place it near your telephone where it can easily be found by everyone in your household. Copy the form and keep it in your Emergency Supply Kits. This will allow all family members to have access to this key information in case you get separated.

WHEN WE HAVE TO EVACUATE, WE WILL MEET AT:

_____

OUR OUT-OF-AREA EMERGENCY CONTACT PERSON IS:

Name: _____ Relationship: _____

Home Phone #: _____ Cell Phone #: _____

E-mail: _____

OTHER IMPORTANT NUMBERS ARE:

Emergency 911: _____ Local Police: _____

Local Fire Department: _____ Other: _____

Other: _____ Other: _____

OUR TWO EVACUATION ROUTES ARE (SKETCH ROUTES BELOW):

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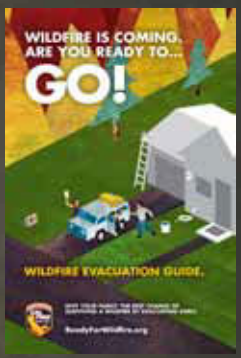

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CAL FIRE
SINCE 1885

Go to ReadyForWildfire.org for more detailed information on all three guides to prepare for and survive a wildfire.

Appendix A-2

"Ready, Set, Go!" Wildfire Is Coming… Are You Ready? Guides (Spanish)

EL INCENDIO FORESTAL SE ACERCA. ¿ESTÁ LISTO PARA IRSE...

YA!

SU GUÍA DE EVACUACIÓN EN CASO DE INCENDIO FORESTAL

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885

SI QUIERE QUE SU FAMILIA TENGA LA MEJOR PROBABILIDAD DE SOBREVIVIR A UN INCENDIO FORESTAL, EVACUE LA CASA CON ANTICIPACIÓN.

ReadyForWildfire.org

ACTÚE DE INMEDIATO CUANDO EL INCENDIO FORESTAL AZOTA

Si es necesario evacuar la casa de inmediato, siga estos pasos cuanto antes para estar listo para irse YA:

1. Repase la lista de verificación para la evacuación.
2. Asegúrese de que el kit de suministros de emergencia esté en el vehículo.
3. Cúbrase para protegerse del calor y de las pequeñas brasas que vuelan. Póngase pantalones largos, camisas de mangas largas, zapatos/botas resistentes, gorro, pañuelo seco para cubrirse la cara, gafas o anteojos. Es preferible usar 100% algodón.
4. Ubique a sus mascotas y lléveselas.

CUÁNDO EVACUAR SU CASA

Váyase en cuanto los bomberos recomiendan la evacuación para evitar quedar atrapado por el incendio, el humo o la congestión de tráfico. No espere a que las autoridades le ordenen marcharse. Evacuar con anticipación también ayuda a los bomberos a despejar la congestión de las calles, y les permite moverse con mayor libertad para hacer su trabajo. Ante un incendio forestal intenso, posiblemente no tendrán tiempo para golpear a cada una de las puertas.¡Si le recomiendan marcharse, no lo dude!

- Los bomberos determinarán las áreas que deben evacuarse y las rutas de escape dependiendo de la ubicación del incendio, el comportamiento, los vientos, el terreno, etc.
- Las autoridades policiales por lo general son las responsables de hacer cumplir las órdenes de evacuación. Siga sus instrucciones de inmediato.
- Se le notificarán de las posibles evacuaciones con la mayor antelación posible. Deberá tomar la iniciativa de mantenerse informado y alerta. Escuche la radio o televisión para conocer los anuncios realizados por la policía y el personal de emergencia.
- Podrá dirigirse a las áreas de reunión temporal para esperar el traslado a un lugar seguro.

Los términos "Voluntaria" y "Obligatoria" se utilizan para describir las órdenes de evacuación. Sin embargo, las jurisdicciones locales podrán utilizar otros términos, tales como "Medida cautelar" y "Amenaza inmediata". Estos términos se utilizan para alertarlo de la importancia del peligro. Para su seguridad, deberá seguir de inmediato todas las instrucciones de evacuación suministradas por los oficiales.

QUÉ HACER SI QUEDA ATRAPADO

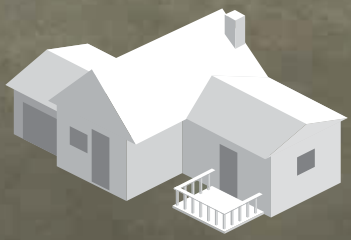
MIENTRAS SE ENCUENTRA EN EL VEHÍCULO:

- Conserve la calma.
- Estacione el vehículo en un área sin vegetación.
- Cierre todas las ventanas y ventilaciones del vehículo.
- Cúbrase con una campera o manta de algodón o de lana.
- Acuéstese en el piso del auto.
- Utilice el teléfono celular para avisar a la policía: **llame al 911.**

MIENTRAS SE ENCUENTRA CAMINANDO:

- Conserve la calma.
- Diríjase a un área sin vegetación, una zanja o depresión a nivel del suelo, si fuera posible.
- Acuéstese boca abajo, cúbrase el cuerpo.
- Utilice el teléfono celular para avisar a la policía: **llame al 911**

MIENTRAS SE ENCUENTRA EN SU CASA:



- Conserve la calma, mantenga a la familia unida.
- Llame al 911 e informe a las autoridades su ubicación.
- Llene los fregaderos y las tinas con agua fría.
- Mantenga las puertas y ventanas cerradas, pero sin llave.
- Quédese adentro de la casa.
- Aléjese de las paredes y ventanas exteriores.

PASOS PARA PREPARARSE
ANTES DE LA EVACUACIÓN

Si se prevé una evacuación, siga esta lista de verificación (si el tiempo lo permite) para que su casa tenga la mejor probabilidad de sobrevivir a un incendio forestal:

AFUERA

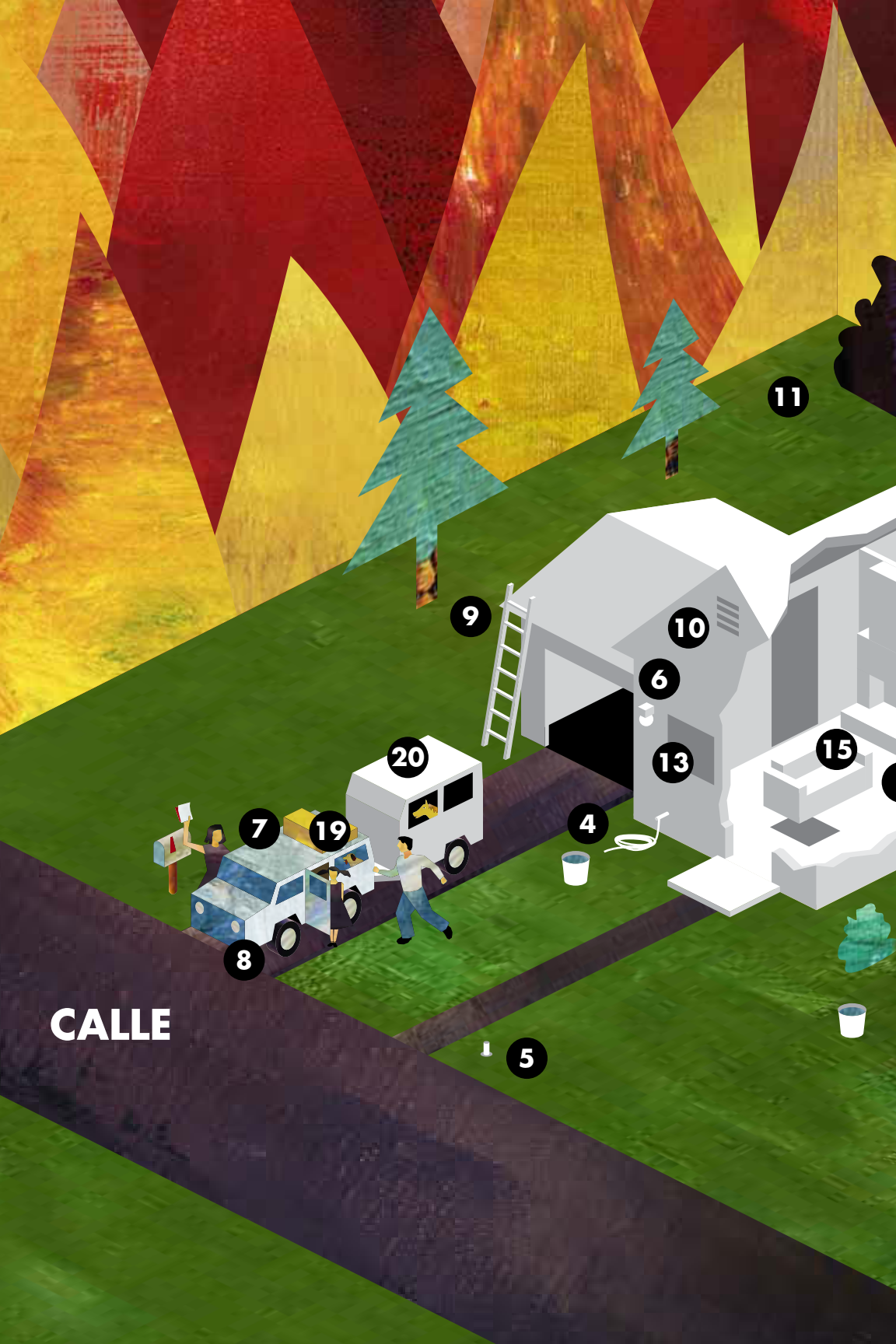
- ☐ 1 Reúna los artículos inflamables que se encuentran en el exterior de la casa y éntrelos a la casa (mobiliario del patio, juegos de niños, tapetes, cestos de basura, etc.) o colóquelos en la piscina.
- ☐ 2 Apague los tanques de propano.
- ☐ 3 Aleje los equipos de barbacoa a propano de las estructuras.
- ☐ 4 Conecte las mangueras de jardín a los grifos o llaves de agua exteriores para que puedan utilizarlas los bomberos. Llene cubos con agua y colóquelos alrededor de la casa.
- ☐ 5 No deje los aspersores encendidos ni el agua corriendo, ya que pueden afectar la presión de agua.
- ☐ 6 Deje las luces exteriores encendidas para que los bomberos puedan a través del humo y en la oscuridad de la noche.
- ☐ 7 Coloque el kit de suministros de emergencia en su vehículo.
- ☐ 8 Estacione el auto de culata en la entrada para coches con el vehículo cargado y todas las puertas y ventanas cerradas. Tenga las llaves del auto con usted.
- ☐ 9 Tenga una escalera a mano y colóquela en la esquina de la casa para que los bomberos puedan acceder rápidamente al techo.
- ☐ 10 Selle los conductos de ventilación del ático y del suelo con selladores comerciales o madera contrachapada precortada.
- ☐ 11 Controle su propiedad y la situación sobre los incendios. Al sentirse amenazado o con la necesidad de desalojar, no espere una orden de evacuación.
- ☐ 12 Pase a ver a sus vecinos y asegúrese de que se estén preparando para irse.

DENTRO DE LA CASA

- ☐ 13 Cierre todas las ventanas y puertas, pero déjelas sin llave.
- ☐ 14 Retire las persianas, cortinas y postigos metálicos inflamables. Retire las cortinas livianas.
- ☐ 15 Desplace el mobiliario inflamable hacia el centro de la habitación, lejos de las ventanas y puertas.
- ☐ 16 Corte el gas desde el medidor. Apague las llamas piloto.
- ☐ 17 Deje las luces encendidas para que los bomberos puedan ver su casa a pesar del humo.
- ☐ 18 Apague el aire acondicionado.

ANIMALES

- ☐ 19 Ubique a sus mascotas y manténgalas cerca.
- ☐ 20 Prepare los animales de granja para el transporte y piense en trasladarlos a un lugar seguro con anticipación.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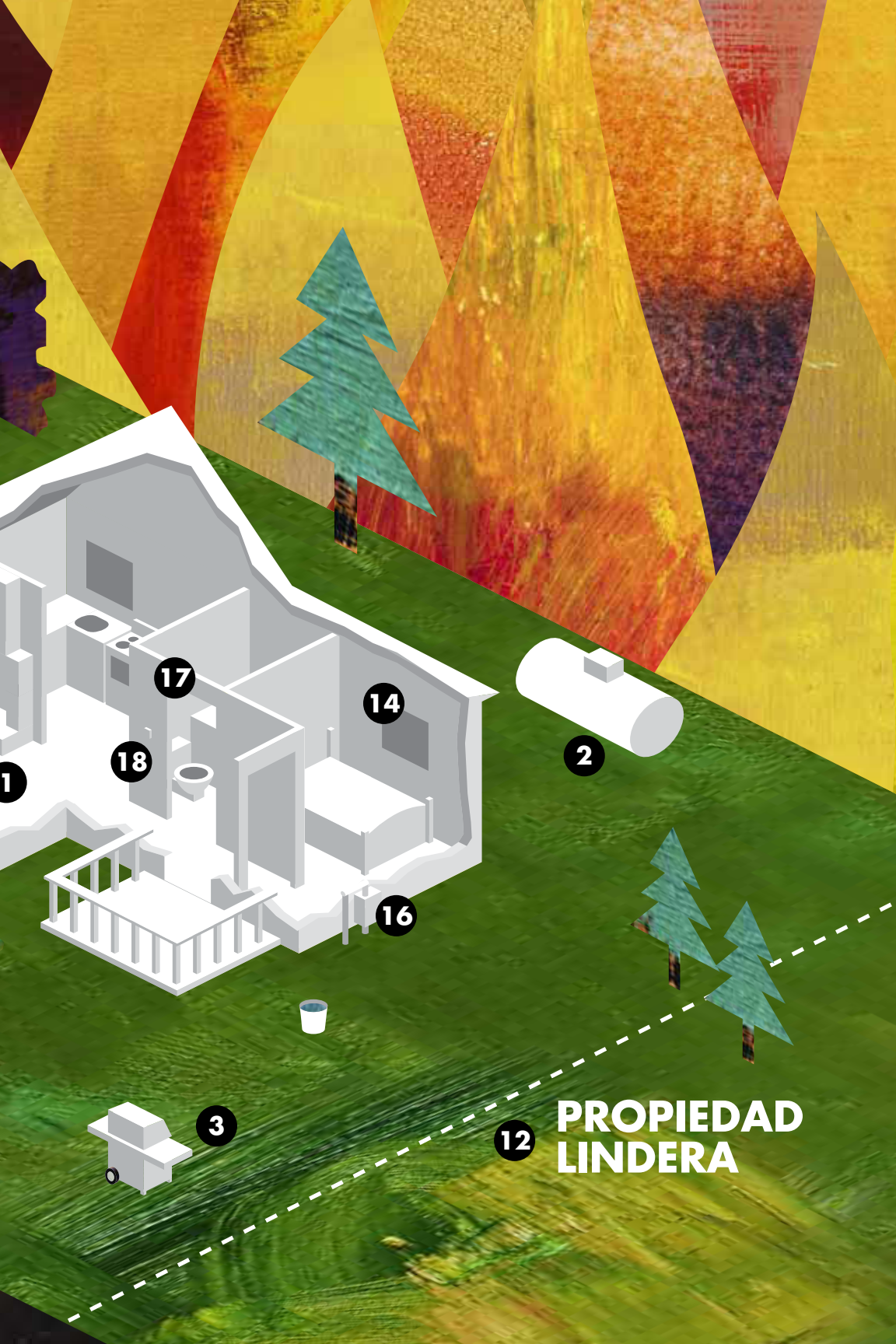
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PROPIEDAD
LINDERA

CONOZCA LA LEY
ESTÉ LISTO PARA LA EVACUACIÓN

LA LEY DE CALIFORNIA AUTORIZA A LOS FUNCIONARIOS A RESTRINGIR EL ACCESO A AQUELLAS ÁREAS DONDE EXISTE UNA AMENAZA A LA SALUD PÚBLICA O SEGURIDAD PÚBLICA DEBIDO A UNA CATÁSTROFE, POR EJEMPLO INUNDACIÓN, TORMENTA, INCENDIO, TERREMOTO, EXPLOSIÓN, ACCIDENTE U OTRO DESASTRE. EL NEGARSE A CUMPLIR ESTA RESTRICCIÓN CONSTITUYE UN DELITO MENOR. (CÓDIGO PENAL 409.5)

CÓMO PREPARARSE
ANTES DE QUE AZOTE UN INCENDIO FORESTAL

ELABORE UN PLAN DE ACCIÓN QUE INCLUYA LOS SIGUIENTES TEMAS:

Dónde ir:

Tenga un destino seguro planificado. Debería ser un lugar de bajo riesgo, por ejemplo la casa de un amigo o pariente bien preparada, un centro de evacuación, motel, etc.

Cómo llegar:

Planifique diversas rutas de viaje ya que alguna de ellas podría estar bloqueada por el incendio o por los vehículos y equipos de emergencia.

Qué llevar:

Arme el kit de suministros de emergencia antes de que ocurra un incendio forestal u otro desastre. Planifique estar fuera de su casa por lo menos tres días. No se olvide de hacer planes para sus mascotas o ganado.

Para obtener más información sobre cómo preparar a su familia, mascotas y propiedad para un incendio forestal consulte el folleto "Listos" o ingrese a ReadyforWildfire.org/set.

DESPUÉS DE
UN INCENDIO FORESTAL

No regrese a su casa hasta que los oficiales a cargo del incendio determinen que es seguro hacerlo. Se le avisará cuándo es seguro regresar a casa cuanto antes considerando la seguridad y la accesibilidad.

Al regresar a su casa:

- Esté atento a posibles cables eléctricos caídos u otros peligros.
- Verifique los tanques de propano, reguladores y conductos antes de abrir el gas.
- Revise su residencia con cuidado para detectar posibles brasas ocultas o fuegos escondidos o humeantes.

GUÍAS DE PREPARACIÓN ¡PREPARADOS, LISTOS, YA!

Prepararse para un incendio forestal consta de 3 pasos simples: ¡Preparados, Listos, Ya! Conserve las tres guías de preparación para incendios forestales a mano y utilícelas como referencia rápida para ayudar a proteger a su familia y propiedad ante un incendio forestal.

GUÍAS DE PREPARACIÓN "EL INCENDIO FORESTAL SE ACERCA":

Paso 1:
¿Su casa está preparada?

Cómo crear un espacio defendible y proteger su casa de los incendios forestales.

Paso 2:
¿Está listo?

Cómo elaborar un plan de acción contra incendios forestales.

Paso 3:
¿Ya está listo para irse?

Una guía de referencia rápida para la evacuación.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885

Ingrese a ReadyForWildfire.org para obtener más información sobre las tres guías para preparase para y sobrevivir a un incendio forestal.

EL INCENDIO FORESTAL SE ACERCA. ¿ESTÁ...

PREPARADO?

ESPACIO DEFENDIBLE Y CÓMO HACER RESISTENTE SU CASA.

MILES DE INCENDIOS FORESTALES AZOTAN CALIFORNIA CADA AÑO. NO SE TRATA DE SI SU CASA CORRE RIESGO, SINO DE CUÁNDO LO CORRERÁ.

ReadyForWildfire.org

ESPACIADO ENTRE PLANTAS Y ÁRBOLES

El espaciado entre el césped, los arbustos y los árboles es crucial para reducir la expansión de los incendios forestales. El espaciado necesario está determinado por la clase y el tamaño de los arbustos y árboles, así como por la pendiente del terreno. Por ejemplo, una propiedad ubicada en una pendiente pronunciada con una vegetación mucho más frondosa requiere de mayor espaciado entre los árboles y arbustos que una propiedad nivelada que tiene vegetación pequeña y escasa.

ESPACIADO VERTICAL

Quite todas las ramas de los árboles que estén a menos de 6 pies (2 metros) del suelo.

Si los arbustos están debajo de los árboles, se necesitará más espacio vertical. La falta de espacio vertical puede permitirle al fuego moverse desde el suelo, al matorral, a la copa del árbol como si subiera una escalera.

PAISAJISMO A PRUEBA DE FUEGO

El paisajismo a prueba de fuego no es necesariamente lo mismo que un jardín bien mantenido. El paisajismo a prueba de fuego usa plantas resistentes al fuego plantadas en lugares estratégicos para resistir la expansión del fuego hacia su casa.

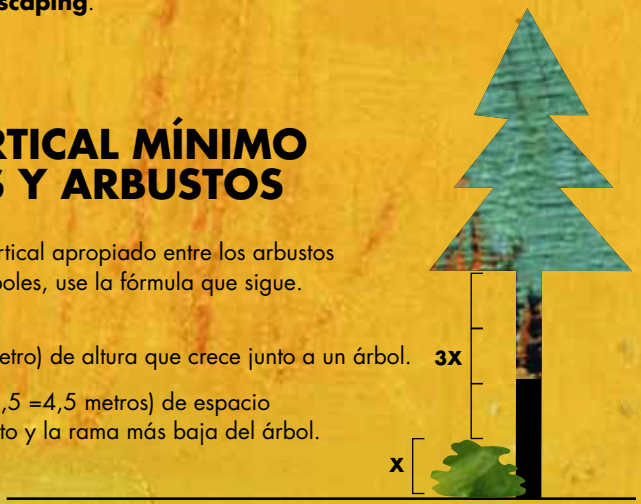
La buena noticia es que no tiene que gastar mucho dinero para convertir su jardín en una zona a prueba de fuego. Y el paisajismo ignífugo puede aumentar el valor de su propiedad y preservar el agua, a la vez que decora su casa. Para obtener más información sobre paisajismo a prueba de fuego, ingrese a: **ReadyForWildfire.org/landscaping**.

ESPACIADO VERTICAL MÍNIMO ENTRE ÁRBOLES Y ARBUSTOS

Para determinar el espaciado vertical apropiado entre los arbustos y las ramas más bajas de los árboles, use la fórmula que sigue.

Ejemplo:
Hay un arbusto de 5 pies (1,5 metro) de altura que crece junto a un árbol.

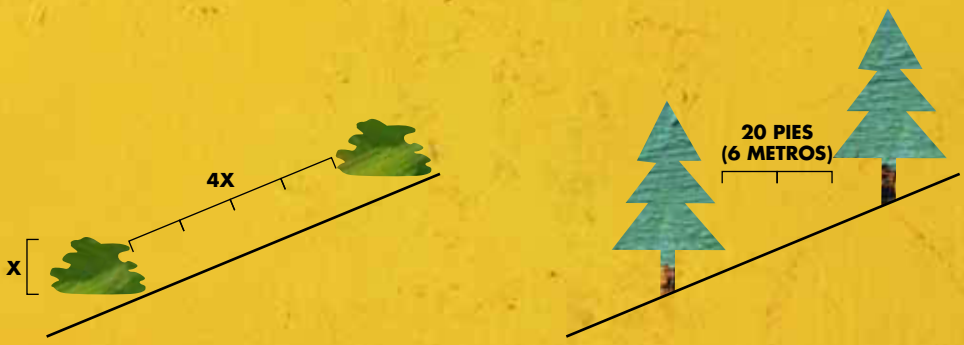
Se necesitan 3x5 = 15 pies (3x1,5 =4,5 metros) de espacio entre la parte superior del arbusto y la rama más baja del árbol.



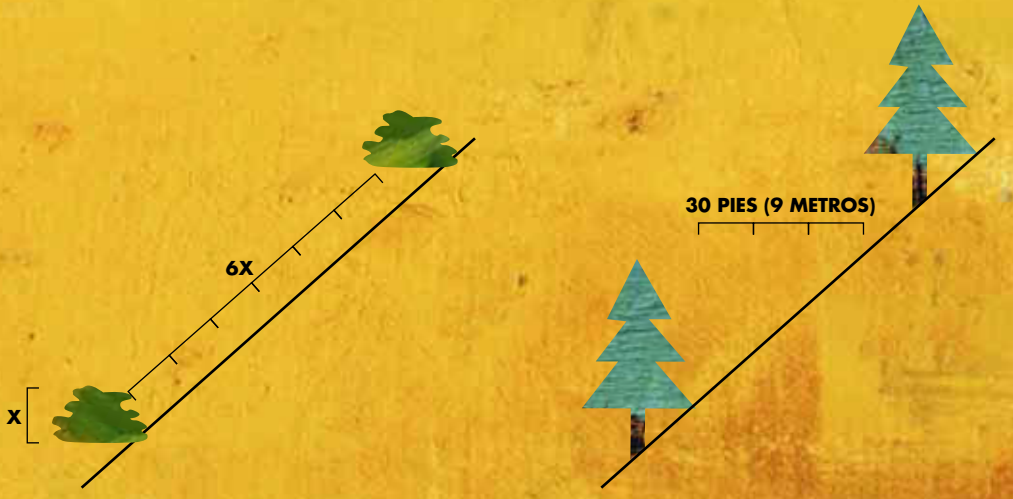
ESPACIADO HORIZONTAL MÍNIMO PARA ÁRBOLES Y ARBUSTOS

El espaciado horizontal depende de la pendiente del terreno y la altura de los arbustos y árboles. Observe el cuadro que sigue para determinar la distancia entre uno y otro.

PENDIENTE NULA A SUAVE (MENOS DEL 20%)



PENDIENTE SUAVE A MODERADA (20%–40%)



PENDIENTE MODERADA A PRONUNCIADA (MÁS DEL 40%)

ESPACIO DEFENDIBLE

Es imprescindible crear y mantener un espacio defendible para aumentar las probabilidades de que su casa sobreviva a un incendio forestal. Es la zona de transición que los propietarios deben crear en su propiedad entre las estructuras y las plantas, los arbustos y los árboles o cualquier otro artículo aledaño a la estructura que podría incendiarse. Este espacio es necesario para detener la expansión del incendio forestal y mejora la seguridad de los bomberos que intentan salvar su casa.

El espacio defendible exigido de 100 pies (30 metros) está compuesto de dos zonas:

ZONA 1: Se extiende 30 pies (9 metros) a la redonda de los edificios, los entarimados y otras estructuras

1. Quite las plantas, el césped y las malezas muertos.
2. Quite las hojas y las agujas de pino muertas o secas que se encuentren en el jardín, el techo y las canaletas de desagüe.
3. Pode regularmente los árboles para que las ramas estén a una distancia mínima de 10 pies (3 metros) de otros árboles.
4. Quite las ramas muertas que cuelgan sobre el techo. Mantenga las ramas a una distancia de 10 pies (3 metros) de la chimenea.
5. Ubique las pilas de leña fuera de la Zona 1, salvo que estén totalmente cubiertas por un material resistente al fuego.
6. Quite o pode las plantas y arbustos inflamables que se encuentren cerca de las ventanas.
7. Quite la vegetación y los objetos que podrían incendiarse de alrededor y debajo de los entarimados.
8. Cree una separación entre los árboles, los arbustos y los artículos que podrían incendiarse, como el mobiliario del patio, los juegos de hamacas, etc.

ZONA 2: Se extiende entre 30 pies (9 metros) y 100 pies (30 metros) a la redonda de los edificios y otras estructuras

9. Corte el césped anual a una altura no mayor de 4 pulgadas (10 centímetros).
10. Cree espacios horizontales entre los arbustos y los árboles. (vea el diagrama)
11. Cree espacios verticales entre el césped, los arbustos y los árboles. (vea el diagrama)
12. Quite las hojas, agujas de pino, corteza, piñas de pino y ramas pequeñas que se hayan caído. Es posible que puedan estar permitidos hasta una altura de 4 pulgadas (10 centímetros) si el control de la erosión es un problema.

AMBAS ZONAS: Se extiende entre 0 pies (0 metros) y 100 pies (30 metros) a la redonda de edificios y otras estructuras

13. Corte el césped antes de las 10 de la mañana, pero no lo haga si hay mucho viento o un clima muy seco.
14. Proteja la calidad del agua. No despeje la vegetación que se encuentre cerca de las vías fluviales dejando el suelo expuesto. La remoción de la vegetación puede ocasionar la erosión del suelo, especialmente en las pendientes empinadas.

¿ESTÁ USTED HACIENDO LO CORRECTO DE MANERA INCORRECTA?

Cada año, CAL FIRE responde a cientos de incendios desencadenados por californianos que utilizan sus equipos de modo incorrecto. Si vive en una zona forestal, deberá utilizar los equipos con extrema cautela.

Las cortadoras de césped, las bordeadoras con cuchillas de metal, las cierras eléctricas, los trituradores, las soldadoras y los tractores pueden desencadenar un incendio forestal si no se operan en forma adecuada. Haga su parte para mantener a su comunidad a salvo del fuego.

ASÍ ES CÓMO SE HACE DE LA MANERA CORRECTA:

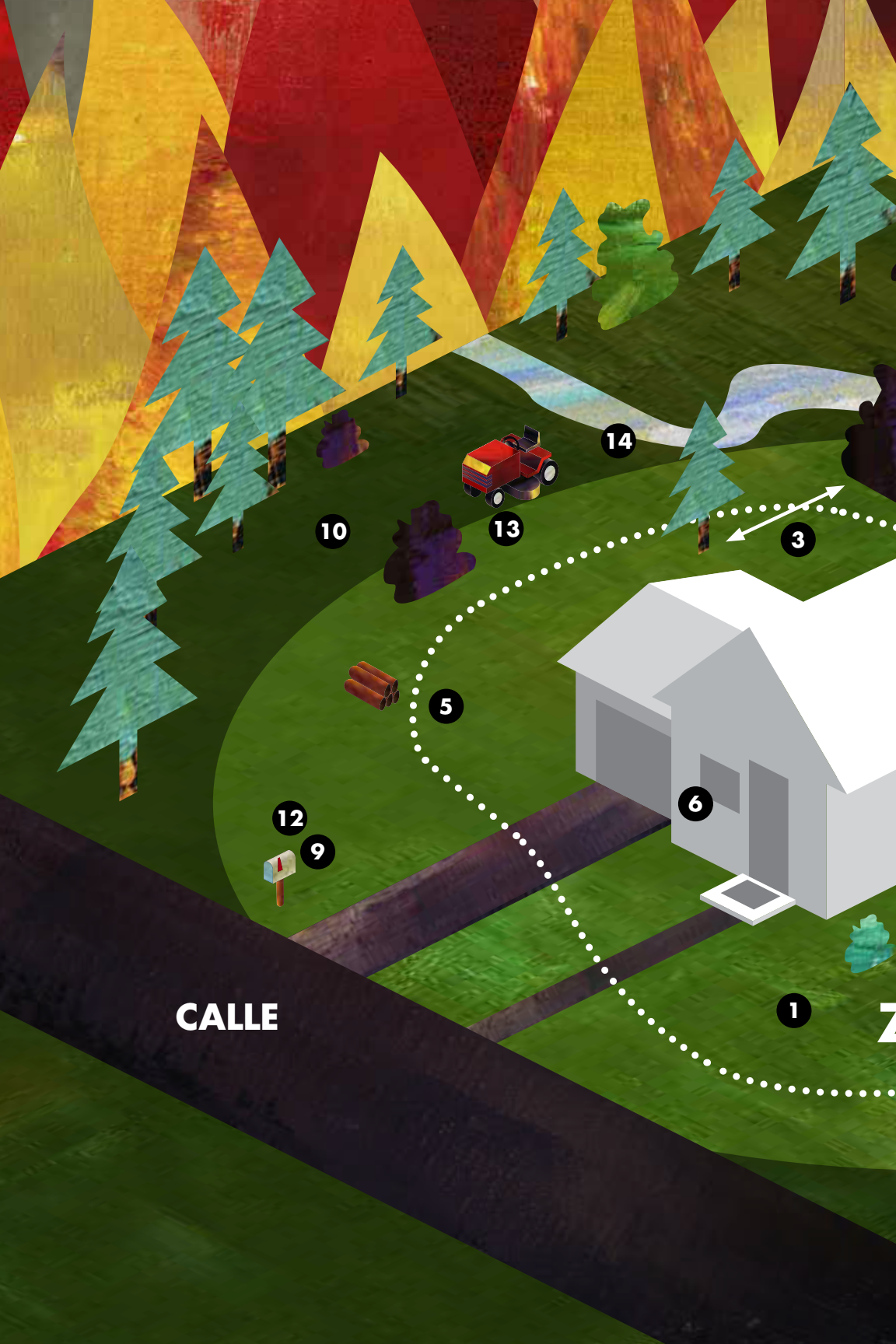
Al cortar el césped

Cuando las cuchillas de metal golpean las rocas, pueden producir chispas y desencadenar incendios en el césped seco. Sea precavido.

Protectores contra chispas

En las zonas forestales, es obligatorio usar protectores contra chispas en todos los equipos portátiles a gasolina. Esto incluye tractores, cosechadoras, sierras eléctricas, desmalezadoras y cortadoras de césped.

- Asegúrese de que el sistema de escape, los protectores contra chispas y la cortadora de césped funcionen correctamente y no tengan acumulación de carbón.
- Utilice el grado de combustible recomendado y no llene el tanque hasta el tope.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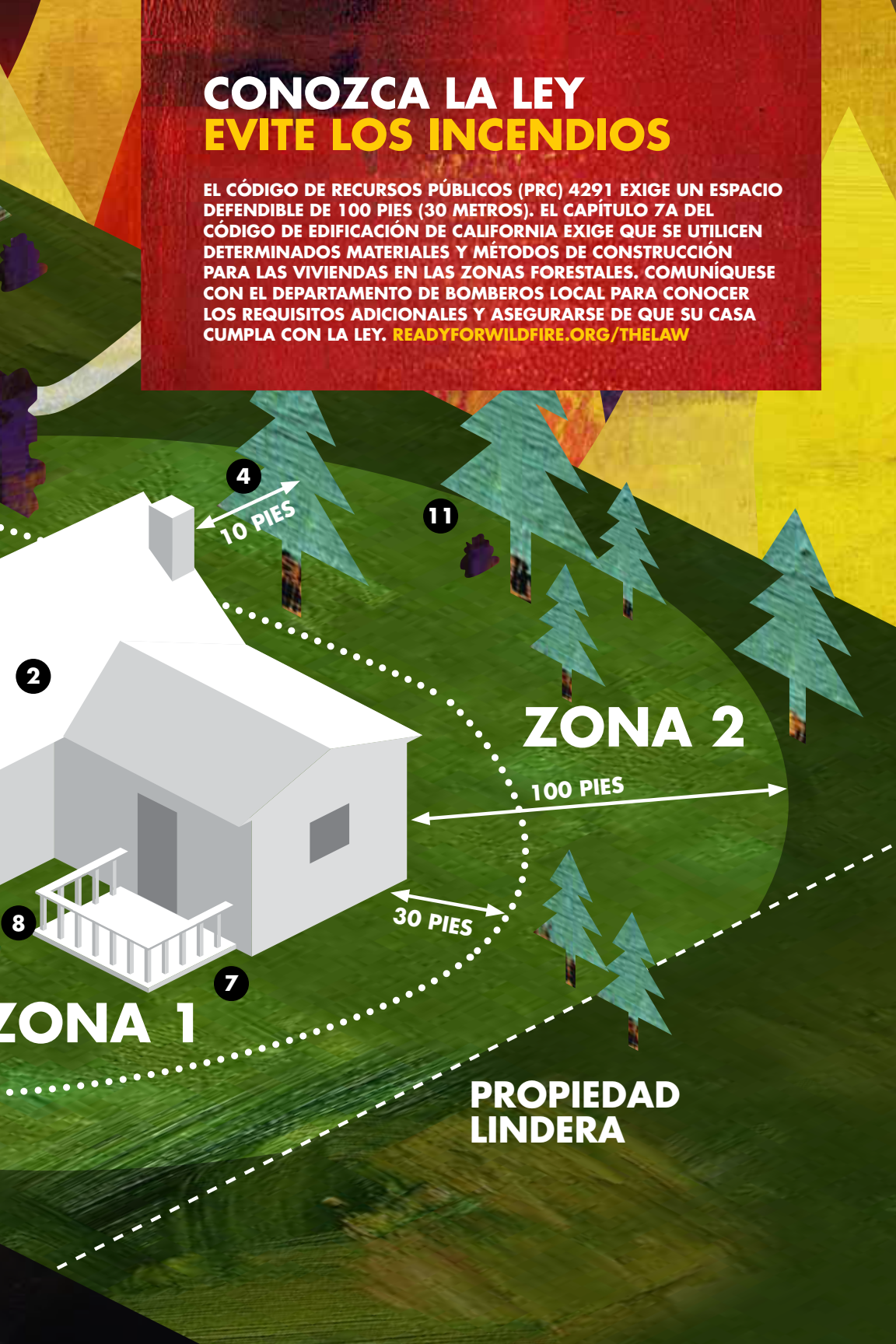
CONOZCA LA LEY
EVITE LOS INCENDIOS

EL CÓDIGO DE RECURSOS PÚBLICOS (PRC) 4291 EXIGE UN ESPACIO DEFENDIBLE DE 100 PIES (30 METROS). EL CAPÍTULO 7A DEL CÓDIGO DE EDIFICACIÓN DE CALIFORNIA EXIGE QUE SE UTILICEN DETERMINADOS MATERIALES Y MÉTODOS DE CONSTRUCCIÓN PARA LAS VIVIENDAS EN LAS ZONAS FORESTALES. COMUNÍQUESE CON EL DEPARTAMENTO DE BOMBEROS LOCAL PARA CONOCER LOS REQUISITOS ADICIONALES Y ASEGURARSE DE QUE SU CASA CUMPLA CON LA LEY. READYFORWILDFIRE.ORG/THELAW



CÓMO HACER RESISTENTE SU CASA

LAS CHISPAS O BRASAS VOLADORAS DESTRUYEN CASAS UBICADAS A DISTANCIAS DE HASTA 1 MILLA (1,6 KILÓMETRO) DE LAS ZONAS FORESTALES. PREPARE (HAGA RESISTENTE) SU CASA AHORA, ANTES DE QUE COMIENCE UN INCENDIO.

AQUÍ HAY ALGUNAS RECOMENDACIONES PARA QUE SU CASA SEA MÁS RESISTENTE:

Techo: El techo es la parte más vulnerable de su casa. Las casas con techos de madera o de tejas tienen un alto riesgo de ser destruidas durante un incendio forestal.

Construya su techo o vuelva a techarlo con materiales como compuesto, metal o losa. Bloquee todos los espacios para evitar que las chispas, ascuas o brasas entren y desaten un incendio.

Respiraderos: Los respiraderos de las casas son aperturas por donde penetran las chispas, ascuas o brasas voladoras.

- Cubra todos los respiraderos con una malla de metal de entre 1/8 y 1/4 de pulgada (3,2 y 6,3 milímetros). No use malla de fibra de vidrio o plástico porque pueden derretirse y quemarse.
- Proteja los respiraderos de aleros o cornisas con deflectores que bloqueen el ingreso de las chispas, ascuas o brasas. (La malla sola no es suficiente)

Aleros y sofitos: Los aleros y sofitos deben estar protegidos con materiales resistentes al fuego o incombustibles.

Ventanas: El calor de un incendio forestal puede hacer que las ventanas se rompan incluso antes de que se incendie la casa. Esto permite que las chispas, ascuas o brasas entren y desaten un incendio en el interior. Las ventanas de un solo paño y las grandes son particularmente vulnerables.

- Instale ventanas de dos paneles con vidrio templado en uno de los paños.
- Considere limitar el tamaño y la cantidad de ventanas que miran hacia áreas grandes con vegetación.

Entarimados: Las superficies dentro de los 10 pies (3 metros) de distancia del edificio deben estar construidas con materiales resistentes al fuego, incombustibles u otros materiales aprobados.

- Quite todos los artículos combustibles de debajo del entarimado.

Paredes exteriores: Los productos de madera, como las tablas, los paneles o las tablillas, son materiales comunes para los recubrimientos laterales. Sin embargo, son inflamables y no son una buena opción para las zonas propensas a los incendios.

- Construya o remodele sus paredes con materiales de construcción resistentes al fuego, como el estuco, los recubrimientos de fibra o cemento, la madera tratada con retardador de fuego y otros materiales aprobados.
- Asegúrese de extender los materiales desde los cimientos y hasta el techo.

Canaletas de desagüe: Cubra las canaletas con malla o enciérrelas para evitar que se acumulen restos de plantas en su interior.

Patios techados: Use los mismos materiales resistentes al fuego para los techos y los cerramientos de los patios.

Cercas: Le recomendamos utilizar materiales resistentes al fuego o incombustibles para las cercas, para proteger su casa durante un incendio forestal.

Otros pasos para la seguridad del hogar:

Ingrese a ReadyForWildfire.org/hardening para obtener más información sobre lo siguiente:

- Información sobre entradas para autos y vías de acceso
- Seguridad en el garaje
- Visibilidad del domicilio
- Acceso al suministro de agua
- Uso seguro de los equipos
- Materiales resistentes al fuego

GUÍAS DE PREPARACIÓN ¡PREPARADOS, LISTOS, YA!

Prepararse para un incendio forestal consta de 3 pasos simples: ¡Preparados, Listos, Ya! Conserve las tres guías de preparación para incendios forestales a mano y utilícelas como referencia rápida para ayudar a proteger a su familia y propiedad ante un incendio forestal.

GUÍAS DE PREPARACIÓN "EL INCENDIO FORESTAL SE ACERCA":

Paso 1:
¿Su casa está preparada?

Cómo crear un espacio defendible y proteger su casa de los incendios forestales.

Paso 2:
¿Está listo?

Cómo elaborar un plan de acción contra incendios forestales.

Paso 3:
¿Ya está listo para irse?

Una guía de referencia rápida para la evacuación.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885

Ingrese a ReadyForWildfire.org para obtener más información sobre las tres guías para preparase para y sobrevivir a un incendio forestal.

EL INCENDIO FORESTAL SE ACERCA. ¿ESTÁ...

LISTO?

PREPÁRESE PARA EVACUAR SU CASA ANTES DE QUE LLEGUE EL INCENDIO FORESTAL.

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SINCE 1885

MILES DE INCENDIOS FORESTALES AZOTAN CALIFORNIA CADA AÑO. NO SE TRATA DE SI SU CASA O FAMILIA CORREN RIESGO, SINO DE CUÁNDO LO CORRERÁN.

ReadyForWildfire.org

CÓMO COMPLETAR ESTA GUÍA

Una vez que haya elaborado el Plan, ensáyelo y coméntelo con su familia. Le recomendamos practicarlo de noche también. Consérvelo en un lugar seguro y visible que sea de fácil acceso en caso de producirse un incendio forestal.

Recuerde: en una situación de emergencia es muy normal confundirse o entrar en pánico. Si prepara el Plan de acción contra incendios forestales con anticipación, podrá concentrarse y actuar rápidamente cuando sea probable o necesario evacuar la casa.

Para obtener más información sobre cómo planificar y sobrevivir a una evacuación por incendio forestal, consulte el folleto "Ya" ("Go") de Ready for Wildfire o ingrese a ReadyForWildfire.org/go.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885

CONOZCA LA LEY
ESTÉ LISTO PARA LA EVACUACIÓN

LA LEY DE CALIFORNIA AUTORIZA A LOS FUNCIONARIOS A RESTRINGIR EL ACCESO A AQUELLAS ÁREAS DONDE EXISTE UNA AMENAZA A LA SALUD PÚBLICA O SEGURIDAD PÚBLICA DEBIDO A UNA CATÁSTROFE, POR EJEMPLO INUNDACIÓN, TORMENTA, INCENDIO, TERREMOTO, EXPLOSIÓN, ACCIDENTE U OTRO DESASTRE. EL NEGARSE A CUMPLIR ESTA RESTRICCIÓN CONSTITUYE UN DELITO MENOR. (CÓDIGO PENAL 409.5)

ELABORE
UN PLAN DE ACCIÓN CONTRA INCENDIOS FORESTALES

Deberá elaborar el Plan de acción contra incendios forestales y ponerlo en conocimiento de todos los integrantes de su familia con suficiente tiempo antes de producirse un incendio forestal. Utilice la lista de verificación que se incluye a continuación para elaborar el plan. Cada familia tendrá un plan diferente, ya que dependerá de diversas cuestiones, necesidades y situaciones.

LISTA DE VERIFICACIÓN PARA EL PLAN DE ACCIÓN CONTRA INCENDIOS FORESTALES:

Elabore un plan de evacuación que incluya:

- ☐ Un lugar de encuentro de emergencia ubicado fuera de la zona de incendio o zona peligrosa. Esto es imprescindible para determinar quién se evacuó sin riesgo de la zona afectada.
- ☐ Varias rutas de escape distintas para salir de su casa y de la comunidad. Practíquelas a menudo para que todos en la familia sepan qué hacer en caso de emergencia.
- ☐ Tenga un plan de evacuación para mascotas y animales grandes como caballos o ganado.
- ☐ Un plan de comunicación familiar que designe a un amigo o pariente que viva fuera del área como fuente única de comunicación entre los integrantes de la familia en caso de que deban separarse. (Es más fácil llamar o enviar un mensaje a una persona y dejar que esa persona se comunique con los demás que tratar de llamar a todos cuando los sistemas de telefonía fija, telefonía celular e Internet están sobrecargados o funcionan en forma limitada durante un desastre).

Esté preparado:

- ☐ Tenga extintores de incendio a mano y enséñele a su familia a utilizarlos. (Verifique las fechas de vencimiento periódicamente).
- ☐ Asegúrese de que su familia sepa dónde están las llaves de paso o interruptores de gas, electricidad y agua, y que sepan cómo cortar el suministro en caso de emergencia.
- ☐ Prepare un kit de suministros de emergencia para cada persona, según la recomendación de la Cruz Roja Estadounidense. (Consulte la próxima sección para más detalles)
- ☐ Coloque una lista de números de teléfono de contactos de emergencia cerca del teléfono y en los kits de suministros de emergencia.
- ☐ Lleve un kit de suministros de emergencia extra en el auto por si no puede llegar a su casa debido a un incendio u otra emergencia.
- ☐ Lleve una radio escáner para poder estar al tanto de las últimas novedades del incendio.
- ☐ Cuénteles a sus vecinos acerca de ¡Preparados! ¡Listos! ¡Ya! y de su Plan de acción contra incendios forestales.

RECUERDE LAS SEIS "P"
TENGA ESTAS SEIS "P" LISTAS EN CASO DE QUE DEBA EVACUAR SU CASA DE INMEDIATO:

- **Personas y mascotas**
- **Papeles, números de teléfono y documentos importantes**
- **Prescripciones, vitaminas y anteojos**
- **Fotografías y recuerdos irremplazables**
- **PC, información de su computadora personal en discos y disco rígido**
- **"Plásticos" (tarjetas de crédito, tarjetas de débito) y efectivo**

PREPARE
UN KIT DE SUMINISTROS DE EMERGENCIA

Prepare el kit de suministros de emergencia antes de que se produzca un incendio forestal u otro desastre y consérvelo en un lugar accesible para que pueda llevárselo si deba evacuar su casa. Planifique estar fuera de su casa durante un tiempo prolongado. Cada persona debería tener un kit de suministros de emergencia a su disposición. Las mochilas son ideales para guardar estos artículos (salvo comida y agua) y son fáciles de agarrar. Es más fácil transportar el agua y la comida si se almacena en un cubo o baúl con ruedas. Asegúrese de que no pese demasiado, para poder subirlo al auto.

Lista de verificación del kit de suministros de emergencia

- ☐ Alimentos no perecederos para tres días y tres galones (4 litros) de agua por persona.
- ☐ Mapa con por lo menos dos rutas de evacuación marcadas
- ☐ Medicamentos recetados o remedios especiales
- ☐ Cambio de ropa
- ☐ Anteojos o lentes de contacto de repuesto
- ☐ Otro juego de llaves del auto, tarjetas de crédito, efectivo o cheques de viajero
- ☐ Botiquín de primeros auxilios
- ☐ Linterna
- ☐ Radio a pilas y pilas de repuesto
- ☐ Insumos para la higienización
- ☐ Copias de documentos importantes (certificados de nacimiento, pasaportes, etc.)
- ☐ ¡Recuerde la comida y el agua para las mascotas!

Artículos que debe llevar si tiene tiempo:

- ☐ Objetos de valor que sean fáciles de llevar
- ☐ Fotos familiares y otros objetos irremplazables
- ☐ Información de su computadora personal en discos rígidos o discos
- ☐ Cargadores de teléfonos celulares, computadoras portátiles, etc.

SIEMPRE TENGA UN PAR DE ZAPATOS RESISTENTES Y UNA LINTERNA A MANO CERCA DE LA CAMA POR SI DEBE EVACUAR SU CASA REPENTINAMENTE DURANTE LA NOCHE.

PARA OBTENER MÁS INFORMACIÓN SOBRE LOS SUMINISTROS DE EMERGENCIA, INGRESE A WWW.LISTO.GOV.

CONSERVE ESTE PLAN DE COMUNICACIÓN FAMILIAR

Llene esta planilla y colóquela cerca del teléfono donde todos los integrantes de su familia puedan encontrarla. Haga copias de la planilla y guárdelas en los kits de suministros de emergencia. Esto permitirá que todos los integrantes de la familia tengan acceso a esta información clave en caso de que deban separarse.

SI DEBEMOS EVACUAR LA CASA, NOS ENCONTRAREMOS EN:

_____

NUESTRA PERSONA DE CONTACTO FUERA DEL ÁREA ES:

Nombre: _____ Relación: _____

Teléfono particular #: _____ Teléfono celular #: _____

E-mail: _____

OTROS NÚMEROS IMPORTANTES:

Emergencia 9-1-1: _____ Policía local: _____

Departamento de Bomberos local: _____ Otro: _____

Otro: _____ Otro: _____

NUESTRAS DOS RUTAS DE EVACUACIÓN SON (DIAGRÁMELAS A CONTINUACIÓN):

GUÍAS DE PREPARACIÓN ¡PREPARADOS, LISTOS, YA!

Prepararse para un incendio forestal consta de 3 pasos simples: ¡Preparados, Listos, Ya! Conserve las tres guías de preparación para incendios forestales a mano y utilícelas como referencia rápida para ayudar a proteger a su familia y propiedad ante un incendio forestal.

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CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
CAL FIRE
SINCE 1885

Ingrese a ReadyForWildfire.org para obtener más información sobre las tres guías para preparase para y sobrevivir a un incendio forestal.

Appendix A-3

RFD OES Community Guide to Emergency Preparedness

City of Richmond Community Guide to Emergency Preparedness

July 2019

Richmond Fire Department Office of Emergency Services
440 Civic Center Plaza, Richmond, CA 94804
Phone: (510) 620-6866, Fax: (510) 307-8048
http://www.ci.richmond.ca.us/oes

Nextdoor
Richmond Fire Department CA

@richmond_fire_cali

@RFDCAonline

nixle
Text zip code to 888-777

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24 HOUR EMERGENCY TELEPHONE NUMBERS FOR CITY OF RICHMOND RESIDENTS

ANY LIFE THREATENING EMERGENCY — 9-1-1

ALL TYPES OF INFORMATION 2-1-1

MEDICAL:	Kaiser Hospital (Richmond)	1-510-307-1566	
	A.M.R. Ambulance	1-888-650-5486	
	Poison Control	1-800-222-1222	TDD: 1-800-972-3323
PERSONAL:	Crisis & Suicide Intervention	1-800-833-2900	
	California Missing Children	1-800-222-3463	
		1-916-210-3119	
	Child Abuse Hotline	1-800-422-4453	
	Rape Crisis Center	1-800-670-7273	
	Runaway Child	1-800-621-4000	
PETROCHEMICAL:			
	Chevron/Texaco Fire	1-510-242-4200	
	Conoco Phillips - Rodeo	1-510-799-4463	
	Toxic Chemicals & Oil Spills	1-800-424-8802 Voice/TDD	
	Hazardous Materials Recycle	1-800-750-4096	
TRANSPORTATION:			
	A C Transit	1-510-891-4700	
	BART Police	1-510-464-7000	
	Bay Area Transportation	5-1-1	
	CAL TRANS	1-916-654-2852	
	Burlington N. Railroad	1-800-832-5452	
	Union Pacific Railroad	1-888-877-7267	
UTILITIES:	P. G. & E.	1-800-743-5000	
	AT & T Phone Repair	6-1-1	
	East Bay MUD	1-866-403-2683	
	East Bay Regional Parks	1-510-881-1121	
VOLUNTEERS:	American Red Cross	1-415-427-8000	

PERSONAL FAMILY MEMBERS: _____ _____

_____ _____

OUT OF STATE CONTACT: _____ _____

REACT/CERT
RICHMOND EMERGENCY ACTION COMMUNITY TEAMS

Are you prepared to survive before, during and after the next disaster?

- Did you know that for the first 72 hours following a major emergency you will probably be without help from emergency responders (i.e.: police, fire, 9-1-1, ambulance)?
- Would you like to know how YOU and YOUR LOVED ONES can survive on your own for these first critical 72 hours until the City is able to get help to you?
- Do you know what emergency supplies (food, water, etc,) you should have stored?
- Do you know how and when to turn off your utilities following a major emergency?
- Do you want to know how to treat for shock, bleeding and other life threatening medical emergencies?

Do you remember 10/17/89 - Loma Prieta? The epicenter for that earthquake center was over 70 miles from Richmond!! The Hayward Fault line runs right through our City. According to the latest 1996 intensity maps there will be major disruptions in Richmond after a 7.1 plus earthquake on the Northern Hayward Fault, over 10,340 homes will be uninhabitable, utilities will be disrupted for over three weeks. Preparing now can minimize the loss of lives and property.

YOU WILL LEARN VALUABLE LIFE SAVING SKILLS IN:

◊ Disaster Medical ◊ Communications ◊ Fire Suppression
◊ Search & Rescue ◊ Damage Assessment ◊ Terrorism Preparedness
◊ Sheltering/ Special Needs and more!

The City of Richmond is offering our community these valuable emergency preparedness classes in your neighborhood. This is your golden opportunity to learn how to save lives and property, before, during and after the next major earthquake.

To register for REACT/CERT classes in your neighborhood, please call or email Richmond Fire Department Office of Emergency Services, (510) 620-6866 or CERT@ci.richmond.ca.us

EARTHQUAKE DROP, COVER & HOLD TIPS

- ***DROP down on the floor, take cover under sturdy table or desk and hold on until the shaking stops.***

- When in a HIGH-RISE BUILDING, move against an interior wall if you are not near a desk or table. Protect your head and neck with your arms. Do not use the elevators. When OUTDOORS, move to a clear area away from trees, signs, buildings, or downed electrical wires and poles.

- When on a SIDEWALK NEAR BUILDINGS, duck into a doorway to protect yourself from falling bricks, glass, plaster and other debris.

- When DRIVING, pull over to the side of the road and stop. Avoid overpasses and power lines. Stay inside your vehicle until the shaking stops.

- When in a CROWDED STORE OR OTHER PUBLIC PLACE, move away from display shelves containing objects that could fall. Do not rush for the exit.

- When in a STADIUM OR THEATER, stay in your seat, get below the level of the back of the seat and cover your head and neck with your arms.

- *No matter where you are, know how to protect yourself and your family during an earthquake. Practice taking cover as if there were an earthquake and learn the safest places in your home and work. Practice getting out of your home and check to see if the planned exits are clear and if they can become blocked in an earthquake. Practice turning off your electricity and water. Know how to turn off the gas, but do not practice this step. In the event of an earthquake, once you turn off your gas, only your utility company should turn it back on for safety reasons.*

- *Take COVER under a sturdy desk, table or other furniture. If that is not possible, seek cover against an interior wall and protect your head and neck with your arms. Avoid danger spots near windows, hanging objects, mirrors or tall furniture.*

- *If you take cover under a sturdy piece of furniture, HOLD on to it and be prepared to move with it. Hold the position until the ground stops shaking and it is safe to move.*

EARTHQUAKE PREPAREDNESS TIPS FROM THE CALIFORNIA GOVERNOR'S OFFICE OF EMERGENCY SERVICES

PREPARING YOUR FAMILY FOR AN EARTHQUAKE

The Plan

✓

- ❑ Stock up on at least a three-day supply of food, water, clothes, medical supplies and other necessary equipment for everyone in your family. Make sure everyone knows where to find them. (See the information sheet on emergency supplies.)
- ❑ Decide where and when to reunite your family should you be apart when a disaster strikes.
- ❑ Choose a person outside the immediate area to contact if family members are separated. Long distance phone service will probably be restored sooner than local service. Do not use the phone immediately after a major emergency.
- ❑ Know the policies of the school or daycare center your children attend. Make plans to have someone pick them up if you are unable to get to them.
- ❑ If you have a family member who does not speak English, prepare an emergency card written in English indicating that person's identification, address and any special needs such as medication or allergies. Tell that person to keep the card with him/her at all times.
- ❑ Conduct Earthquake: Duck, Cover & Hold drills every six months with your family.
- ❑ Practice Stop, Drop and Roll drills for fire, as well as emergency exit drills in the house (EDITH)
- ❑ Know the safest place in each room because it will be difficult to move from one room to another during an earthquake or explosion.
- ❑ Locate the shutoff valves for water, gas and electricity. Learn how to shut off the valves before an emergency. If you have any questions, call your utility company. Remember not to shut off utility valves unless directed to do so by your utility company.
- ❑ Have enough supplies to get you and your family through at least the first 72 hours. After a major emergency, there's a good chance that traditional emergency response teams will be too busy to take care of you and your family. You need to prepare your home and neighborhood.
- ❑ Make copies of vital records and keep them in a safe deposit box in another city or state. Make sure your originals are stored safely.
- ❑ Before a major emergency occurs, call your local Red Cross chapter and Richmond Office of Emergency Services to find out about their plans for emergency shelters and temporary medical centers in case of a disaster.
- ❑ Establish all the possible ways to exit your house. Keep those areas clear.
- ❑ Know the locations of the nearest fire and police stations.
- ❑ Take photos and/or videos of your valuables. Make copies and keep them with a friend or relative in another city or state.
- ❑ Include your childcare provider and other household help in your plans.
- ❑ Keep an extra pair of eyeglasses and house and car keys on hand.
- ❑ Keep extra cash and change. If electricity is out, you will not be able to use an ATM.

General Tips

- ❑ Stay away from heavy furniture, appliances, large glass panes, shelves holding objects, and large decorative masonry, brick or plaster such as fireplaces.
- ❑ Keep your hallway clear. It is usually one of the safest places to be during an earthquake or explosion.
- ❑ Stay away from kitchens and garages, which tend to be the most dangerous places because, tend to be the most dangerous places because of the many items kept there.

EMERGENCY SUPPLIES CHECKLIST

The first 72 hours after a major emergency or disaster are critical. Electricity, gas, water, and telephones may not be working. In addition, public safety services such as police and fire departments will be busy handling serious crises. You should be prepared to be self-sufficient — able to live without running water, electricity and/or gas, and telephones — for at least three days following a major emergency (7-10 days preferred). To do so, keep on hand in a central location the following items:

Essentials

✓

- ❑ Water — One gallon per person per day (a weeks' worth is preferable)
- ❑ Water purification kit
- ❑ First aid kit, freshly stocked
- ❑ First aid book
- ❑ Food
- ❑ Can opener (non-electric)
- ❑ Blankets or sleeping bags
- ❑ Portable radio, flashlight and spare batteries
- ❑ Essential medications
- ❑ Extra pair of eyeglasses
- ❑ Extra pair of house and car keys
- ❑ Fire extinguisher — A-B-C type
- ❑ Food, water and restraint (leash or carrier) for pets
- ❑ Cash and change
- ❑ Baby supplies: formula, bottle, pacifier, soap, baby wipes, disposable diapers, clothing, blankets, canned food and juices, baby wipes, disposable diapers, canned food

Sanitation Supplies

✓

- ❑ Large plastic trash bags for waste; tarps and rain ponchos
- ❑ Large trash can
- ❑ Shampoo
- ❑ Feminine hygiene supplies
- ❑ Toilet paper
- ❑ Household bleach
- ❑ Toothpaste and toothbrushes
- ❑ Bar soap and liquid detergent

Safety and Comfort

✓

- ❑ Sturdy shoes
- ❑ Heavy gloves for clearing debris
- ❑ Candles and matches
- ❑ Light sticks
- ❑ Change of clothing
- ❑ Knife or razor blades
- ❑ Garden hose for siphoning and firefighting
- ❑ Tent
- ❑ Communication kit: paper, pens, stamps

Cooking

✓

- ❑ Plastic knives, forks, spoons
- ❑ Paper plates and cups
- ❑ Paper towels
- ❑ Heavy-duty aluminum foil
- ❑ Camping stove for outdoor cooking
    - o Caution: before using fire to cook, make sure there are no gas leaks; never use charcoal indoors)

Tools and Supplies

✓

- ❑ Axe, shovel, broom
- ❑ Adjustable wrench for turning off gas
- ❑ Tool kit including a screwdriver, pliers and a hammer
- ❑ Coil of 1⁄2" rope
- ❑ Plastic tape, staple gun and sheeting for window replacement
- ❑ Bicycle
- ❑ City map

Tips for Preparing Children

Children need to be prepared for a disaster as much as adults, if not more.

Infants and Toddlers

For infants and toddlers, special emphasis should be placed on making their environment as safe as possible.

✓

- ❑ Cribs should be placed away from windows and tall, unsecured bookcases and shelves that could slide or topple.
- ❑ A minimum of a 72-hour supply of extra water, formula, bottles, food, juices, clothing, disposable diapers, baby wipes and prescribed medications should be stored where it is most likely to be accessible after an emergency.
- ❑ Keep an extra diaper bag with these items in your car (water, formula, etc.).
- ❑ Store strollers, wagons, blankets and cribs with appropriate wheels to evacuate infants, if necessary.
- ❑ Install bumper pads in cribs or bassinettes to protect babies during the shaking of an earthquake or explosion.
- ❑ Install latches on all cupboards (not just those young children can reach) so that nothing can fall on your baby during an earthquake or explosion.

Preschool and School-age Children

By age 3 or so, children can begin to understand what earthquakes are, as well as fires and floods, and how to get ready for them. Take the time to explain what causes these types of emergencies in terms they'll understand. Include them in family discussions and planning for emergency safety.

✓

- ❑ Conduct drills and review safety procedures every six months.
- ❑ Show children the safest places to be in each room when an earthquake hits or explosion occurs. Also show them all possible exits from each room.
- ❑ Use sturdy tables to teach children to Duck, Cover & Hold during an earthquake or explosion.
- ❑ Make sure that children are ready to protect themselves with Stop, Drop and Roll during a fire.
- ❑ Practice emergency exit drills in the house (EDITH) regularly.
- ❑ Teach children what to do wherever they are during an emergency (at school, in a tall building, outdoors).
- ❑ Make sure children's emergency cards at school are up-to-date.
- ❑ Although children should not turn off any utility valves, it's important that they know what gas smells like. Advise children to tell an adult if they smell gas after an emergency.

TIPS FOR SENIORS

Before a Disaster

✓

- ❑ Eliminate hazards. Make it as easy as possible to quickly get under a sturdy table or desk for protection during an earthquake or explosion.
- ❑ Anchor special equipment such as telephones and life support systems. Fasten tanks of gas, such as oxygen, to the wall.
- ❑ Keep a list of medications, allergies, special equipment, names and numbers of doctors, pharmacists and family members. Make sure you have this list with you at all times.
- ❑ Keep an extra pair of eyeglasses and medication with emergency supplies.
- ❑ Keep walking aids near you at all times. Have extra walking aids in different rooms of the house.
- ❑ Put a security light in each room. These lights plug into any outlet and light up automatically if there is a loss of electricity. They continue operating automatically for four to six hours, and they can be turned off by hand in an emergency.
- ❑ Make sure you have a whistle to signal for help.
- ❑ Keep extra batteries for hearing aids with your emergency supplies. Remember to replace them annually.
- ❑ Keep extra emergency supplies at your bedside.
- ❑ Find two people you trust who will check on you after an emergency. Tell them your special needs. Show them how to operate any equipment you use. Show them where your emergency supplies are kept. Give them a spare key.

During and After a Disaster

- ➢ During an earthquake or explosion, if you are in bed or sitting down, do not get up.
- ➢ If you are standing, duck and cover or sit down. You could be thrown to the floor if you are standing.
- ➢ During a fire, make sure you are ready to Stop, Drop and Roll to protect yourself.
- ➢ Practice emergency exit drills in the house (EDITH) regularly.
- ➢ Prepare to be self-sufficient for at least three days.
- ➢ Turn on your portable radio for instructions and news reports. For your own safety, cooperate fully with public safety officials and instructions.
- ➢ Prepare for aftershocks after an earthquake.
- ➢ If you evacuate, leave a message at your home telling family members and others where you can be found.

TIPS FOR PERSONS WITH DISABILITIES AND ACCESS AND FUNCTION NEEDS

Before an Emergency

✓

- ❑ Set up your home, apartment or workplace so that you can quickly get under a sturdy desk, table or other safe place for protection. This will be most important during an earthquake or explosion Identify doorways that do not have doors in which you can take cover.

- ❑ Know how to Stop, Drop and Roll in the event of a fire and practice emergency exit drills in the house (EDITH) regularly.

- ❑ Maintain a list of medications, allergies, special equipment, names and numbers of doctors, pharmacists and family members with you at all times.

- ❑ Keep extra medication with your emergency supplies as well as a whistle and flashlight at your bedside and if you use a wheelchair, by or in bag with your wheelchair.

- ❑ If you need them, have walking aids near you at all times. Place extra walking aids in different rooms of the house.

- ❑ Put a security light in each room. These lights plug into any outlet and light up automatically if there is a loss of electricity. They continue operating automatically for four to six hours, and they can be turned off by hand in an emergency.

- ❑ Find two people you trust who will check on you after an earthquake or other disaster. Tell them your special needs. Show them how to operate any equipment you use. Show them where your emergency supplies are kept. Give them a spare key.

During and After a Disaster

- ➢ During an Earthquake or Explosion, if you are in bed or out of a wheelchair, stay where you are and cover your head and neck.

- ➢ If you are in a wheelchair during an Earthquake or Explosion, stay in it and go into a doorway that doesn't have a door. Cover your head and neck with your hands. If possible, stay away from windows that may shatter.

- ➢ Prepare to be self-sufficient for at least three days.

- ➢ Turn on your portable radio for instructions and news reports. For your own safety, cooperate fully with public safety officials and instructions. Prepare for aftershocks following earthquake.

- ➢ If you evacuate your home, leave a message at your home telling family members and others where you can be found.

CITY OF RICHMOND ALERT & WARNING SYSTEMS

The City has adopted a seven step program for alert and warning the community. Each step on its own is very useful. All steps, when activated, will give us the nexus to warn the community of impending hazards in the most effective and efficient means possible. The seven components of this program are the:

1) 9-1-1 COMPUTER AIDED DISPATCH
2) EMERGENCY OPERATIONS CENTER (E.O.C.)
3) TRAVELERS INFORMATION SYSTEM (T.I.S.) - City's AM 790 Radio Station
4) RICHMOND'S CABLE TELEVISION STATION - K.C.R.T.
5) SIREN SYSTEM- Community Warning System (CWS)
6) National Weather Service Radios (NWS) placed in schools, daycare centers, etc., across the county
7) Telephone Emergency Notification System (TENS) automatic dialup telephone system

SIGN-UP TO RECEIVE ALERTS: CWSALERTS.COM

Currently, the Siren System:

- Is used in the event of a chemical release,
- Is one tone,
- Consists of 22 sirens in the City of Richmond, can be heard throughout the City,
- The component NWS radios have been installed in schools, hospitals, critical facilities across the city,
- Will interface with radio/television stations & TENS,
- Will sound only in those areas that are affected by the chemical or hazardous materials release.

REMEMBER - WHEN THE SIREN SOUNDS: *SHELTER - SHUT - LISTEN*

GO INSIDE IMMEDIATELY

- Take loved ones/pets inside – ***SHELTER***
- ***SHUT*** and lock all windows and doors (strengthens seals)
- Turn off heating, air conditioner and any other ventilation, close fire place dampers
- Turn on the radio or TV and ***LISTEN*** for information
- Stay off the phone if at all possible (TENS may call with further information)
- If there are gaps in the windows or doors, seal them with tape or wet towels. Larger gaps, bathroom fan grills, dryer vents, etc., may be sealed with tape and plastic sheeting or aluminum foil.
- If you suspect the chemical has entered your home, hold a wet cloth over your nose and mouth.
- Call 9-1-1 and seek medical attention as soon as possible if you have been exposed.

IF YOU CANNOT POSSIBLY GET INDOORS

- Move away from the cloud or cross-wind (so that the wind is blowing on the side of your face). This offers the best advantage for getting out of the path of a release and into a safe area.
- Children in school are safer staying in the school building.
- Schools, Hospitals and Special Facilities will be advised to enact their emergency plans.

CITY OF RICHMOND
ALERT & WARNING SYSTEMS

The City recognizes our community uses various forms of social media platforms to receive their information. Therefore, the City has implemented the following platforms to disseminate important information to our community.

Urgent, Life Threatening Information including City or Area Disasters:
(such as *Shelter-In-Place* or *Evacuation* instructions, hazardous materials releases, other actions depending on emergency)

- Nixle alert messages through text or email
- Contra Costa Community Warning System activation, KCRT TV
- All Social Media Platforms (Nextdoor, Twitter, Facebook, Instagram)

Non-Life Threatening but Important Information
(such as service disruptions, road closures, instructions to avoid an area, etc.)

- Nixle advisory messages through text or email
- All Social Media Platforms (Nextdoor, Twitter, Facebook, Instagram)

What is Nixle?

- The City of Richmond uses Nixle to communicate important, time-sensitive information to the community via live text and/or email notifications.
- Nixle notifications are generally received by subscribers within minutes.
- Nixle uses two categories of notifications, depending on the severity:
  - **ALERT** - Highest priority notification that is considered most urgent
  - **ADVISORY** - An informational or educational type of notification
- To receive both alerts & advisories through text messages, text your Richmond zip code to 888-777
- To customize the type of messages you want to receive and/or to receive them through email, sign up at www.nixle.com
- For more information, visit www.ci.richmond.ca.us/nixle

Social Media Accounts to Follow

Facebook: **Richmond Fire Department CA**	Twitter: **@RFDCAonline**
Instagram: **@richmond_fire_cali**	Nextdoor **Richmond Fire Department CA**

RICHMOND FIRE DEPARTMENT O.E.S.
CITIZENS RESPONSE TO FEDERAL THREAT LEVELS

National Terrorism Advisory System (NTAS)

The color-coded federal threat levels alert system changed in 2011 to the National Terrorism Advisory System (NTAS) to more effectively communicate information about terrorist threats by providing timely, detailed information to the American public via Bulletins and Alerts. For more information, visit: www.dhs.gov/ntas

BULLETIN: Describes current developments or general trends regarding threats of terrorism

ALERTS

- **Elevated Alert:** Warns of a credible terrorism threat against the United States.
- **Imminent Alert:** Warns of a credible, specific and impending terrorism threat against the United States

What should we do when an NTAS Alert or Bulletin is announced? Encourage individuals to follow the guidance provided by state and local officials and to report suspicious activity. Where possible and applicable, NTAS advisories will include steps that individuals and communities can take to protect themselves from the threat as well as help detect or prevent an attack before it happens. Individuals should review the information contained in the Alert or Bulletin, and based upon the circumstances, take the recommended precautionary or preparedness measures for themselves and their families.

How should I report suspicious activity? Individuals should report suspicious activity to local law enforcement authorities. Often, local law enforcement and public safety officials will be best positioned to provide specific details on what indicators to look for and how to report suspicious activity. The "If You See Something, Say Something®" campaign across the United States encourages the public and leaders of communities to be vigilant for indicators of potential terroristic activity, and to follow the guidance provided by the advisory and/or state and local officials for information about threats in specific places or for identifying specific types of suspicious activity.

I get my news on-line, so how will I find out about an NTAS advisory? Go to dhs.gov/alerts to see the most recent advisories. Additionally, advisories will be sent out widely through social and mainstream media.

HOW YOU CAN HELP

- Report suspicious activity to local law enforcement who can best offer specific details on terroristic indicators.
- Report suspicious activity or information about a threat, including online activity, to fusion centers and the FBI's Field Offices – part of the Nationwide Suspicious Activity Reporting Initiative.
- Learn how to recognize signs of pre-operational planning associated with terrorism or other criminal activity.

BE PREPARED

- Be prepared for security and plan ahead. Anticipate delays and restrictions on items around populated places and at public events.
- Be responsible for your personal safety. Know where emergency exits and security personnel are located. Carry emergency contact and special needs info with you.
- Connect, Plan, Train, and Report to prepare businesses & employees. Security tools/resources can be accessed through the DHS Hometown Security Campaign.

STAY INFORMED

- The U.S. Government will provide additional information about any emerging threat as additional information is identified. The public is encouraged to listen to local law enforcement and public safety officials.
- We urge Americans to continue to travel, attend public events, and freely associate with others but remain vigilant and aware of surroundings.
- The Department of State issues international travel alerts and warnings.
- For additional information visit Ready.

If You See Something, Say Something™. Report suspicious activity to local law enforcement or call 911.

References and Web Sites for Emergency Preparedness Checklists, Brochures, and Information

1. American Association for People with Disabilities: https://www.aapd.com/
2. American Association of the Deaf and Blind: http://www.aadb.org/
3. American Red Cross: http://www.redcross.org
4. American Red Cross, Preparing for Disaster for Seniors and People with Disabilities: http://www.redcross.org/services/disaster/0,1082,0_603_,00.html
5. CEPIN, Community Emergency Preparedness Information Network: https://sites.google.com/a/cepintdi.org/cepin-website/
6. City of Richmond, Community Guide to Emergency Preparedness: http://www.ci.richmond.ca.us/documentcenter/view/7172
7. Contra Costa County Employment and Human Services, Aging & Adult Services: https://ehsd.org/elderly-disabled/volunteer-and-emergency-services/
8. Ready.Gov Information for Individuals with Disabilities: https://www.ready.gov/individuals-access-functional-needs
9. Nobody Left Behind, Disaster Preparedness for Persons with Mobility Impairments: http://www2.ku.edu/~rrtcpbs/resources/
10. FEMA, Preparing for Disaster for People with Disabilities and other Special Needs: FEMA and ARC, www.fema.gov/library/viewRecord.do?id=1442
11. U.S. Department of Homeland Security: Ready.Gov: https://www.ready.gov/
12. People with Disabilities and Special Needs, US Department of Homeland Security, Ready.Gov: https://www.ready.gov/individuals-access-functional-needs
13. Pet Items preparedness, Ready.Gov: https://www.ready.gov/animals
14. State of California Earthquake hazards information: http://myhazards.caloes.ca.gov/
15. USGS (United States Geological Survey, Recent Earthquakes List and Map: http://quake.wr.usgs.gov/recenteqs/

LOCAL EMERGENCY SUPPLY VENDORS

American Red Cross	Your Safety Place	Earthquake Supply Center
(www.redcross.org)	(www.yoursafetyplace.com)	(www.earthquakesupplycenter.com)

Ready.
Prepare. Plan. Stay Informed.

Family Emergency Plan

FEMA

Make sure your family has a plan in case of an emergency. Before an emergency happens, sit down together and decide how you will get in contact with each other, where you will go and what you will do in an emergency. Keep a copy of this plan in your emergency supply kit or another safe place where you can access it in the event of a disaster.

Neighborhood Meeting Place: Phone:

Out-of-Neighborhood Meeting Place: Phone:

Out-of-Town Meeting Place: Phone:

Fill out the following information for each family member and keep it up to date.

Name: Social Security Number:
Date of Birth: Important Medical Information:

Name: Social Security Number:
Date of Birth: Important Medical Information:

Name: Social Security Number:
Date of Birth: Important Medical Information:

Name: Social Security Number:
Date of Birth: Important Medical Information:

Name: Social Security Number:
Date of Birth: Important Medical Information:

Name: Social Security Number:
Date of Birth: Important Medical Information:

Write down where your family spends the most time: work, school and other places you frequent. Schools, daycare providers, workplaces and apartment buildings should all have site-specific emergency plans that you and your family need to know about.

Work Location One
Address:
Phone:
Evacuation Location:

School Location One
Address:
Phone:
Evacuation Location:

Work Location Two
Address:
Phone:
Evacuation Location:

School Location Two
Address:
Phone:
Evacuation Location:

Work Location Three
Address:
Phone:
Evacuation Location:

School Location Three
Address:
Phone:
Evacuation Location:

Other place you frequent
Address:
Phone:
Evacuation Location:

Other place you frequent
Address:
Phone:
Evacuation Location:

Name	Telephone Number	Policy Number

Dial 911 for Emergencies

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Ready.
Prepare. Plan. Stay Informed.

Family Emergency Plan

FEMA

Make sure your family has a plan in case of an emergency. Fill out these cards and give one to each member of your family to make sure they know who to call and where to meet in case of an emergency.

ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION

Family Emergency Plan

EMERGENCY CONTACT NAME
TELEPHONE

OUT-OF-TOWN CONTACT NAME
TELEPHONE

NEIGHBORHOOD MEETING PLACE
TELEPHONE

OTHER IMPORTANT INFORMATION

DIAL 911 FOR EMERGENCIES

Ready.

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ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION

Family Emergency Plan

EMERGENCY CONTACT NAME
TELEPHONE

OUT-OF-TOWN CONTACT NAME
TELEPHONE

NEIGHBORHOOD MEETING PLACE
TELEPHONE

OTHER IMPORTANT INFORMATION

DIAL 911 FOR EMERGENCIES

Ready.

<FOLD HERE>

ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION

Family Emergency Plan

EMERGENCY CONTACT NAME
TELEPHONE

OUT-OF-TOWN CONTACT NAME
TELEPHONE

NEIGHBORHOOD MEETING PLACE
TELEPHONE

OTHER IMPORTANT INFORMATION

DIAL 911 FOR EMERGENCIES

Ready.

ADDITIONAL IMPORTANT PHONE NUMBERS & INFORMATION

Family Emergency Plan

EMERGENCY CONTACT NAME
TELEPHONE

OUT-OF-TOWN CONTACT NAME
TELEPHONE

NEIGHBORHOOD MEETING PLACE
TELEPHONE

OTHER IMPORTANT INFORMATION

DIAL 911 FOR EMERGENCIES

Ready.

Appendix A-4

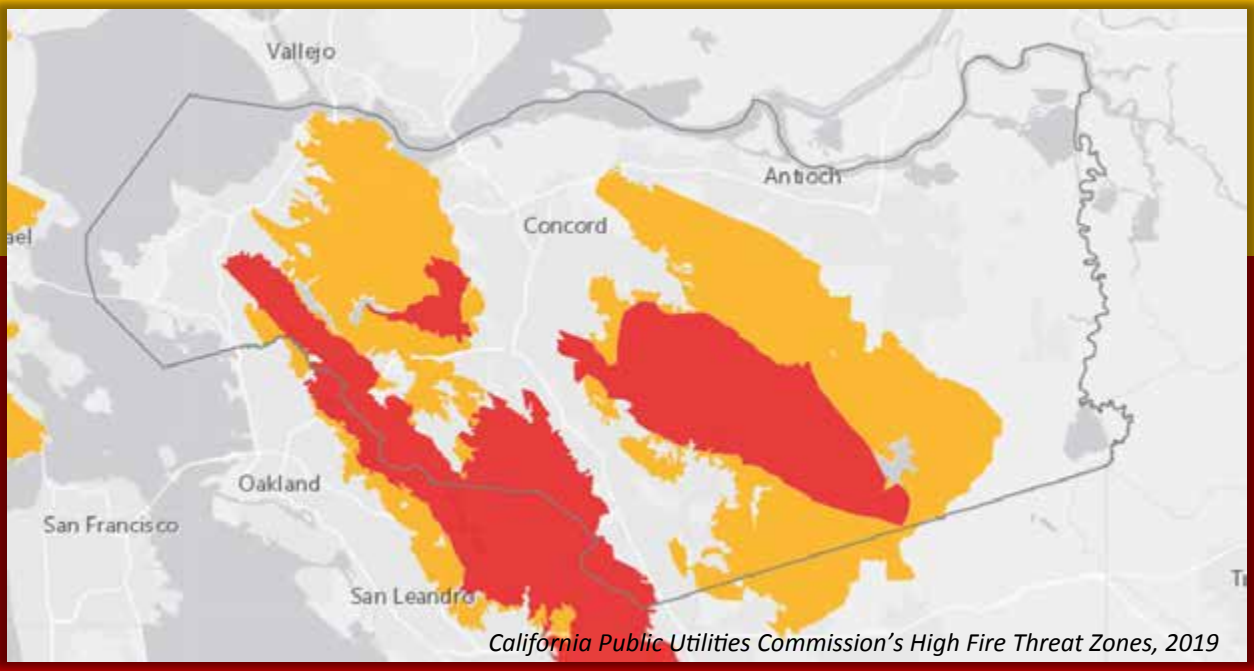
Contra Costa County's Residents Guide to Wildfire Preparedness and Evacuation

Contra Costa County Residents Guide

to

WILDFIRE

Preparedness & Evacuation



California Public Utilities Commission's High Fire Threat Zones, 2019

PREPARE YOUR HOME ***How will you ready your home?***

HAVE A PLAN ***What will you do?***

MAKE A KIT ***What do you need?***

STAY INFORMED ***How will you get information?***

KNOW YOUR NEIGHBORS ***How will you work together?***

-ABOUT THIS DOCUMENT-

Over the past few years, California has experienced a dramatic rise in both the number and severity of wildland fires. These fires have ravaged wildland-urban interface areas taking lives, destroying homes and obliterating infrastructure. Six of the 20 largest fires in California's recorded history have burned in the last five years and 10 of California's most destructive wildfires have occurred since 2015.

The information included here is intended to provide Contra Costa County residents with an overview of the steps they can take to prepare themselves, their families and neighbors should an evacuation become necessary. Please heed the recommendations here; register your cellphones with the Contra Costa Community Warning System (CWS), prepare your home by removing excess fuel from around your structures and be ready to evacuate when wildfire threatens.

For more information visit

- Ready.gov
- CalOES.ca.gov
- Cchealth.org
- Fire.ca.gov
- Red Cross.org

For digital versions of this guide visit

www.cccfpd.org

www.cococws.us

www.cocosheriff.org

*Thanks to **Lamorinda Community Emergency Response Team**, Lafayette **Police Department** and the **Contra Costa County Fire Protection District** for their guidance in producing this document.*

Understand these

TERMS

Current Fire Weather Watches and Red Flag Warnings:
https://www.wrh.noaa.gov/fire2/cafw/index.php

FIRE WEATHER WATCH Upcoming weather conditions could result in extensive wildland fire occurrence or extreme fire behavior. A watch means critical fire weather conditions are possible but not imminent or occurring.

RED FLAG WARNING Be extremely careful with open flames. The National Weather Service issues a Red Flag Warning when fire conditions are ongoing or expected to occur shortly. During these times, residents must use extreme caution. A simple spark could cause a major fire.

EVACUATION WARNING Alerts people in an affected area of potential threat to life and property. People who need additional time may consider evacuating at this time.

EVACUATION ORDER Requires the **immediate** movement of people out of an affected area due to an imminent threat to life. Choosing to stay could result in loss of life. Staying may also impede the work of emergency personnel.

SHELTER-IN-PLACE Advises people to stay secure at their current location by remaining in place as evacuating will cause a higher potential for loss of life.

RESCUE and RECOVERY Emergency actions taken within the affected area to recover and remove injured or trapped citizens.

SAFETY ZONE A place that may provide temporary refuge to residents who become trapped or are unable to evacuate to safety

If you feel you are in danger, don't wait: EVACUATE!

During a Red Flag Warning

one less SPARK means one less WILDFIRE

About 95% of all wildfires in California are caused by people. Help prevent wildfires by following these guidelines.

Current Fire Weather Watches and Red Flag Warnings: https://www.wrh.noaa.gov/fire2/cafw/index.php

EQUIPMENT USE

- Mow before 10 a.m., but never when it's windy or excessively dry
- Mowers are designed to mow lawns, not weeds or dry grass
- Metal blades striking rocks can create sparks and start fires
- Don't drive your vehicle onto dry grass or brush

Hot exhaust pipes and mufflers can start fires

CAMPFIRE SAFETY

- Obtain a campfire permit and understand campfire safety: http://www.preventwildfireca.org/Campfires/

VEHICLE MAINTENANCE

- Secure chains
- No dragging parts
- Check tire pressure
- Properly maintain brakes

DEBRIS BURNING

- Learn how and when to safely burn debris: http://www.preventwildfireca.org/Debris-Burning/

Prepare your Home

DEFENSIBLE SPACE *The buffer you create between a building on your property and the grass, trees, shrubs, or any wildland area that surrounds it. This space is needed to slow or stop the spread of wildfire and it protects your home from catching fire*

ZONE ONE
-30 feet from building-

How will you ready your home for a wildfire?

- Remove all dead and dying vegetation from around the house, roof, gutters, and decks
- Keep tree limbs 10 feet from structures and other trees
- Choose fire resistant plant species
- Have a roof made of composition, metal, or tile
- Cover vents to home with a fine mesh to keep out embers

Always

- Have your go kit by the door
- Back your car in when parking
- Battery backup for your garage door opener, or
- Know how to manually open your garage door, or
- Plan ahead for assistance opening your garage door

PREPARE YOUR HOME

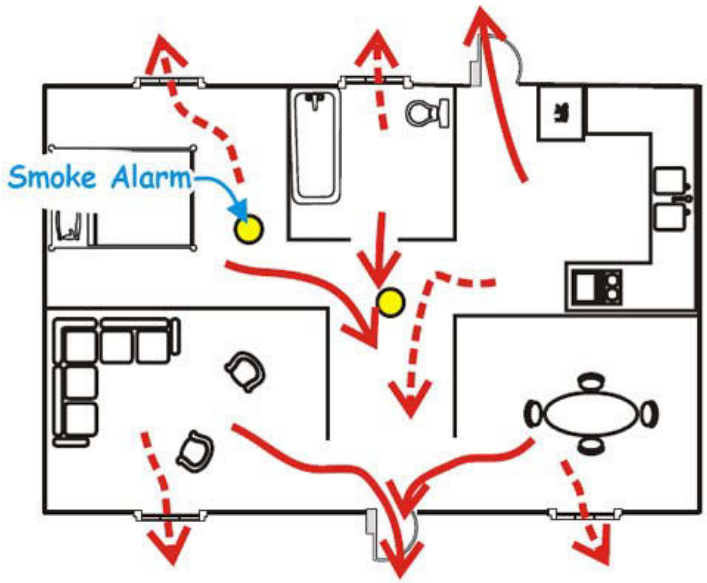
Learn more about Contra Costa County Fire Protection District's Minimum Weed Abatement Standards : www.cccfpd.org/exterior-hazards

ZONE TWO
30 –100 from buildings

- Remove dead and dying vegetation
- Keep woodpiles and combustibles in this zone
- Cut grass and clear brush
- Keep wood fencing and decks away from the home

Make sure your smoke your smoke alarms and fire extinguisher are functional and appropriately placed. If you require assistance contact the American Red Cross at getasmokealarm.org, or visit www.cccfpd.org/education-programs.

Have a Plan



Primary exit

Alternative exit

PREPARE

YOUR HOME

YOUR FAMILY

YOURSELF

- **Where will you go and how will you get there?**

Have multiple escape routes from your home and community

- **How will you get alerted and continue to receive information?**

Register with the Community Warning System

- **How will you contact loved ones?**

Plan to text an out-of-area contact to check in with friends and family

- **What will you bring with you?**

You know best what you will need to bring

- **Coordinate with your neighbors to share vehicles and resources in an emergency requiring evacuation**
- **Plan for the possibility of an extended power outage related to wildfire risk (refer to the Power Outage Preparedness Fact Sheet at the end of this guide)**
- **Know how to open your garage door manually or have a plan for asking for assistance**
- **Make sure your home has working smoke alarms and fire extinguishers**

Individuals with Access and Functional Needs (AFN) can work with family, friends and neighbors to plan for emergencies including those requiring evacuation. Remember to register for the Community Warning System and choose to receive alerts in the way that makes sense for you. Planning today with our AFN community members prepares us for a disaster tomorrow.

Plan for your animals

- Have pet food and supplies in a go-bag
- Keep pets indoors if there is smoke outside
- Collar and confine cats in a single room so they can be easily caught in the event that an evacuation is necessary
- Microchip your animals
- Have photos of yourself with your animal to prove ownership should you become separated
- For larger animals, have a pre-designated place for them out of the area
- Be prepared to transport or shelter your animals in place
- Keep carriers or trailers accessible

Try to take your pets with you but don't become a fatality trying to save them

INCLUDE

PETS IN YOUR PLAN

PREPARE

YOUR PET EMERGENCY KIT

PRACTICE

YOUR PLAN

Make an Evacuation Go Bag

You know best what you will need in an evacuation

- Neighborhood map with local resources
- NOAA weather radio
- Food and water
- Whistle
- First aid kit
- Important documents
- Flashlight, extra batteries
- Moist towelettes, garbage bags, hand sanitizer
- Cell phone with backup powerpack and chargers
- Medicine, medical equipment
- Blankets
- Pet supplies

HAVE A KIT *for each member of your household including pets*

Documents *stored on the cloud or a memory stick*

Type	Document
Housing	Title
	Lease or rental agreement
	Insurance policy
Personal	Birth certificate
	Passport
	Driver's License
	Resident card
	Social Security
	Military DD-214
	Will and/or Trust
Health	Insurance policy
	Medical record
	Medicare ID
	Prescriptions
Auto	Insurance
	Title for each vehicle
	Loan for each vehicle
Other	Photographs of household belongings

Get Alerted, Stay Informed

How will you get information about an evacuation?

Register for the Community Warning System

In an emergency, timely information can save your life! The Contra Costa County Community Warning System (CWS), maintained by the Office of the Sheriff, is an all-hazards system, designed to ALERT the community of an EMERGENCY through multiple communication tools. To receive CWS alerts you must register your cell phone number or home phone number, home address, and email address. Your information will be kept confidential and will not be used for any other purpose other than for emergency alerts. To register for CWS visit *www.cococws.us*, or call 925-313-9622 Today! In addition to official CWS messages for evacuations, shelter-in-place orders and the like, local traditional and online media can be good sources

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For other information about an incident

Follow on Twitter

CWS: @CoCoCWS
Fire: @Contracostafire
Sheriff: @cocosopio

Contra Costa County Fire

Contra Costa Crisis Center

211.org

Tune your radio to KCBS 740 AM

American Red Cross

Red Cross.org

Call 9-1-1 in a life threatening emergency **Call 2-1-1 for non-emergency information**

Know your Neighbors

How will your community work together ?

- **Create defensible space for your mutual protection: Work together on vegetation clearance in and around shared spaces**
- **Map and share information about the location of neighborhood resources such as sources of water, routes to safety and the location of hazards**
- **Identify and support neighbors who require assistance creating defensible space, registering for emergency alerts, or preparing to evacuate**
- **Communicate with neighbors who may have Access or Functional Needs (AFN) and engage them in planning efforts. Ask them *What assistance do they require to safely evacuate?***
- **Include caregivers for AFN individuals in neighborhood planning efforts**
- **Meet with first responders before a disaster to clarify expectations and build relationships**
- **If you are home bound, make sure you identify a family member or friend or church or community group member to check on you during an emergency**
- **Work together to identify *safety zones* where you can shelter together if you are trapped or unable to evacuate**
  - ⇒ *Any area without flammable vegetation*
  - ⇒ *Large parking lots*
  - ⇒ *School/athletic fields*
  - ⇒ *Parks with open, grassy areas*

Access and functional needs (AFN) refers to individuals who are or have:

- Physical, developmental or intellectual disabilities
- Chronic conditions or injuries
- Limited English proficiency
- Older adults
- Children
- Low income, homeless and/or transportation disadvantaged (i.e., dependent on public transit)
- Pregnant women

If you feel you are in danger, don't wait: Evacuate!

Evacuation Tips

What will you do in an evacuation?

Go!

- When in danger, evacuate immediately! Don't wait to be told
- Leave early! Take a neighbor with you who needs assistance
- Grab your go bag with important items and documents
- Leave inside and outside lights on for first responders
- Close and lock windows and doors
- Drive safely and cautiously out of the area with headlights on
- Leave gates open for first responder access / allow any remaining animals to escape on their own
- Avoid all downed power lines
- Communicate by text or call to your out-of-area contact that you are safe

If Trapped

- If you are in your car, park in an area clear of vegetation, close all windows and vents, cover yourself with a flame-resistant blanket (from your auto preparedness kit) and lie on the floor
- If you are on foot, look for a safe building or swimming pool along your path
- If you are in your home, fill tubs with water to submerge in and place wet towels under doors to keep smoke and embers out
- Use your home fire extinguisher for small fires (no larger than a small trash can).

For more evacuation tips, visit Ready, Set, Go!

www.readyforwildfire.org

Evacuation Tips

Returning home

Pay close attention to any directions given by your local authorities. When they say it's safe to return to your home, keep these tips in mind to make the transition as smooth as possible.

After you evacuate, let your loved ones know you are safe.

*Register with the American Red Cross **Safe and Well** Program:*

https://safeandwell.communityos.org/cms/index.php

- **Expect and prepare for disruptions to daily activities, and remember that returning home before debris is cleared can be dangerous**
- **Let friends and family know before you leave and when you arrive**
- **Gather some basic supplies to make your return a safe one. Most of these items can be picked up at your nearest hardware or grocery store if you don't have them on hand:**

⇒ Gloves	⇒ A flashlight
⇒ Goggles	⇒ Bottled water
⇒ Closed-toe shoes	⇒ Garbage bags
⇒ A cell phone (with camera)	⇒ A first aid kit

- **Avoid downed power or utility lines; they may be live with deadly voltage**
- **Walk the perimeter** before you go inside. Take note of any out-of-place electrical wiring, gas smells, or loose debris that may fall
- If you have to use a generator, a charcoal grill, or another fuel-burning device, make sure you keep it outdoors, and in a well-ventilated area
- **When in doubt, throw it out.** Food and drinks inside your fridge or freezer may need to be tossed when you return home — especially if your house lost power or was exposed to heat, ash, smoke, or any of the chemicals used to put out fires

Help your first responders: Place this sign in a clearly visible location if you cannot evacuate

HELP

Preparing for a Power Outage during Fire Season

What should you be doing?

May disrupt communications, water, transportation

May close retail businesses, grocery stores, gas stations, ATMs, banks, and other services

Can cause food spoilage, water contamination

Can prevent use of medical devices

BEFORE

- **Register** for alerts from *cococws.us*
- **Update** your contact information with PG&E *pge.com/wildfiresafety*
- **Take an inventory** of the items you use that rely on electricity
- **Plan for your family and pet medical needs**
- **Keep mobile phones charged**
- **Identify backup charging methods** for phones and electronics
- **Store water and non-perishable food**
- **Install home carbon monoxide detectors** with battery backups
- **Know** how to use the manual release on your garage door or plan for assistance
- **Keep gas tanks full**
- **Talk to your family and neighbors** and share your plan

DURING

- **Keep** freezers and refrigerators closed
- **Monitor** freezer and refrigerator temperatures with a thermometer
- **Use** perishable food supplies first
- **Use generators, stoves and grills outdoors** away from windows
- **Disconnect appliances and electronics** to avoid damage
- **Check on neighbors, animals and family**

AFTER

- **When in doubt, throw it out!** Throw away food exposed to temperatures above 41 degrees for more than four hours
- **Check with your pharmacist** about refrigerated medications

Home Shelter-in-Place Kit

Consider keeping these items at your home in case of a power outage

- Neighborhood map with local resources
- Battery-powered or hand crank NOAA Weather Radio

- Portable generator
- Carbon monoxide detector, smoke detector and fire extinguisher

- Method for cooking food without electricity
- Surge protectors for appliances and devices

- Consider keeping cash on hand in case

  ATM and credit cards cannot be used

- Flashlight, extra batteries
- First aid kit

- Whistle to signal for help
- Moist towelettes, garbage bags, hand sanitizer

- Cell phone with backup powerpack
- Medicine, medical equipment
- Important documents

- Water: one gallon per person per day of water
- Non-perishable food for one week

- Pet supplies
- Blankets
- Whatever YOU think you will need for yourself, your household and your animals

Preparing for Other Hazards

While this is a wildland fire preparation guide, much of the information included here can help you prepare for other disasters, such as earthquakes, that may occur in Contra Costa County. Fires, power disruption, landslides and tsunamis are all hazards that may result from an earthquake.

Before an Earthquake

- Practice **Drop, Cover, then Hold On**
- Secure items, such as bookcases, refrigerators, televisions and objects that hang on walls. Store heavy and breakable objects on low shelves
- Create a family emergency communications plan. Plan where to meet if you get separated
- Consider obtaining an earthquake insurance policy. A standard homeowner's insurance policy does not cover earthquake damage

During

- Drop, cover and hold on!
- If you are in a vehicle, pull over and stop. Set your parking brake
- If you are in bed, turn face down and cover your head and neck with a pillow
- If you are outdoors, stay outdoors away from buildings. Do not get in a doorway or run outside

After

- Expect aftershocks
- Anticipate hazards such as damage to the building, leaking gas and water lines, or downed power lines. Do not enter damaged buildings
- Check yourself to see if you are hurt and help others if you have training
- If trapped, protect your mouth, nose and eyes from dust. Send a text, bang on a pipe or wall, or use a whistle instead of shouting so that rescuers can locate you
- If you are in an area that may experience tsunamis, go inland or to higher ground immediately after the shaking stops
- Text messages may be more reliable than phone calls

Visit www.EarthquakeCountry.org/step5 for tips and videos.

Appendix B-1 — B-4

Family Disaster Plan and Checklists

Additional Items to Consider Adding to an Emergency Supply Kit:

- ❑ **Prescription medications and glasses**
- ❑ **Infant formula and diapers**
- ❑ **Pet food and extra water for your pet**
- ❑ **Important family documents such as copies of insurance policies, identification and bank account records in a waterproof, portable container**
- ❑ **Cash or traveler's checks and change**
- ❑ **Emergency reference material such as a first aid book or information from www.ready.gov**
- ❑ **Sleeping bag or warm blanket for each person. Consider additional bedding if you live in a cold-weather climate.**
- ❑ **Complete change of clothing including a long sleeved shirt, long pants and sturdy shoes. Consider additional clothing if you live in a cold-weather climate.**
- ❑ **Household chlorine bleach and medicine dropper** – When diluted nine parts water to one part bleach, bleach can be used as a disinfectant. Or in an emergency, you can use it to treat water by using 16 drops of regular household liquid bleach per gallon of water. Do not use scented, color safe or bleaches with added cleaners.
- ❑ **Fire Extinguisher**
- ❑ **Matches in a waterproof container**
- ❑ **Feminine supplies and personal hygiene items**
- ❑ **Mess kits, paper cups, plates and plastic utensils, paper towels**
- ❑ **Paper and pencil**
- ❑ **Books, games, puzzles or other activities for children**

Ready

Prepare. Plan. Stay Informed.®

Emergency Supply List

FEMA

www.ready.gov

Recommended Items to Include in a Basic Emergency Supply Kit:

- **Water, one gallon of water per person per day for at least three days, for drinking and sanitation**
- **Food, at least a three-day supply of non-perishable food**
- **Battery-powered or hand crank radio and a NOAA Weather Radio with tone alert and extra batteries for both**
- **Flashlight and extra batteries**
- **First aid kit**
- **Whistle to signal for help**
- **Dust mask, to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place**
- **Moist towelettes, garbage bags and plastic ties for personal sanitation**
- **Wrench or pliers to turn off utilities**
- **Can opener for food (if kit contains canned food)**
- **Local maps**

Through its *Ready* Campaign, the Federal Emergency Management Agency educates and empowers Americans to take some simple steps to prepare for and respond to potential emergencies, including natural disasters and terrorist attacks. *Ready* asks individuals to do three key things: get an emergency supply kit, make a family emergency plan, and be informed about the different types of emergencies that could occur and their appropriate responses.

All Americans should have some basic supplies on hand in order to survive for at least three days if an emergency occurs. Following is a listing of some basic items that every emergency supply kit should include. However, it is important that individuals review this list and consider where they live and the unique needs of their family in order to create an emergency supply kit that will meet these needs. Individuals should also consider having at least two emergency supply kits, one full kit at home and smaller portable kits in their workplace, vehicle or other places they spend time.

Ready

FEMA

Federal Emergency Management Agency
Washington, DC 20472

BE SMART. TAKE PART. CREATE YOUR FAMILY EMERGENCY COMMUNICATION PLAN

Join with others to prepare for emergencies and participate in America's PrepareAthon! | ready.gov/prepare

Creating your *Family Emergency Communication Plan* starts with one simple question: "What if?"

"What if something happens and I'm not with my family?" "Will I be able to reach them?" "How will I know they are safe?" "How can I let them know I'm OK?" During a disaster, you will need to send and receive information from your family.

Communication networks, such as mobile phones and computers, could be unreliable during disasters, and electricity could be disrupted. Planning in advance will help ensure that all the members of your household—including children and people with disabilities and others with access and functional needs, as well as outside caregivers—know how to reach each other and where to meet up in an emergency. Planning starts with three easy steps:

1. COLLECT.

Create a paper copy of the contact information for your family and other important people/offices, such as medical facilities, doctors, schools, or service providers.

2. SHARE.

Make sure everyone carries a copy in his or her backpack, purse, or wallet. If you complete your *Family Emergency Communication Plan* online at ready.gov/make-a-plan, you can print it onto a wallet-sized card. You should also post a copy in a central location in your home, such as your refrigerator or family bulletin board.

3. PRACTICE.

Have regular household meetings to review and practice your plan.

TEXT IS BEST!

If you are using a mobile phone, a text message may get through when a phone call will not. This is because a text message requires far less bandwidth than a phone call. Text messages may also save and then send automatically as soon as capacity becomes available.

The following sections will guide you through the process to create and practice your *Family Emergency Communication Plan*.

HOUSEHOLD INFORMATION

Write down phone numbers and email addresses for everyone in your household. Having this important information written down will help you reconnect with others in case you don't have your mobile device or computer with you or if the battery runs down. If you have a household member(s) who is Deaf or hard of hearing, or who has a speech disability and uses traditional or video relay service (VRS), include information on how to connect through relay services on a landline phone, mobile device, or computer.

SCHOOL, CHILDCARE, CAREGIVER, AND WORKPLACE EMERGENCY PLANS

Because a disaster can strike during school or work hours, you need to know their emergency response plans and how to stay informed. Discuss these plans with children, and let them know who could pick them up in an emergency. Make sure your household members with phones are signed up for alerts and warnings from their school, workplace, and/or local government. To find out more about how to sign up, see *Be Smart. Know Your Alerts and Warnings* at http://1.usa.gov/1BDloze. For children without mobile phones, make sure they know to follow instructions from a responsible adult, such as a teacher or principal.

OUT-OF-TOWN CONTACT

It is also important to identify someone outside of your community or State who can act as a central point of contact to help your household reconnect. In a disaster, it may be easier to make a long-distance phone call than to call across town because local phone lines can be jammed.

EMERGENCY MEETING PLACES

Decide on safe, familiar places where your family can go for protection or to reunite. Make sure these locations are accessible for household members with disabilities or access and functional needs. If you have pets or service animals, think about animal-friendly locations. Identify the following places:

- ☐ *Indoor*: If you live in an area where tornadoes, hurricanes, or other high-wind storms can happen, make sure everyone knows where to go for protection. This could be a small, interior, windowless room, such as a closet or bathroom, on the lowest level of a sturdy building, or a tornado safe room or storm shelter.
- ☐ *In your neighborhood*: This is a place in your neighborhood where your household members will meet if there is a fire or other emergency and you need to leave your home. The meeting place could be a big tree, a mailbox at the end of the driveway, or a neighbor's house.
- ☐ *Outside of your neighborhood*: This is a place where your family will meet if a disaster happens when you're not at home and you can't get back to your home. This could be a library, community center, house of worship, or family friend's home.

- [ ] *Outside of your town or city*: Having an out-of-town meeting place can help you reunite if a disaster happens and:
    - You cannot get home or to your out-of-neighborhood meeting place; or
    - Your family is not together and your community is instructed to evacuate the area.

    This meeting place could be the home of a relative or family friend. Make sure everyone knows the address of the meeting place and discuss ways you would get there.

OTHER IMPORTANT NUMBERS AND INFORMATION

You should also write down phone numbers for emergency services, utilities, service providers, medical providers, veterinarians, insurance companies, and other services.

SHARE

MAKE SURE EVERYONE HAS THE INFORMATION

- [ ] Make copies of your *Family Emergency Communication Plan* for each member of the household to carry in his or her wallet, backpack, or purse. Post a copy in a central place at home. Regularly check to make sure your household members are carrying their plan with them.
- [ ] Enter household and emergency contact information into all household members' mobile phones or devices.
- [ ] Store at least one emergency contact under the name "In Case of Emergency" or "ICE" for all mobile phones and devices. This will help someone identify your emergency contact if needed. Inform your emergency contact of any medical issues or other requirements you may have.
- [ ] Create a group list on all mobile phones and devices of the people you would need to communicate with if there was an emergency or disaster.
- [ ] Make sure all household members and your out-of-town contact know how to text if they have a mobile phone or device, or know alternative ways to communicate if they are unable to text.
- [ ] Read *Be Smart. Know Your Alerts and Warnings* at http://1.usa.gov/1BDloze and sign up to receive emergency information.

NOW IT'S TIME TO PRACTICE!

Once you have completed your *Family Emergency Communication Plan*, made copies for all the members of your household, and discussed it, it's time to practice!

Here are some ideas for practicing your plan:

- [ ] Practice texting and calling. Have each person practice sending a text message or calling your out-of-town contact and sending a group text to your mobile phone group list.
- [ ] Discuss what information you should send by text. You will want to let others know you are safe and where you are. Short messages like "I'm OK. At library" are good.

- [ ] Talk about who will be the lead person to send out information about the designated meeting place for the household.
- [ ] Practice gathering all household members at your indoor and neighborhood emergency meeting places. Talk about how each person would get to the identified out-of-neighborhood and out-of-town meeting places. Discuss all modes of transportation, such as public transportation, rail, and para-transit for all family members, including people with disabilities and others with access and functional needs.
- [ ] Regularly have conversations with household members and friends about the plan, such as whom and how to text or call, and where to go.
- [ ] To show why it's important to keep phone numbers written down, challenge your household members to recite important phone numbers from memory—now ask them to think about doing this in the event of an emergency.
- [ ] Make sure everyone, including children, knows how and when to call 911 for help. You should only call 911 when there is a life-threatening emergency.
- [ ] Review, update, and practice your *Family Emergency Communication Plan* at least once a year, or whenever any of your information changes.

To help start the conversation or remind your family why you are taking steps to prepare and practice, you may want to watch the 4-minute video, *It Started Like Any Other Day*, about families who have experienced disaster, at www.youtube.com/watch?v=w_omgt3MEBs. Click on the closed captioning (CC) icon on the lower right to turn on the captioning.

After you practice, talk about how it went. What worked well? What can be improved? What information, if any, needs to be updated? If you make updates, remember to print new copies of the plan for everyone.

OTHER IMPORTANT TIPS FOR COMMUNICATING IN DISASTERS[1]

- [ ] Text is best when using a mobile phone, but if you make a phone call, keep it brief and convey only vital information to emergency personnel and/or family or household members. This will minimize network congestion, free up space on the network for emergency communications, and conserve battery power. Wait 10 seconds before redialing a number. If you redial too quickly, the data from the handset to the cell sites do not have enough time to clear before you've re-sent the same data. This contributes to a clogged network.
- [ ] Conserve your mobile phone battery by reducing the brightness of your screen, placing your phone in airplane mode, and closing apps you do not need. Limit watching videos and playing video games to help reduce network congestion.
- [ ] Keep charged batteries, a car phone charger, and a solar charger available for backup power for your mobile phone, teletypewriters (TTYs), amplified phones, and caption phones. If you charge your phone in your car, be sure the car is in a well-ventilated area (e.g., not in a closed garage) to avoid life-threatening carbon monoxide poisoning.

[1] Federal Communications Commission, Public Safety and Homeland Security Bureau. (n.d.) *Tips for communicating in an emergency.* Retrieved from http://transition.fcc.gov/pshs/emergency-information/tips.html

- [ ] If driving, do not text, read texts, or make a call without a hands-free device.
- [ ] Maintain a household landline and analog phone (with battery backup if it has a cordless receiver) that can be used when mobile phone service is unavailable. Those who are Deaf or hard of hearing, or who have speech disabilities and use devices and services that depend on digital technology (e.g., VRS, Internet Protocol [IP] Relay, or captioning) should have an analog phone (e.g., TTY, amplified phone, or caption phone) with battery backup in case Internet or mobile service is down.
- [ ] If you evacuate and have a call-forwarding feature on your home phone, forward your home phone number to your mobile phone number.
- [ ] Use the Internet to communicate by email, Twitter, Facebook, and other social media networks. These communication channels allow you to share information quickly with a widespread audience or to find out if loved ones are OK. The Internet can also be used for telephone calls through Voice over Internet Protocol. For those who are Deaf or hard of hearing, or who have speech disabilities, you can make calls through your IP Relay provider.
- [ ] If you do not have a mobile phone, keep a prepaid phone card to use if needed during or after a disaster.
- [ ] Use a pay phone if available. It may have less congestion because these phones don't rely on electricity or mobile networks. In some public places, you may be able to find a TTY that can be used by those who are Deaf or hard of hearing, or who have speech disabilities.

America's PrepareAthon! is a grassroots campaign for action to get more people prepared for emergencies. Make your actions count at ready.gov/prepare.

The reader recognizes that the Federal Government provides links and informational data on various disaster preparedness resources and events and does not endorse any non-Federal events, entities, organizations, services, or products.

10 WAYS TO PARTICIPATE IN AMERICA'S PrepareAthon!℠

FAMILY EMERGENCY COMMUNICATION PLAN

HOUSEHOLD INFORMATION

Home #: .....
Address:.....

Name: ..... Mobile #: .....
Other # or social media: .....
Email: .....
Important medical or other information: .....
.....

Name: ..... Mobile #: .....
Other # or social media: .....
Email: .....
Important medical or other information: .....
.....

Name: ..... Mobile #: .....
Other # or social media: .....
Email: .....
Important medical or other information: .....
.....

Name: ..... Mobile #: .....
Other # or social media: .....
Email: .....
Important medical or other information: .....
.....

SCHOOL, CHILDCARE, CAREGIVER, AND WORKPLACE EMERGENCY PLANS

Name: .....
Address:.....
Emergency/Hotline #: .....
Website: .....
Emergency Plan/Pick-Up: .....

SCHOOL, CHILDCARE, CAREGIVER, AND WORKPLACE EMERGENCY PLANS

Name: .....
Address:.....
Emergency/Hotline #: .....
Website: .....
Emergency Plan/Pick-Up: .....

Name: .....
Address:.....
Emergency/Hotline #: .....
Website: .....
Emergency Plan/Pick-Up: .....

Name: .....
Address:.....
Emergency/Hotline #: .....
Website: .....
Emergency Plan/Pick-Up: .....

IN CASE OF EMERGENCY (ICE) CONTACT

Name: ..... Mobile #: .....
Home #: .....Email: .....
Address: .....

OUT-OF-TOWN CONTACT

Name: ..... Mobile #: .....
Home #: .....Email: .....
Address: .....

EMERGENCY MEETING PLACES

Indoor: .....
Instructions: .....
Neighborhood: .....
Instructions: .....

Out-of-Neighborhood: .....
Address:.....
Instructions: .....

Out-of-Town: .....
Address:.....
Instructions: .....

IMPORTANT NUMBERS OR INFORMATION

Police: ..... Dial 911 or #: .....
Fire: ..... Dial 911 or #: .....
Poison Control: .....#: .....
Doctor: .....#: .....
Doctor: .....#: .....
Pediatrician: .....#: .....
Dentist: .....#: .....
Hospital/Clinic: .....#: .....
Pharmacy: .....#: .....
Medical Insurance: .....#: .....
Policy #: .....
Medical Insurance: .....#: .....
Policy #: .....
Homeowner/Rental Insurance: .....
#: .....
Policy #: .....
Flood Insurance: .....#: .....
Policy #: .....
Veterinarian: .....#: .....
Kennel: .....#: .....
Electric Company: .....#: .....
Gas Company: .....#: .....
Water Company: .....#: .....
Alternate/Accessible Transportation: .....
#: .....
Other: .....#: .....
Other: .....#: .....
Other: .....#: .....

AMERICA'S PrepareAthon!
BE SMART. TAKE PART. PREPARE.

Ready

Write your family's name above

Family Emergency Communication Plan

IN CASE OF EMERGENCY (ICE) CONTACT

Name: ..... Mobile #: .....
Home #: ..... Email: .....
Address: .....

OUT-OF-TOWN CONTACT

Name: ..... Mobile #: .....
Home #: ..... Email: .....
Address: .....

FOLD HERE

HOUSEHOLD INFORMATION

Home #: .....
Address: .....

Name: ..... Mobile #: .....
Other # or social media: ..... Email: .....
Important medical or other information: .....

Name: ..... Mobile #: .....
Other # or social media: ..... Email: .....
Important medical or other information .....

FOLD HERE

Name: ..... Mobile #: .....
Other # or social media: ..... Email: .....
Important medical or other information: .....

Name: ..... Mobile #: .....
Other # or social media: ..... Email: .....
Important medical or other information: .....

FOLD HERE

SCHOOL, CHILDCARE , CAREGIVER, AND WORKPLACE EMERGENCY PLANS

Name: .....
Address: .....
Emergency/Hotline #: ..... Website: .....
Emergency Plan/Pick-Up: .....

Name: .....
Address: .....
Emergency/Hotline #: ..... Website: .....
Emergency Plan/Pick-Up: .....

FOLD HERE

Name: .....
Address: .....
Emergency/Hotline #: ..... Website: .....
Emergency Plan/Pick-Up: .....

Name: .....
Address: .....
Emergency/Hotline #: ..... Website: .....
Emergency Plan/Pick-Up: .....

EMERGENCY MEETING PLACES

Indoor: .....
Instructions: .....
.....

Neighborhood: .....
Instructions: .....
.....

Out-of-Neighborhood: .....
Address: .....
Instructions: .....
.....

Out-of-Town: .....
Address: .....
Instructions: .....
.....

IMPORTANT NUMBERS OR INFORMATION

Police: ..... Dial 911 or #: .....
Fire: ..... Dial 911 or #: .....
Poison Control: ..... #: .....
Doctor: ..... #: .....
Doctor: ..... #: .....
Pediatrician: ..... #: .....
Dentist: ..... #: .....
Medical Insurance: ..... #: .....
Policy #: .....
Medical Insurance: ..... #: .....
Policy #: .....
Hospital/Clinic: ..... #: .....

Pharmacy: ..... #: .....
Homeowner/Rental Insurance: ..... #: .....
Policy #: .....
Flood Insurance: ..... #: .....
Policy #: .....
Veterinarian: ..... #: .....
Kennel: ..... #: .....
Electric Company: ..... #: .....
Gas Company: ..... #: .....
Water Company: ..... #: .....
Alternate/Accessible Transportation: ..... #: .....
Other: .....
Other: .....

Family Disaster Plan

Family Last Name(s) or Household Address: **Date:**

Family Member/Household Contact Info (If needed, additional space is provided in #10 below):

Name	Home Phone	Cell Phone	Email:

Pet(s) Info:

Name:	Type:	Color:	Registration #:

Plan of Action

1. The disasters most likely to affect our household are:

2. What are the escape routes from our home?

3. If separated during an emergency, what is our meeting place near our home?

4. If we cannot return home or are asked to evacuate, what is our meeting place outside of our neighborhood?

_____

What is our route to get there and an alternate route, if the first route is impassible?

_____

_____

5. In the event our household is separated or unable to communicate with each other, our emergency contact outside of our immediate area is:

Name	Home Phone	Cell Phone	Email:

After a disaster, let your friends and family know you are okay by registering at "Safe and Well" at https://safeandwell.communityos.org/cms// or by calling 1-800-733-2767. You can also give them a call, send a quick text or update your status on social networking sites.

6. If at school/daycare, our child(ren) will be evacuated to:

Child's Name:	Evacuation Site (address and contact info):

7. Our plan for people in our household with a disability or special need is:

Person's Name:	Plan:

8. During certain emergencies local authorities may direct us to "shelter in place" in our home. An accessible, safe room where we can go, seal windows, vents and doors and listen to emergency broadcasts for instructions, is:

_____

9. Family Member Responsibilities in the Event of a Disaster

Task	Description	Family Member Responsible
Disaster Kit*	Stock the disaster kit and take it if evacuation is necessary. Include items you might want to take to an evacuation shelter. Remember to include medications and eye glasses.	
Be informed	Maintain access to NOAA or local radio, TV, email or text alerts for important and current information about disasters.	
Family Medical Information	Make sure the household medical information is taken with us if evacuation is necessary.	
Financial Information	Obtain copies of bank statements and cash in the event ATMs and credit cards do not work due to power outages. Bring copies of utility bills as proof of residence in applying for assistance.	
Pet Information	Evacuate our pet(s), keep a phone list of pet-friendly motels and animal shelters, and assemble and take the pet disaster kit.	
Sharing and Maintaining the Plan	Share the completed plan with those who need to know. Meet with household members every 6 months or as needs change to update household plan.	

**What supplies and records should go in your disaster kit? Visit www.redcross.org*

10. Other information, if not able to be included above.

Congratulations on completing your family disaster plan! Please tell others: "We've made a family disaster plan and you can, too, with help from the American Red Cross."

Get the facts about what you should do if an emergency or disaster occurs at www.redcross.org

Appendix C

Fire Behavior Technical Report

APPENDIX C
Fire Behavior Technical Report
Point Molate Project

1 FIRE BEHAVIOR MODELING HISTORY

Fire behavior modeling has been used by researchers for over 50 years to predict how a fire will move through a given landscape (Linn 2003). The models have had varied complexities and applications throughout the years. One model has become the most widely used for predicting fire behavior on a given landscape. That model, known as "BEHAVE," was developed by the U. S. Government (USDA Forest Service, Rocky Mountain Research Station) and has been in use since 1984. Since that time, it has undergone continued research, improvements, and refinement. The current version, BehavePlus V6, includes the latest updates incorporating years of research and testing. Numerous studies have been completed testing the validity of the fire behavior models' ability to predict fire behavior given site specific inputs. One of the most successful ways the model has been improved has been through post-wildfire modeling (Brown 1972, Lawson 1972, Sneeuwjagt and Frandsen 1977, Andrews 1980, Brown 1982, Rothermel and Rinehart 1983, Bushey 1985, McAlpine and Xanthopoulos 1989, Grabner, et. al. 1994, Marsden-Smedley and Catchpole 1995, Grabner 1996, Alexander 1998, Grabner et al. 2001, Arca et al. 2005). In this type of study, BehavePlus is used to model fire behavior based on pre-fire conditions in an area that recently burned. Real-world fire behavior, documented during the wildfire, can then be compared to the prediction results of BehavePlus and refinements to the fuel models incorporated, retested, and so on.

Fire behavior modeling includes a high level of analysis and information detail to arrive at reasonably accurate representations of how wildfire would move through available fuels on a given site. Fire behavior calculations are based on site specific fuel characteristics supported by fire science research that analyzes heat transfer related to specific fire behavior. Predicting wildland fire behavior is not an exact science. As such, the minute-by-minute movement of a fire will probably never be predictable, especially when considering the variable state of weather and the fact that weather conditions are typically estimated from forecasts made many hours before a fire. Nevertheless, field-tested and experienced judgment in assessing the fire environment, coupled with a systematic method of calculating fire behavior yields surprisingly accurate results. To be used effectively, the basic assumptions and limitations of fire behavior modeling applications must be understood.

1. First, it must be realized that the fire model describes fire behavior only in the flaming front. The primary driving force in the predictive calculations is the dead fuels less than 0.25 inches in diameter. These are the fine fuels that carry fire. Fuels greater than one inch have little effect, while fuels greater than three inches have no effect on fire behavior.

2. Second, the model bases calculations and descriptions on a wildfire spreading through surface fuels that are within six feet of the ground and contiguous to the ground. Surface fuels are often classified as grass, brush, litter, or slash.
3. Third, the software assumes that weather and topography are uniform. However, because wildfires almost always burn under non-uniform conditions, creating their own weather, length of projection period and choice of fuel model must be carefully considered to obtain useful predictions.
4. Fourth, fire behavior computer modeling systems are not intended for determining sufficient fuel modification zone/defensible space widths. However, it does provide the average length of the flames, which is a key element for determining defensible space distances for minimizing structure ignition.

Although BehavePlus has limitations, it can still provide valuable fire behavior predictions, which can be used as a tool in the decision-making process. In order to make reliable estimates of fire behavior, one must understand the relationship of fuels to the fire environment and be able to recognize the variations in these fuels. Natural fuels are made up of the various components of vegetation, both live and dead, that occur in a particular landscape. The type and quantity will depend upon soil, climate, geographic features, and fire history. The major fuel groups of grass, shrub, trees, and slash are defined by their constituent types and quantities of litter and duff layers, dead woody material, grasses and forbs, shrubs, regeneration, and trees. Fire behavior can be predicted largely by analyzing the characteristics of these fuels. Fire behavior is affected by seven principal fuel characteristics: fuel loading, size and shape, compactness, horizontal continuity, vertical arrangement, moisture content, and chemical properties.

2 MODELING INPUTS

2.1 Fuels

The seven fuel characteristics help define the 13 standard fire behavior fuel models (Anderson 1982) and the more recent custom fuel models developed for Southern California (Weise and Regelbrugge 1997). According to the model classifications, fuel models used for fire behavior modeling (BehavePlus) have been classified into four groups, based upon fuel loading (tons/acre), fuel height, and surface-to-volume ratio. Observation of the fuels in the field (on site) determines which fuel models should be applied in modeling efforts. The following describes the distribution of fuel models among general vegetation types for the standard 13 fuel models:

- Grasses Fuel Models 1 through 3

- Brush Fuel Models 4 through 7
- Timber Fuel Models 8 through 10
- Logging slash Fuel Models 11 through 13.

For the Point Molate Project BehavePlus analyses, fuel model assignments were based on observed field conditions. As is customary for this type of analysis, the terrain and vegetative fuels directly adjacent to the proposed development and fuel modification zones (FMZ) are used for determining flame lengths and fire spread. It is these fuels that would have the potential to affect the project's structures from a radiant and convective heat perspective as well as from direct flame impingement. Fuel beds, including sage scrub and non-native grasslands were observed adjacent to the proposed development. These fuel types can produce flying embers that may affect the project, but defenses have been built into the structures to prevent ember penetration. Table C-1 provides a description of the fuel models observed in the vicinity of the site that were subsequently used in the analysis for this project. Modeled areas include grasslands (Fuel Model 1), coastal sage scrub (Fuel Model 5), and eucalyptus woodland (Fuel Model 10). Dudek also conducted modeling of the site for post-development recommendations for this project (refer to Table C-2 for post-development fuel model descriptions). Fuel modification includes irrigated landscaping on the periphery of the Project development area as well as maintenance of vegetation within the Planning Areas of the Project on an as needed basis where applicable. For modeling the post-development condition, fuel model assignments were re-classified to Fuel Model 8.

Table C-1. Existing Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
1	Prairie Grass	Represents grasses on and adjacent to the property.	<2.0 ft.
5	Coastal sage scrub	Coastal sage scrub occurs on hillsides on and adjacent to the property.	<5.0 ft.
10	Eucalyptus woodland	Stands of eucalyptus trees occurs on hillsides and lower portions of the property.	<40.0 ft.

Table C-2. Post-development Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
8	Compact litter	Irrigated landscapes and fuel modification zones in proposed development.	<0.5 ft.

2.2 Weather

To evaluate different scenarios, analyses were conducted for fall, off-shore Diablo wind conditions. Fuel moisture and wind speed information data was incorporated into the BehavePlus modeling runs. The input wind speed and direction is roughly an average surface wind at 20 feet above the vegetation over the analysis area. Table C-3 summarizes the weather and wind input variables used in the BehavePlus modeling efforts.

Table C-3. Fuel Moisture and Wind Inputs

Variable		Peak Weather Condition (Diablo Winds - offshore)
1h Moisture		1%
10h Moisture		2%
100h Moisture		6%
Live Herbaceous Moisture		30%
Live Woody Moisture		50%
20-foot Wind Speed (mph)		40
BehavePlus Wind Adjustment Factor		0.4

2.3 Slope

Slope is a measure of angle in degrees from horizontal and can be presented in units of degrees or percent. Slope is important in fire behavior analysis as it affects the exposure of fuel beds. Additionally, fire burning uphill spreads faster than those burning on flat terrain or downhill as uphill vegetation is pre-heated and dried in advance of the flaming front, resulting in faster ignition rates. For the BehavePlus analysis, slope values were determined by field observation at the locations for each modeling scenario, and ranged in value between 18 to 30 percent downhill, as the entire Project is at the bottom of the adjacent hillsides of the San Pablo Ridge. Slope gradients for landscaped areas are assumed to be relatively flat (3%).

3 BEHAVEPLUS ANALYSIS

To objectively predict flame lengths, intensities, and spread rates, the BehavePlus V6 fire behavior modeling system (Andrews, Bevins, and Seli 2004) was used in four modeling scenarios and incorporated observed fuel types representing the dominant vegetation, slope

gradients, and wind and fuel moisture values. Modeling scenario locations were selected to better understand different fire behavior that may be experienced on or adjacent to the site. The results of fire behavior modeling analysis for pre- and post-development conditions are presented in Tables C-4 and C-5, respectively. Identification of modeling run (fire scenarios) locations is presented graphically in Figure XX, BehavePlus Fire Behavior Analysis Map.

Fire Scenario locations and descriptions:

- Scenario 1. Origin: Yacht club. Fire flaming front approaching from the north, originating in the vicinity of the yacht club, through existing vegetation and the eucalyptus woodland (Fuel Model 10) adjacent to and on the northern portion of the project, with strong northeastern Diablo winds. Post-development includes irrigated landscaping (Fuel Model 8).

- Scenario 2. Origin: Shooting Range. Fire flaming front approaching from the northeast, originating in the vicinity of the shooting range, through existing vegetation and the coastal sage scrub (Fuel Model 5) adjacent to and in the open space portion of the project, with strong northeastern Diablo winds. Post-development includes irrigated landscaping (Fuel Model 8).

- Scenario 3. Origin: Refinery. Fire flaming front approaching from the northeast, originating in the vicinity of the adjacent refinery, through existing vegetation and grasslands (Fuel Model 1) in the open space portion of the project, with strong northeastern Diablo winds. Post-development includes irrigated landscaping (Fuel Model 8).

- Scenario 4. Origin: Refinery. Fire flaming front approaching from the east, originating in the vicinity of the adjacent refinery, through existing vegetation and coastal sage scrub (Fuel Model 5) in the open space portion of the project, with strong northeastern Diablo winds. Post-development includes irrigated landscaping (Fuel Model 8).

Table C-4. Fire Behavior Modeling Results for Existing Conditions

Fire Scenarios	Flame Length (ft)	Fireline Intensity (BTU/ft/sec)	Spread Rate (mph)	Spotting Distance (mi)
Scenario 1: Eucalyptus woodland, 18% downhill slope, 40 mph high wind speed				
Fuel Model 10	17.1	2,712	1.1	0.8
Fuel Model 10 - Crown	133.7	17,277	3.5	0.8
Scenario 2: Coastal sage scrub, 27% downhill slope, 40 mph high wind speeds				

Table C-4. Fire Behavior Modeling Results for Existing Conditions

Fire Scenarios	Flame Length (ft)	Fireline Intensity (BTU/ft/sec)	Spread Rate (mph)	Spotting Distance (mi)
Fuel Model 5	20.9	4,195	3.3	1.2
Scenario 3: Grasslands, 24% downhill slope, 40 mph high wind speeds				
Fuel Model 1	12.7	1,415	8.3	0.9
Scenario 4: Coastal sage scrub, 30% downhill slope, 40 mph high wind speeds				
Fuel Model 5	20.5	4,051	3.2	1.2

Notes:

1. Spotting distance from a wind driven surface fire.

Table C-5. Fire Behavior Modeling Results for Post-Project Conditions

Scenario	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spread Rate (mph)	Spotting Distance (miles)
Scenario 1: Irrigated landscaping, 3% downhill slope, 40 mph high wind speed				
Irrigated landscaping (FM8)	3.0	62	0.2	0.3
Scenario 2: Irrigated landscaping, 3% downhill slope, 40 mph high wind speeds				
Irrigated landscaping (FM8)	3.0	62	0.2	0.3
Scenario 3: Irrigated landscaping, 3% downhill slopes, 40 mph high wind speeds				
Irrigated landscaping (FM8)	2.6	46	0.1	0.3
Scenario 4: Irrigated landscaping, 3% downhill slopes, 40 mph high wind speeds				
Irrigated landscaping (FM8)	3.0	62	0.2	0.3

As presented in Table C-4, wildfire behavior in eucalyptus woodland, presented as Fuel Model 10, represents the most extreme conditions in the event of a crown fire. In this case, flame lengths may reach as estimated 133.7 feet with 40 mph winds (extreme fire weather conditions). The spread rate is estimated to be 3.5 mph; spotting distance, where airborne embers can ignite new fires downwind of the initial fire is estimated to be 0.8 mile. In comparison, a grass fuel type could generate flame lengths up to 12.7 feet high with a spread rate of 8.3 mph. The fire could potentially be spotting for a distance of 0.9 mile.

As presented in Table C-5, Dudek conducted modeling of the site for post-development fuel recommendations for this project. Fuel modification includes irrigated landscaping on the periphery of the development area as well as maintenance of vegetation within the Planning Areas of the Project on an as needed basis where applicable. For modeling the post-development condition, fuel model assignments were re-classified for irrigated landscaping (Fuel Model 8).

As depicted, the fire intensity and flame lengths in untreated, open space areas would remain the same. Conversely, the irrigated landscaping areas experience a significant reduction in flame length and intensity. The 20.5-foot (sage scrub fuel bed) and 12.7-foot (grass fuel bed) tall flames predicted during pre-development modeling during extreme weather conditions are reduced to less than 3.0 feet tall due to the higher fuel moisture content of irrigated landscaping.

It should be noted that the results presented in Tables C-4 and C-5 depict values based on inputs to the BehavePlus software. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis, but models provide a worst-case wildfire condition as part of a conservative approach. Further, this modeling analysis assumes a correlation between the project site vegetation and fuel model characteristics. Model results should be used as a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

The information in Table C-6 pertains to interpretation of flame length and fireline intensity as it relates to fire suppression efforts. Based on the post-development calculated flame lengths of under 3.0 feet tall, fire fighters should be able to conduct a direct attack on the fire.

Table C-6. Fire Suppression Interpretation

Flame Length (ft)	Fireline Intensity (Btu/ft/s)	Interpretations
Under 4 feet	Under 100 BTU/ft/s	Fires can generally be attacked at the head or flanks by persons using hand tools. Hand line should hold the fire.
4 to 8 feet	100-500 BTU/ft/s	Fires are too intense for direct attack on the head by persons using hand tools. Hand line cannot be relied on to hold the fire. Equipment such as dozers, pumpers, and retardant aircraft can be effective.
8 to 11 feet	500-1000 BTU/ft/s	Fires may present serious control problems -- torching out, crowning, and spotting. Control efforts at the fire head will probably be ineffective.
Over 11 feet	Over 1000 BTU/ft/s	Crowning, spotting, and major fire runs are probable. Control efforts at head of fire are ineffective.

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APPENDIX C
Fire Behavior Technical Report
Point Molate Project

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Appendix D

Interagency Burned Area Emergency Response Guide

Interagency Burned Area Emergency Response Guidebook

Interpretation of Department of the Interior 620 DM 3 and USDA Forest Service Manual 2523

For the Emergency Stabilization of Federal and Tribal Trust Lands
Version 4.0

February 2006

1 Table of Contents

2 Introduction

The purpose of the Interagency Burned Area Emergency Response Guidebook (Guidebook) is to provide general operational guidance for Department of Agriculture and the Department of the Interior emergency stabilization activities after a wildfire. In conjunction with Departmental and agency policy, it is designed to provide agency administrators and emergency stabilization specialists with sufficient information to:

- Understand emergency stabilization policy, standards, and procedures.
- Assess wildfire damage and develop a cost effective plan or report.
- Assess and report accomplishments.

It consolidates and provides an interagency interpretation of emergency stabilization policies, procedures, objectives, and standards where there is Departmental and agency agreement. Individual agency policy and procedure manual guidance can be more but not less restrictive than that presented in this Guidebook.

3 Emergency Stabilization Policy Implementation

3.1 Policy, Direction, and Program Coordination

Emergency Stabilization and Rehabilitation activities are an integral part of wildfire incidents, but are planned, programmed, and funded separately from each other. Guidance for Burned Area Rehabilitation is found in a separate guidebook which is currently under development for DOI agencies. Departmental emergency stabilization policies are found in Department of Agriculture (FSM 2523) and Department of the Interior (620DM3) policy documents. Individual agencies have supplemented this policy:

- USDA Forest Service
- Bureau of Indian Affairs (BIA)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- U.S. Fish and Wildlife Service (FWS)

3.2 Objective and Priority

To determine the need for and to prescribe and implement emergency treatments to minimize threats to life or property or to stabilize and prevent further unacceptable degradation to natural and cultural resources resulting from the effects of a fire. Natural recovery is preferable.

3.3 Employee and Public Safety

E**mployee and Public Safety Is the First Priority in Every Management Activity.** All planning activities must reflect this commitment. Accordingly, planning team members conform to National Wildfire Coordinating Group (NWCG) safety, training, qualification (NWCG-PMS 310-1, Wildland Fire Qualifications), Interagency Standards for Fire and Fire Aviation Operations, and incident business management standards prior to control of the fire.

Assessment activities need to be closely coordinated with fire fighting activities to avoid conflicts between wildfire fighting efforts and emergency stabilization planning. Burned area assessment activities must be coordinated with the Incident Commander.

A job hazard analysis will be prepared for each incident activity.

3.4 Definitions

Agency Administrator:
Line officer (or designee) of the agency or jurisdiction that has responsibility for the incident. For the following agencies, this unit may include:

- Bureau of Indian Affairs (BIA) - Director, Office of Trust Responsibility, Regional Director, or Superintendent.

- Bureau of Land Management (BLM) - Director, State Director, District Manager or Field Office Manager.
- Fish and Wildlife Service (FWS) - Director, Regional Director, Complex Manager or Project Leader.
- National Park Service (NPS) - Director, Regional Director, Park Superintendent, or Unit Manager.
- USDA Forest Service - Chief, Regional Forester, Forest Supervisor, or District Ranger

Burned Area Emergency Response:
An agency response to a wildfire implementing the emergency stabilization program.

Burned Area Emergency Response Plan/Report (BAER Plan/Report):
This emergency stabilization document specifies treatments approved to implement post-wildfire emergency stabilization policies on an individual incident. This plan/report is prepared by an interdisciplinary team of specialists during or immediately after the containment of a wildfire. Department of the Interior uses the term "plan" and the USDA Forest Service uses the term "report". The Emergency Stabilization Plan and Burned Area Emergency Response Plan are synonymous.

Burned Area Emergency Response Team (BAER Team):
A standing or ad hoc group of technical specialists (hydrologists, rangeland management specialists, biologists, soil scientists, etc.) that are assigned to prepare a BAER Plan/Report.

Emergency Stabilization:
Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resource, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources.

Fire Suppression Activity Damage:
Damage to resources, lands, and facilities resulting from wildfire suppression actions, in contrast to damages resulting from a wildfire.

National Burned Area Emergency Response Coordinators Group (NBAER):
The coordinators consist of a representative from the Department of the Interior (DOI) bureaus (BIA, BLM, FWS, NPS, Office Wildland Fire Coordination), and the USDA Forest Service.

Non-Native Invasive Species:
Species that were not components of pre-European settlement vegetative communities:
- which have been introduced, either deliberately or inadvertently;
- which have the capacity to aggressively invade new habitats, displacing and out-competing native species, and;
- whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Rehabilitation:
Efforts (non-emergency) undertaken within three years of a wildfire to repair or improve fire-damaged lands which are unlikely to recover to management approved conditions; or to repair or replace minor facilities damaged by fire.

Restoration:
The continuation of rehabilitation beyond the initial three years, or the repair or replacement of major facilities damaged by the fire.

Values to be Protected (values at risk):
Includes property, structures, physical improvements, natural and cultural resources, community infrastructure, and economic, environmental, and social values.

Wildland Fire:
Any non-structure fire that occurs in the wildland. Three distinct types of wildland fire have been defined and include wildfire, wildland fire use, and prescribed fire.

- **Wildfire** – An unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the wildfire out.
- **Wildland Fire Use** – The application of the appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives in pre-defined designated areas outlined in Fire Management Plans. Operational management is described in the Wildland Fire Implementation Plan (WFIP).
- **Prescribed Fire** – Any wildland fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements (where applicable) must be met, prior to ignition.

3.5 Program Coordination

The BIA, BLM, NPS, FWS and USDA FS will coordinate emergency stabilization program activities locally and nationally. Coordination of emergency stabilization efforts with the incident management team, other federal land management agencies, other federal (e.g., NRCS, BOR, DOD, USGS, etc.), state and local agencies, tribes, and private landowners is encouraged to meet program objectives.

3.5.1 Preplanning

Internal/external coordination can be a critical process in the successful implementation and completion of all phases of emergency stabilization.

The local unit staff should:

- Identify key external agency contacts prior to the wildfire season.
- Hold a preseason meeting to discuss roles and responsibilities.
- Jointly review the rehabilitation and restoration section of the Fire Management Plan (FMP).

- Identify potential treatments for emergency stabilization within a unit's Fire Management Plan.
- Identify in advance suppliers, equipment, storage facilities and identifying seed mixes and implementation personnel.
- Meet with all emergency stabilization technical specialists, fire management staff, and other appropriate staff to discuss roles and responsibilities and to clarify areas of disagreement and/or confusion.

3.5.2 Incident Management Coordination

When appropriate, the agency administrator should assign/request a BAER Team before the wildfire is contained. The Incident Commander and BAER Team Leader should communicate and coordinate activities. Several Incident Management Team functions may provide support for the BAER team such as:

- Logistics Section – expanded dispatch, supply, ordering, etc.
- Finance Section – agency unit finance section (contracting officer)
- Plans Section – GIS and mapping services, Incident Action Plans
- Safety Officer
- Operations Section – suppression impact inventory, suppression rehab specifications, aerial reconnaissance
- Information Officer – news releases, media interviews, public meetings
- Other incident personnel as appropriate

3.5.3 BAER Plan/Report Implementation

The BAER Plan/Report may or may not be implemented by the same individuals involved in its development. The agency administrator should appoint an implementation leader before the assessment team demobilizes. The assessment team and implement team leader should coordinate.

3.5.4 Burned Area Rehabilitation Coordination

On wildfires where burned area rehabilitation is anticipated the agency administrator should identify a rehabilitation coordinator (not supported by emergency stabilization funds) as part of the BAER Team in order to collect and organize data for the rehabilitation plans and activities.

4 Emergency Stabilization Standards

Emergency stabilization treatments/activities are intended to protect public safety and stabilize and prevent further degradation to affected natural and cultural resources. These treatments/activities must be in accordance with approved management plans and applicable agency policy, standards, and all relevant federal, state, and local laws and regulations. Emergency stabilization funds can only be used for burned area assessments, BAER Plan/Report development and implementation, and monitoring on agency lands within the perimeter of the wildfire or potential impact area downstream from the burned area (see agency guidance on Wyden Amendment). The cost of emergency stabilization treatment(s) will be commensurate with the values to be protected.

4.1 Treatment Considerations

4.1.1 Cadastral Survey

Emergency stabilization funding for cadastral survey activities is only provided if the information is needed for BAER Plan/Report development and implementation. Project areas have cadastral survey work done with emergency stabilization funds only where land ownership adjacent to proposed emergency stabilization treatments is in question—not to answer long-standing, large-scale ownership questions. Survey monuments must be located and flagged for avoidance prior to any surface disturbing activity that could result in damage to or destruction of the survey monument.

4.1.2 Experimental Technology

Experimental technology (equipment, plant materials, etc.) that has not previously been field tested and proven to be effective is not funded with emergency stabilization funding. Research projects are coordinated through the local agency administrator and may be funded through the Joint Fire Science Program or other funding sources.

4.1.3 Prescribed Fire and Wildland Fire Use

Prescribed Fire - Emergency stabilization funding is not appropriate for prescribed fire actions. However, if a prescribed fire is converted to a wildfire, then emergency stabilization funding may be appropriate for only those acres that are delineated or partitioned following the conversion or declaration as a wildfire.

Wildland Fire Use - Emergency stabilization funding is not appropriate for wildland fire use. However, if a wildland fire use wildland fire is converted to a wildfire, then emergency stabilization funding may be appropriate for only those acres that are delineated or partitioned following the conversion or declaration as a wildfire.

Treatments that are determined to be necessary on prescribed or wildland fire use wildland fires that have not been converted or declare wildfires, are paid for by the prescribed fire, wildland fire use or benefiting activity project funds.

4.1.4 Fuels Management

Post-fire fuel management activities that are designed to address a fuels issue and not site stabilization are not appropriate for emergency stabilization funding.

4.1.5 Clean Water Act

The Corps of Engineers may require modifications to emergency stabilization treatments to ensure that the environmental impacts to stream channels or wetlands are minimal under General Permit 37.

4.1.6 Wildfire Suppression Activity Damage Repair

Suppression activity damage repairs are the responsibility of the Incident Commander and are funded using the suppression account. This work should be completed by the incident management team prior to final demobilization of the suppression forces whenever practical. However, it may be more cost-effective and practical to delay some repairs to improve the chance of success. It is the responsibility of the agency administrator to ensure suppression activity damage repair.

4.1.7 Wildlife

Wildlife populations may continue to degrade unburned areas in and adjacent to the burned area, and may have a major affect on the success of emergency stabilization treatments. Agreements with the appropriate fish and wildlife management agencies (if needed) should be developed before the emergency stabilization treatments are implemented, prescribing how wildlife is managed. The BAER Plan/Report should identify what measures are needed to prevent further burned area degradation from wildlife use, and treatment specifications should address timely implementation. If wildlife control techniques are not installed before next season's green-up, a majority of the animal damage will have occurred. By green-up, there will probably be enough forage in the burned area to prevent any concentrated damage in the unburned area, and treatment after green-up would not be cost effective.

Treatments to mitigate the loss of fish and wildlife habitat are not appropriate for emergency stabilization funding except to prevent permanent impairment of designated critical habitat for federal, state listed, proposed or candidate threatened and endangered species. See also Threatened and Endangered Species (See 4.2.8).

4.2 Treatment Standards

4.2.1 Cultural Resources

The objectives of cultural resource activities and treatments funded under emergency stabilization are to stabilize and prevent degradation to archeological sites, cultural landscapes, traditional cultural properties, and historic structures (until long-term cultural resource management strategies can be developed and implemented using other funding) and to ensure emergency stabilization treatments conform to Section 106 of the National Historic Preservation Act (NHPA).

Allowable Actions

- **Site Stabilization and Protection**
  - Determining whether known historic properties may be further degraded (e.g., site inspection record). Incidental discovery of cultural resource sites should be noted and may be protected.
  - Patrolling, camouflaging, or burying significant heritage sites are appropriate actions when necessary to prevent a critical loss of heritage site value when looting potential is high. Patrolling should be considered only where there are not other effective alternatives.

- **NHPA Section 106 Compliance**
  - Emergency stabilization treatments that disturb the soil surface are reviewed for potential effects on significant cultural resources. The appropriate agency cultural resource specialist should become involved in treatment planning as early as possible.
  - Treatments evaluated as No Historic Property (no historic properties present), or as actions permitted under existing agency programmatic agreements (PA) or memorandum of agreement (MOA) can be undertaken without further State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) consultation. Treatments with no adverse effect can be undertaken after appropriate consultation with SHPO or THPO. Treatments with adverse effect should be addressed by the agency cultural resource coordinator.

Prohibited Actions

- Systematic inventories or surveys.
- Assessments of the cultural resource damage caused by the fire.
- Site and data recovery, cataloging, and other programmatic administrative actions.
- Heritage site restoration.
- Wildfire suppression activity damage repair.

4.2.2 Non-native Invasive Control

Emergency stabilization funds can be used to control non-native invasive plants in burned areas only if an approved management plan and existing program is in place addressing non-native invasive species control.

The use of integrated pest management methods is preferred when addressing the management and control of existing or potential invasive non-native plant species. The emergency stabilization program funds the use of chemical, biological, mechanical, cultural, and physical treatments necessary to minimize the establishment of invasive species in conjunction with vegetative treatments, or for site preparation proposed for other emergency stabilization treatments. The pesticides proposed must be previously approved for use on public lands. All applicable label and environmental restrictions must be followed. Control of invasive species also complies with Executive Order 13112, Invasive Species which promotes the control of invasives to minimize their impact.

Allowable Actions

- Assessments to determine the need for treatment. Contingent:
  - Known infestations
  - Possibility of new infestation due to management actions
  - Suspected contaminated equipment use areas
- Treatments to prevent detrimental invasion (not present on the site) by non-native invasive species.
- Treatment of invasive plants introduced or aggravated by the wildfire. The treatment objective when the population is aggravated is to maintain the invasion at no more than pre-wildfire conditions.
- Treatments to prevent permanent impairment of designated Critical Habitat for Federal and State listed, proposed or candidate threatened and endangered species.

Prohibited Actions

- Systematic inventories of burned areas.
- Treatments designed to achieve historic conditions or conditions described in an approved land management plan, but did not exist before the fire.
- Treatments beyond one year post wildfire containment.

The treatment specification must include a threshold level where the treatment is initiated (e.g. presence of Canada thistle, 10 percent cover of cheat grass, etc.) and a practical, cost-effective management action to be undertaken (mechanical removal, broadcast herbicide application, etc.).

4.2.3 Re-vegetation

It is essential that the potential for recovery of native or seeded vegetation and invasion by weeds be evaluated prior to making a decision whether to seed a burned area. Re-vegetation of burned areas is not an appropriate use of emergency stabilization funds if natural regeneration will result in a vegetation type that meets emergency stabilization objectives.

Planting of seed or seedlings, for emergency stabilization in a burned area is an appropriate treatment if seeding or planting of vegetation is prescribed to be effective within Departmental policy and:

- Stabilizes the site and minimizes water or wind erosion,
- reduces the invasion of non-native invasive plants, or
- prevents critical habitat for federal listed threatened or endangered species from being more impaired than if nothing was done.

The use of pesticides must be identified in an existing approved management plan and have an existing program. Site preparation using integrated pest management methods on burned land may be funded with emergency stabilization funds for re-vegetation treatments (see non-native invasive species control section). The potential for invasive non-native plant invasion is considered when developing the seed prescription.

Native versus Non-native Plants - Species planted on burned areas must provide the protection required by BAER Plan/Report objectives, be consistent with the appropriate approved land management plan, and be in compliance with Executive Order 13112, Invasive Species, February 3, 1999.

Non-native seed may be used when allowed in agency policy. Use of native species is preferred to the use of non-natives for emergency stabilization treatments. However, a mixture of native and non-native species is preferable to using only non-natives if the desired natives are not available, and if the use of non-natives is consistent with approved land management plans.

Competitive non-natives should be minimized in the seed mixture to facilitate the establishment and persistence of the native species.

Testing of Seed and Vegetative Material - All seed is tested to ensure compliance with the State noxious-seed requirements recognized in the Administration of the Federal Seed Act. All purchased seed must meet all requirements of the Federal Seed Act (7 USC 1551-1610), the state seed laws where it will be delivered, and Federal specifications JJJ-S-181. All seed will be tested for purity and germination (Pure Live Seed or Tetrazoline) to meet contract specifications and should be tested for weed and noxious weed seed by an independent seed testing organization. Certified seed (e.g., source identified tag) ensures the genetic origins of the parent plant material or the collection origin.

Tetrazolium tests, performed by state seed laboratories, may be used on shrub seeds and for species where dormant or hard seeds are common. Tetrazolium tests may also be authorized by the agency when seed laboratories do not have enough lead time to use a full germination test.

The use of certified seed is required (if available) to ensure that desired genetic traits are present. The use of source-identified seed is recommended when native seed is collected from wildland sites to ensure that a local or otherwise adapted seed source is used to re-vegetate the burned area.

Straw and other vegetative mulch materials should be purchased as certified weed-free by a State agricultural agency or should be sampled and tested for noxious weeds prior to use.

4.2.4 Forest Management

Forest stabilization, reforestation, rehabilitation etc. are not appropriate use of emergency stabilization funding. Timber salvage is not authorized with emergency stabilization funding. A detailed timber salvage assessment and the costs associated with the actual salvage sale (e.g., timber inventory, contract preparation, etc.) cannot be charged to emergency stabilization.

4.2.5 Livestock, Wild Horse and Burro Management

Exclusion of livestock, wild horses or burros may be critical for the recovery of burned vegetation or establishment and maintenance of new seedings.

Recovery/Establishment Period – Re-vegetated and recovering areas may be closed to livestock grazing to promote recovery of burned perennial plants and/or facilitate the establishment of seeded species. An assessment is needed to determine the length of time livestock exclusion is required to meet emergency stabilization objectives. Livestock permittees must be informed of potential closures early during the plan preparation process.

Grazing Management - Wild horses and burros may need to be excluded from treatment areas. Emergency stabilization funds may be used for fencing or relocation (both actions must be consistent with approved land management plans and agency wild horse and burro policy) until the area recovers. Exclusion or relocation must occur before the animals can damage the remaining vegetation. Both actions must be consistent with approved land management plans, Wild Horse and Burro management plans, and agency wild horse and burro policy. Movement of animals must be completed within one year of containment of the fire.

4.2.6 Federal Field Unit Infrastructure

Facilities - The emergency stabilization of improvements and minor facilities (e.g., signs, guardrails, pit toilets, etc.) burned or damaged by wildfire is appropriate only for public health and safety.

HAZMAT and Facility Assessment and Stabilization - A visual inspection for hazardous conditions/materials and structural integrity of facilities affected by wildfire is required prior to their being reopened or made accessible to the public. Appropriate inspections are conducted by a qualified technical specialist. A written condition assessment (including hazardous materials - HAZMAT) of each affected structure is submitted as part of the approved BAER Plan/Report. Emergency stabilization funds are not to be used to develop reconstruction or repair plans, or to initiate or complete any of the work outlined in these documents. For safety purposes, safety measures required to block public access to damaged structures may be funded by emergency stabilization funds.

Hazardous materials discovered during field assessments may be secured with emergency stabilization funds. Hazardous material removal and mitigation are not funded with emergency stabilization funds.

Early Warning Flood/Evacuation System - Federal agencies should address flooding risks on Federal and Tribal lands. Known flooding risks to non-Federal lands should be coordinated with appropriate local emergency management agency.

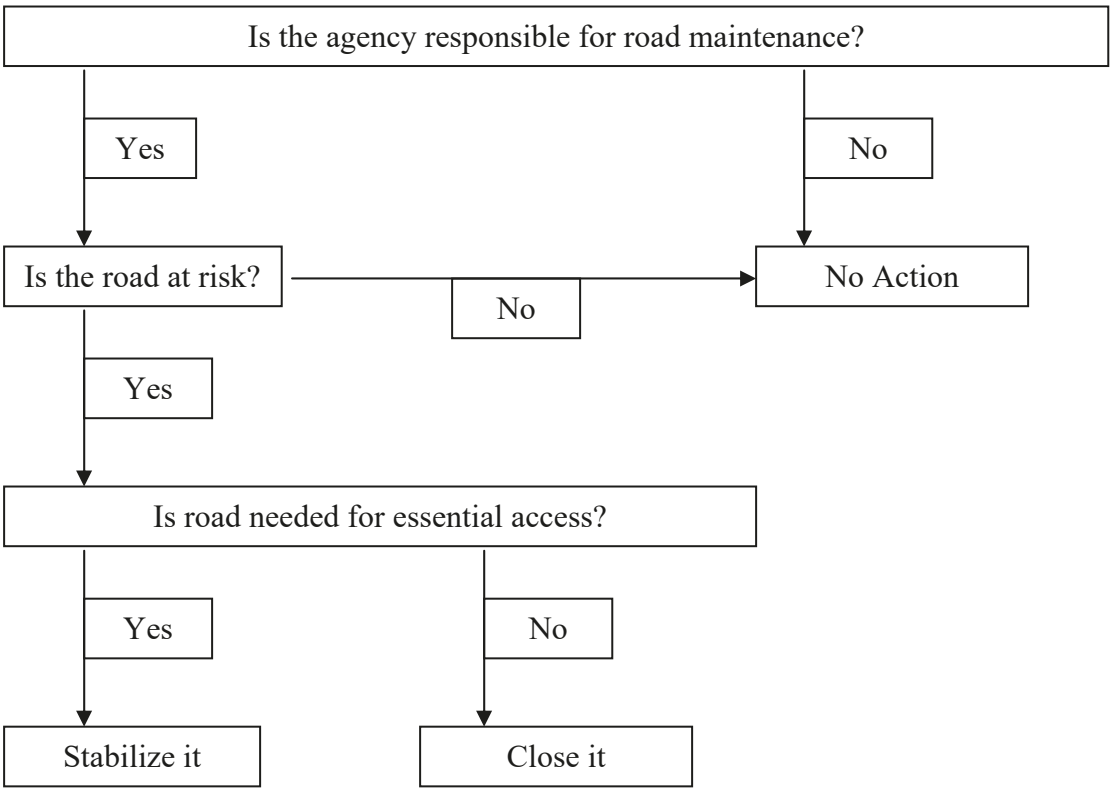
Coordination between federal, state, and local agencies is essential. Early warning systems rain gauges, or satellite driven systems are often necessary to monitor rainfall amounts and intensity in moderate to high intensity burns in immediate proximity to values to be protected (highways, structures, etc.).

The local emergency action agency is responsible for public evacuation planning, public notification, and evacuation on non-federal lands.

Emergency Road Repair and Maintenance - The responsibility for road repair and maintenance does not change due to wildfires. Identified road system issues and identified repair and maintenance needs are coordinated between all parties involved.

Road closure is preferable unless the road is needed to provide immediate access to essential activities (e.g., hospital post office access, threatened or endangered species management, communication systems).

Decision Tree for determining Emergency Stabilization actions on roads



Stabilization of a road includes the minimal work to keep the road passable according to agency standards. Bringing the road to the maintenance standard that existed before the fire is not necessarily covered by the emergency stabilization funds.

Access to recreation sites is not considered essential and does not provide justification for emergency stabilization treatments.

Prohibited Actions

- Normal road maintenance
- Road reconstruction
- Improving the road to better than pre-fire conditions
- Maintenance, construction, or reconstruction of bridges (major facility)

Fencing - Permittee agreements dictate the responsibility of fencing related to livestock management. The livestock owner has the responsibility to keep livestock out of burned areas.

Gates, cattle guards, and fencing that exceed the amount required to protect treatments or values to be protected should be funded with a separate benefiting account. Therefore, emergency stabilization funds are not to be used to fence the private/public land boundary unless state laws (such as those pertaining to herd districts) are in effect. Removal of temporary fencing using

emergency stabilization funds must be accomplished within the three year funding cycle. If the gates, cattle guards, or fencing is needed beyond three years then maintenance and/or removal must use other funds.

Protective fencing is allowed using emergency stabilization funding to protect installed treatments and for the health and safety of agency personnel and the public.

Boundary fencing, in and of itself, is not allowed for emergency stabilization funding.

Safety Signs - Signs necessary to close trails, warn of pending floods, promote public safety, or otherwise assist with emergency stabilization actions (directional, road, danger signs, etc.) may be procured, installed, maintained, and removed (within 3 years following containment of the fire) using emergency stabilization funds.

4.2.7 Monitoring

Emergency stabilization funds for monitoring are limited to:

Treatment Implementation: It is appropriate to determine if the treatment was implemented according to plan specifications.

Treatment Effectiveness: It is appropriate to monitor whether a treatment achieved its objective (e.g. log erosion barriers and straw mulching stabilized soils or whether willow and cottonwood trees successfully survived, grew, and stabilize the stream bank).

Prohibited Actions

- Monitoring to determine if the decision not to implement any treatment was appropriate (e.g., monitoring natural recovery). However, the use of an untreated area (control) in a paired comparison design to evaluate the effectiveness of a treatment is acceptable where values to be protected will not be affected by an untreated area.
- Monitoring the impacts or effects of the wildfire (e.g. water quality monitoring to evaluate the impacts of the burn on and post-fire recovery of an endangered species, post-fire monitoring of threatened and endangered species presence, reproductive status and reproductive success, etc.).
- Long-term monitoring (more than 3 years following containment of the fire) related to treatment longevity and effectiveness.
- Research
- It is not appropriate to monitor to determine the effects of treatment (e.g., changes in wildlife habitat structure, condition, or use).

Monitoring intensity should be commensurate with the treatment investment, complexity of the emergency stabilization treatments, and level of concern or controversy associated with the emergency stabilization treatment.

4.2.8 Public Use Management

Agency administrators should consider area closures to protect public safety, natural recovery, and active emergency stabilization treatments. Burned or seeded areas may be temporarily closed to the public by excluding vehicle, bicycle, horse, and foot use if unacceptable resource damage would occur or if danger to the public is present due to wildfire damage or emergency stabilization activities. Temporary fences may be appropriate to close areas where passive management closures have failed. Land management plans should be reviewed prior to prescribing emergency stabilization measures to identify other areas of special management concern to ensure emergency stabilization treatments are consistent with management objectives for these special management areas. Public information services concerning hazards, public use and area closures can be provided.

Tree Hazards - Hazard tree removal can only occur along roads and trails and in high use areas (e.g., developed campgrounds) when area closure is not possible. Trees to be felled must have been killed or damaged by the wildfire and must display an overall hazard rating of five in accordance with a Tree Hazard Rating System. Trees damaged by wildfire suppression actions and deemed hazardous must be removed under wildfire suppression accounts.

Trail Stabilization - To protect public safety, trails should be closed. When closure is not possible, burned slopes in the immediate proximity above and below the trail as well as the trail can be stabilized. Other funding (e.g. rehabilitation) are used to repair trails and other minor facilities to management plan standards. Appropriate trail stabilization measures which are funded with emergency stabilization funds include:

Allowable Actions

- Trail Slopes - Stabilization of burned slopes in immediate proximity above and below the trail to prevent further trail degradation. But only if closure is not possible or not effective in achieving treatment objectives.
- Waterbars (breaks) - The absence of or insufficient waterbars may create erosion induced safety hazards. Construction of the soil, rock or log waterbars is appropriate, but waterbars damaged or destroyed as a result of suppression efforts are repaired and/or replaced with wildfire suppression funding.

Prohibited Actions

- Repair or replacement of major facilities.
- The emergency stabilization of any trail to a standard above its pre-fire condition is also prohibited.

Public Safety - Area closure may be accomplished by signing/fencing or patrolling, whichever is most cost effective.

4.2.9 Threatened and Endangered Species

A burned area assessment should identify post-fire threats to federal and tribal listed or proposed threatened and endangered species and what, if any, cost effective stabilization measures can be implemented to prevent further post-fire condition degradation. Post-fire monitoring of threatened and endangered species status or recovery is not funded with emergency stabilization funds unless the monitoring is for the purpose of assessing treatment effectiveness of threatened and endangered species stabilization measures and is in an approved BAER Plan/Report.

Removal and relocation of threatened or endangered species:

- The FS, BLM, BIA, and NPS do not have the authority to move threatened or endangered species. When threatened or endangered species need protection, the appropriate federal or tribal managing authority must be identified and consulted.
- The land management agency and threatened and endangered species management authority can enter into agreement about how and who will remove and relocate the species.

All BAER Plans/Reports should be reviewed to determine if threatened or endangered species or their habitat would be benefited or adversely affected by the implementation of emergency stabilization treatments. Agencies must consult with the U.S. Fish and Wildlife Service (Ecological Services Offices) or National Marine Fisheries Service, as appropriate, on all emergency stabilization actions that may affect a threatened and endangered listed species or its habitat to ensure compliance with Section 7 of the Endangered Species Act. Timeframes for review and consultation may last several months. Therefore, every effort should be made to initiate these actions early in the emergency stabilization planning process.

4.2.10 Watershed Stabilization

Watershed stabilization includes those emergency stabilization treatments necessary to protect life, property, and watershed values (soil productivity and water quality and quantity). Watershed treatments may meet a prevention strategy, protection strategy, or removal strategy.

Prevention strategies are treatments applied at the potential source of an emergency to prevent an emergency from developing. Examples of prevention treatments are those applied to ground surfaces to prevent surface erosion, to control overland runoff, to trap sediment, to encourage infiltration into the soil profile, and to stabilize sites of potential deep erosion or mass wasting.

Protection strategies are based on recognition that an emergency cannot be prevented by direct application of prevention treatments to flood/debris flow source areas. Protection strategies are treatments designed to control an emergency when it happens, to slow or delay flood flows, to redistribute sediment loads, and to directly control flood runoff within channels.

Removal strategies are treatments designed to remove values to be protected from damage caused by increased water runoff.

Prevention Strategies – Treatments (e.g., mulch, geotextures, contour trenches, etc.) are designed to provide effective ground cover to reduce surface erosion potential, to increase infiltration rates, to control overland runoff, and to protect water quality. Seeding treatments should be implemented only for purposes of protecting life and property, prevent the establishment or reestablishment of non-native invasive species, or for preventing the loss of irreplaceable resources (including Threatened and Endangered species, candidate species, and historic properties). Specific legislation may also provide specific justification for protecting soil and/or watershed values. Seeding specifications for emergency stabilization purposes must be compatible with approved land management plans. Field units without specifically approved plans must submit seeding proposals in accordance with agency guidelines. Seed used for emergency stabilization treatments is subject to appropriate State seed and weed laws and is tested for purity and germination. Funding for stabilizing suppression impacts should come from the suppression funding.

Protection Strategies – Treatments (e.g., straw bale check dams, silt fences, debris removal, etc.) are designed to provide effective means to trap and stabilize in-channel sediments, control down-cutting, maintain the integrity of channel morphology, and minimize flash flooding. The following channel treatments are eligible for emergency stabilization funding.

Removal Strategies - Occasionally it is more feasible or cost effective to move some values to be protected than it is to attempt to protect those values on the site. The removal of a potential property loss from the path of a predicted flood can be funded via emergency stabilization funds if the following conditions are met.

4.2.11 Removal of Treatments

Any treatments, or parts thereof, installed using emergency stabilization funds can be removed using emergency stabilization funds if removal is completed within three years of containment of the wildfire. If treatments remain after three years of wildfire containment other funds must be used for removal costs.

5 Program Administration

5.1 Roles and Responsibilities

Agency Administrator directs and coordinates the development and implementation of all management operations of an administration unit. This includes developing and implementing the incident action plan, and the BAER Plan/Report.

Agency/Bureau BAER Coordinator coordinates program issues within their own agency/bureau.

Regional/State BAER Coordinator coordinates program issues within their own regions/states.

Burned Area Emergency Response (BAER) Team assesses the need for emergency stabilization treatments/activities and prepares a BAER Plan/Report for the agency administrator. BAER teams are established to quickly address emergency stabilization issues.

Incident Management Team plans and implements wildfire suppression activity damage repair (620DM3.10 and FSM 2523.4) for the agency administrator.

5.2 Emergency Stabilization Program Funding

Funding for emergency stabilization treatments/activities is provided under emergency fire management funding authorities. See Chapter 4 for appropriate and inappropriate use of the emergency stabilization funds.

Burned Area Rehabilitation is a separate program. Guidance for Department of the Interior rehabilitation activities and funding is found in a separate guidebook (Interagency Burned Area Rehabilitation Guidebook is currently under development for DOI agencies).

5.2.1 Cost Accounting

Agency specific cost tracking processes are used to accurately track expenditures. Use Fire Codes to track funding appropriated and spent for each specification found in the plan is useful for tracking expenditures. The complexity of the project dictates the complexity of the cost tracking system. Some factors to consider include:

Non-agency planning team members may be covered by an agency reimbursement authorization for salary, travel and per diem expenses issued by the host agency. This is exclusive of the agencies (BLM, BIA, FWS, NPS, USDA FS) covered in the Interagency Agreement Between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture" (1997).

- Non-agency implementation team members may be covered by an agency reimbursement authorization for salary, travel and per diem expenses issued by the host agency. The affected agency must establish reimbursable account codes, as needed.
- An Implementation Cost Unit Leader or Incident Business Advisor should be a team member on complex projects involving multiple funding sources or agencies/bureaus.

5.2.2 Personnel Funding

All wildland fire funded personnel (except hazard fuels) will fund their base 8 hours from their base funding when working on wildfire suppression activity damage or emergency stabilization activities.

All non-fire funded and hazard fuels personnel may charge their base 8 hours to emergency stabilization accounts when performing those work activities.

Fire and non-fire funded personnel overtime hours will be charged to the emergency stabilization account.

For further information on overtime, hazard pay, and other personnel funding issues see Interagency Incident Business Management Handbook.

5.3 Planning

Each emergency stabilization project requires the preparation, submittal, and approval of a BAER Plan/Report.

5.3.1 BAER Plan/Report

The BAER Plan/Report must be consistent with approved land and resource management plans. Development of the BAER Plan/Report objectives are guided by resource management objectives and general management practices identified in approved land and resource management plans.

The emergency nature of the anticipated post-fire response dictates that the BAER Plan/Report must be developed expeditiously. The planning approach is the use of a local BAER team to assess the values at risk and recommend treatments to reduce the risk. A regional or national team may be used if the complexity of the plan exceeds the capability of the local unit, or includes multiple agency ownerships, or on large complex wildfires.

An approved BAER Plan/Report is required before any emergency stabilization funds can be obligated toward implementation. There are instances where emergency stabilization actions may need to begin while developing the plan. Written approval is required for all activities and treatments and will be documented in the final BAER Plan/Report.

5.3.2 Transition to Resource Management Activities

Occasionally, emergency stabilization treatments/activities initiates a management action that is significantly longer than the emergency funding limitations (e.g. structural emergency stabilization treatments, biotic community stabilization, non-native invasive species control, appropriate livestock and animal management, etc.) The BAER Plan/Report should identify the types of programs and steps that are needed to tie BAER to long term management programs and their goals. The Plan/Report may also identify other potential program areas able to accommodate these added long-term management commitments and actions beyond the emergency funding limits. Unless long-term activities are fully integrated into the other program areas, the ultimate success of the activity and the benefits to the resource may be jeopardized.

5.4 Emergency Acquisition Authorities

The Federal Acquisition Regulations (FAR) apply to procurements accomplished in support of BAER actives, are the same regulations that apply to procurements accomplished to support wildfire suppression activities. Both suppression and BAER are supported by the same wildfire incident mobilization, resource availability, and incident business management procedures as other aspects of the incident. BAER projects acquisitions must be expeditious because the emergency stabilization measures are needed before damaging or degrading events are likely to occur.

Using the authorities listed below, agencies may be able to shorten advertising time, limit the amount of competition obtained, and in extreme cases, not obtain competition. The important thing to note is that the agencies "shall request offers from as many potential sources as is practicable under the circumstances." (FAR 6.302-2(C)(2)).

It is the government's policy to obtain fair and open competition to ensure the best deal can be obtained and that agencies are spending the taxpayer's money wisely. When obtaining competition, always consider price as well as other factors such as past performance, experience, quality, etc. Following are some of the competition thresholds listed in the FAR:

- Acquisitions under $2,500 – Competition is not required, but should be obtained if possible.
- Acquisitions $2,500 to $25,000 – Competition should be obtained to the maximum extent practicable. Normally, a minimum of three quotes should be obtained. The number of quotes obtained is dependent on the nature of the supplies and services being obtained. If competition is not obtained, the file must be documented with the reasons.
- Generally, all acquisitions over $25,000 must be advertised and we must obtain full and open competition. Acquisitions over $100,000 must be published 15 days before the issue date of the solicitations, and the advertisement time must be at least 30 days. There are a number of exceptions to these advertising requirements. The authority used during fires is the following:
    - FAR 5.202 (a)(2) – The proposed contract action is made under the conditions described in 6.302-2 (or, for purchases conducted using simplified acquisition procedures. If unusual and compelling urgency precludes competition to the

maximum extent practicable) and the Government would be seriously injured if the agency complies with the time periods specified in 5.203;

- FAR6.302-2 – Unusual and compelling urgency. –
  - (a) Authority
    - (1) Citations: 10 U.S.C. 2304 (c)(2) or 41 U.S.C. 253(c)(2).
    - (2) When the agency's need for the supplies or services is of such an unusual and compelling urgency that the Government would be seriously injured unless the agency is permitted to limit the number of sources from which it solicits bids or proposals, full and open competition need not be provided for.
  - (b) Application. This authority applies in those situations where -
    - (1) An unusual and compelling urgency precludes full and open competition; and
    - (2) Delay in award of a contract would result in serious injury, financial or other, to the Government.
  - (c) Limitations.
    - (1) Contracts awarded using this authority shall be supported by the written justifications and approvals described in 6.303 and 6.304. These justifications may be made and approved after contract award when preparation and approval prior to award would unreasonably delay the acquisition.
    - (2) This statutory authority requires that agencies shall request offers from as many potential sources as is practicable under the circumstances.

Agencies are required to prepare justifications for the file whenever they do not obtain the maximum competition required. If preparation of the justification would unreasonably delay the acquisition, the justifications may be prepared and approved after contract award. It is the responsibility of technical and contracting personnel to work together to provide, and certify as accurate and complete, necessary data to support their recommendations for other than full and open competition. Specific information required for justifications may be obtained in Part 6.303-2 of the Federal Acquisition Regulations through the units contracting officer.

Justification may be on an individual or class basis. In years when there are a large number of fires, justifications have been prepared on a class basis. The approval for the justification is dependent on the total dollars involved.

National Fire Plan "Contracting and Assistance" is available on an interagency basis. (See National Fire Plan website: www.fireplan.gov).

5.5 Emergency Stabilization Program Accountability

Accountability for the emergency stabilization program lies with each agency's administrator. Individual agencies establish accountability responsibilities for:

- Plan review and approval/disapproval (resource and funding appropriateness)

- Financial accountability
- Plan implementation
- Plan implementation review and evaluation
- Program review and evaluation

Significant deviations from treatment specifications or costs as prescribed in the approved plan require a plan amendment. All treatments/activities, including plan amendments, must be completed within one year of wildfire containment.

Accomplishments are tracked and reported in the corporate database (e.g., NFPORS). Fiscal obligations and accomplishments are tracked and documented by an annual accomplishment report each fiscal year. A final accomplishment report is required after completion of the BAER project. Any emergency stabilization funds not expended following completion of the plan cannot be used for other purposes.

To sustain accountability for provided funding, annual and final accomplishment reports are to be submitted to the approval authority. The corporate database must be kept current. The annual accomplishment report may cover treatments applied, dollars spent, treatment effectiveness, monitoring results, and an assessment in narrative form of each aspect of the project. The annual and final accomplishment reports are a mandatory requirement for continued treatment effectiveness monitoring funding and account closure.

5.6 Information Management

Approved BAER Plan/Reports, treatment effectiveness reports, and accomplishment reports should be shared with other federal and non-federal agencies/bureaus. For DOI, data must be entered in the database of record in order to receive future emergency stabilization funding.

5.7 Agreements

Agreements can be made between agencies for the implementation of emergency stabilization activities and treatments. There will be no billing or reimbursement between bureaus of the Department of the Interior and the Department of Agriculture for personnel and other resources involved in burned area emergency stabilization planning. Funding for Bureau of Reclamation projects will be from Bureau of Reclamation funds only.

There must be an agreement before any service is performed. Without an agreement, there is no authority to obligate funds for services. If an agreement cannot be executed prior to the start of work, at a minimum there must be a letter of intent signed by the parties involved. Specifications for funding responsibilities should include billing procedures and schedules for payment. Any agreement that extends beyond one fiscal year must be made subject to the availability of funds. Any transfer of federal property must be in accordance with federal property management regulations. All agreements must undergo periodic joint review and, as appropriate, revision.

Agreements obligating emergency stabilization sub-activity funds cannot allow these funds to be expended beyond the one-year time limit following containment of the wildfire.

The chart below is a synopsis of the three basic agreement types, contract, interagency agreement, and memorandum of understanding.

TYPES OF AGREEMENTS

TYPE OF AGREEMENT	DEFINITION	SIGNATORY AUTHORITY	REFERENCES	CONTACT FOR INFORMATION
Contract	A mutually binding legal document obligating the seller to furnish supplies or services (including construction) and the buyer to pay for them.	Only warranted Contracting Officers may award contracts.	Federal Acquisition Regulations, 48 CFR; and Department Acquisition Regulation System.	Respective Headquarters or regional office Contracting Officer
Interagency Agreement	An agreement between Federal Agency(ies)/Bureaus used to reimburse an Agency for goods or services provided to the agency.	Warranted Contracting Officers are the only officials who may award Interagency/ Intra-Agency Agreements in combination with the respective agency administrator.	Federal Acquisition Regulations, 48 CFR 17.5; and Department Acquisition Regulation.	Same as above.
Memorandum of Understanding (MOU)	A written agreement between the agency and another entity(ies) that confirms the use of cooperative policies or procedures to promote mutual endeavors.	MOUs are signed by the Director/Deputy Commissioner or agency administrator.	Internal Guidance	Same as above.

5.8 Cooperation on Adjacent Lands

5.8.1 Wyden Amendment (16U.S.C.1011(a)) as modified by Section 136 of P.L. 105-277 as amended by P. L. 109-54 (expires 2011).

Appropriations made for the Bureau of Indian Affairs, Bureau of Land Management, National Park Service, US Fish and Wildlife Service and USDA Forest Service may be used for the purpose of entering into cooperative agreements for the protection, restoration, and enhancement of resources on public or private land and the reduction of risk from natural disaster where public safety is threatened on public lands.

Emergency stabilization funds may be used to enter into cooperative agreements with Federal, state, tribal, local governments, private nonprofit entities, and landowners. When emergency stabilization funds are used under the Wyden Authority, treatments must meet the same criteria for emergency stabilization appropriateness and timelines as emergency stabilization treatments accomplished on National Forest System (NFS) or DOI lands. Follow appropriate agency direction on entering an agreement (FSM2523.53). Appropriate cost-sharing protection and liability agreements should be included in the cooperative agreement with the land owner. A cooperative agreement must be signed and in place prior to commencement of any work on those private or non-federal lands.

5.8.2 Natural Resources Conservation Service (NRCS)

Large fires often cover both federal and private lands. The NRCS administers the Emergency Watershed Protection (EWP) Program, designed to help landowners respond to a range of natural disasters (e.g. fire, hurricanes, flood, earthquakes, etc.) (PL 81-516 and PL 95-334). When a disaster is declared (by a State Conservationist or the President), non-federal landowners may contact their local NRCS office for information about the EWP program. On large or complex intermingled land ownership patterns non-federal lands may be included in the federal burned area assessment, or NRCS personnel included on the assessment team.

5.8.3 Federal Emergency Management Agency (FEMA)

FEMA manages programs to assist state, local, and tribal governments as well as individuals before and after a disaster. FEMA is called in to assist when the President declares a disaster. Disasters may be "declared" after hurricanes, tornadoes, floods, earthquakes, wildfires or other similar events strike a community. The Governor of the state must ask for assistance from the President before FEMA can respond.

FEMA workers may help disaster victims find a place to stay if their homes were damaged or destroyed. FEMA also helps repair homes and works with city officials to fix public buildings that have been damaged.

In a large wildfire with significant Wildland Urban Interface, BAER Teams should coordinate their activities with FEMA.

6 Plan Development

Burned area assessments are conducted to validated anticipated emergency stabilization needs either defined in fire and resource management plans or identified in initial fact finding activities. The assessment determines what realistic and cost effective emergency stabilization treatments are needed; not to document the effects of the fire (i.e., natural or cultural resource damage, fire effects, etc.) or to validate whether an appropriate management response (e.g., limited or modified suppression) was appropriate.

6.1 Assembling the Planning Team

The agency administrator is responsible for BAER Plan/Report development which may include assembling an interdisciplinary planning team to conduct burned area assessments and begin plan development. If emergency stabilization actions are anticipated, the BAER team should be assembled and ready to work within sufficient time to complete the BAER Plan/Report to meet agency timelines. BAER Teams can be a standing or ad hoc group of technical or scientific specialists that may be local, regional, or national. BAER Plans/Reports can be multi/interagency when agency administrators agree that a multi/interagency plan is appropriate.

Team size and make-up will vary dependent on the wildfire size, values to be protected, time frames, and jurisdictions involved. Generally the team should include resource specialists (geomorphology, soils, hydrology, revegetation, wildlife, ecology, range, watershed, invasive species, historic properties, etc.), members knowledgeable about post-fire impacts and effective stabilization techniques and local unit resource advisors. Adding trainees to a BAER project is encouraged.

A team member may represent several skills. Inclusion in the team of expertise from cooperating agencies or offices is encouraged, especially when the needed skills are not available within the agency. Access to needed expertise can be obtained through the interagency coordination dispatch system or through contracts.

A National DOI Interagency BAER team may be resource ordered on a complex wildfire or a wildfire that crosses agency boundaries (mobilization procedures for the national interagency BAER team is described in the National Interagency Mobilization Guide). The Agency Administrator should plan to support the BAER Team with local resource specialists. The requesting agency may prepare a Letter of Direction for the BAER team to develop and prepare the BAER Plan/Report. Demobilization of dispatched personnel will be through normal interagency coordination dispatch channels and processes if available.

6.2 Review of Current Available Resources and Wildfire Data

Prior to field inspection of the burned area, the planning team should:

- Receive a start up briefing with agency administrator.

- Review the field unit fire, land, and resource management plans and relevant plans that are relevant.
- Review all wildfire suppression operational plans, resource advisor reports, and the Wildland Fire Situation Analyses. Suppression plans/actions provide valuable information concerning the relative values the field unit places on individual resources.
- Have all existing relevant resource management data including monitoring studies, inventories (vegetation, cultural, and Threatened and Endangered, including sensitive species), state comprehensive wildlife conservation strategies, and previously implemented BAER plans.
- Review monitoring studies and vegetation inventories which provide valuable information on pre-burn invasive species populations and plant composition that may be useful in deciding what actions may be necessary, or whether natural recovery may preclude the need for intensive treatments.
- Review information on fire history, fire ecology and effects, fire management planning, historic properties
- Review treatment effectiveness monitoring data on the success or failure of past wildfire stabilization treatments. This is essential in developing proposed treatments.
- Review soil surveys which contain important information on characteristics of soils relative to erosion potential, the success of seeding, ecological site information, seeding success potential, and other important information.
- The planning team should review and become familiar with the information contained in the Fire Effects Information System (FEIS) computerized database, the *Fire Effects Guide*, and other relevant literature, documentation, and expertise. The FEIS is described in *Fire Effects Information System: User's Guide*, *USDA Forest Service General Technical Report INT-GTR-327*. It contains information on 900 plant species, 90 animal species, and 25 plant communities. Summaries are updated periodically as new fire ecology information becomes available. The *Fire Effects Guide,* sponsored by the NWCG, is available from the Publications Management System manager at the National Interagency Fire Center (NIFC) warehouse as NFES 2394. Numerous other technical references should also be consulted and are available on the Internet (including the NRCS websites) and other locations to ensure that the appropriate techniques and plant species are utilized in planned projects.
- Another source of information about potential species to be used in re-vegetation is the NRCS-USGS Biological Resources Division VegSpec website **(**http://plants.usda.gov). The VegSpec is a web-based, expert system that aids technical people or managers in making sound decisions on what plants to plant on specific sites. It integrates the Natural Resources Conservation Service (NRCS) soils, plants, and climate databases for plant selection which addresses conservation problems. Other sources of information on vegetation (including the potential for invasion by undesirable species), soils, and site potential (ecological site) should also be reviewed to help determine if seeding is necessary is for the success of the emergency stabilization project.
- Review other relevant available information.
- Location of fire retardant drop locations. (So they can be evaluated for treatments.)

Areas of concern (e.g. wilderness and wilderness study areas, areas of critical environmental concern, erosion hazards, threatened and endangered species habitats, historic properties etc.) should also be identified from field unit records prior to field inspection.

Aerial photographs, GIS layers, and maps are essential tools for the planning team to include on initial wildfire inspections. Habitat improvements and other agency facilities within the wildfire perimeter are plotted on maps/photos to assist the team in identifying burned structures for reconstruction or replacement consideration.

The planning team may develop a burned area map delineating burn severity using accepted protocols and definitions for the purpose of focusing their assessment activities.

6.3 Burned Area Assessment

After the preliminary information has been reviewed and assembled, the planning team conducts one or more field inspections of the burned area to assess values at risk as a result of the wildfire. Aerial and ground assessments must be coordinated with the Incident Management Team Commander.

Values at risk may include human life, property, natural resources, historic properties, threatened and endangered species, potential for exotic invasives, soil productivity and Native American or other cultural values. Once identified, values at risk should be evaluated for appropriate emergency stabilization action. These evaluations may require coordination with local specialists and appropriate models should be used and referenced.

The planning team should develop a burned area map delineating burn severity using accepted protocols and definitions.

The planning team should evaluate burn severity and predicted watershed response to determine the potential for flooding, debris flows, surface erosion and other related processes, e.g., natural regeneration of vegetation.

6.4 Cost-Risk Analysis

A Cost-Risk Analysis of the proposed actions and no action alternative should be prepared to assure the treatment costs do not exceed the values to be protected.

6.5 Planning Team Recommendations

Upon completion of the burned area field inspections, the planning team reports its initial findings and recommendations and provides an agency administrator briefing. Identification of values to be protected and emergency stabilization needs are discussed with the agency administrator. Options for emergency stabilization, potential costs, consultation and cooperation needs, and potential controversies associated with the proposed treatments are presented at this time. The agency administrator accepts, modifies, or rejects the team's recommendations and gives direction to the team how to proceed with BAER Plan/Report development.

6.6 Preparing the BAER Plan/Report

In most cases, it is a local BAER team that will prepare the BAER Plan/Report. However, if a regional or national team is called in, it is expected that local resources will provide support and assistance in the preparation of the BAER Plan/Report. In preparing the BAER Plan/Report, the team should work with the field unit staff to take the following actions:

- Determine the availability and cost of the treatment or activity supplies (e.g. seed proposed for planting).
- Begin making arrangements for the cultural and threatened and endangered species consultations, including coordinating with agency contracting specialists.
- Determine the availability and make preliminary arrangements for necessary equipment.
- Coordinate with the agency administrator and with affected or interested parties regarding proposed emergency stabilization practices.
- Coordinate with the Regional/State/National Office on complex or controversial emergency stabilization funding issues or technical questions.

Information needed to complete the plan may include:

- Agency review and approvals.
- Summary wildfire narrative and activities and treatments needed.
- Fire location and background information.
- Type of plan (e.g., initial submission, or amendment).
- Values at risk.
- Values to be protected and their location.
- Emergency stabilization objectives.
- Planning team organization and membership.
- Activity and treatment specifications.
- Emergency stabilization funding needs.
- Consultations made by the planning team.
- Burn area assessments.
- Environmental compliance documentation
- Explanation of treatments with respect to values at risk.
- Maps, photo documentation, supporting documents, etc.
- Monitoring objectives and procedures/protocols.

BAER Plan/Report templates and examples are available at agency websites (DOI).

6.7 BAER Plan/Report Approval

The planning team completes the plan and obtains an initial review from policy, technical, or other interested parties prior to the submission of the plan to the agency administrator. If problems are defined, they should be worked out before the plan is submitted for approval. The agency administrator is responsible for submitting the BAER Plan/Report to the appropriate approving official for final approval.

	BIA	**BLM**	**FWS**	**NPS**	**FS**
Local Approval Level	$100,000 Agency Superintendent	$0 Field/District Manager	$0 Refuge Manager	$0 Park Superintendent	$0 District Ranger
					$0 Forest Supervisor
Regional/ State Certification Level	$100,000 - $250,000 Regional Director	<$100,000 State Director	< $500,000 Regional Director with Regional Fire Management Coordinator concurrence	< $300,000 Regional Director	$500,000 Western Regional Foresters
					$100,000 Eastern Regional Foresters
National Certification Level	>$250,000 Chief, Branch of Fire Management	>$100,000 Director	>$500,000 Chief, Branch of Fire Management	>$300,000 National Fire Management Officer	>$100,000 or $500,000 Chief

The agency administrator, planning team, or approving official is encouraged to request input from the State, Regional and/or National Office staffs on any BAER Plan/Report before submitting it for approval. The use of electronic means of transmitting plans is encouraged.

6.8 Transition to Plan Implementation

Ideally, BAER Plan/Report development personnel are the same people assigned to implementation. When the plan is implemented by a different team, the implementation team leader should be involved in the planning effort.

With regional/national teams, planning and implementation personnel may be different (e.g., standing BAER team completes the planning and the local unit personnel complete the implementation of approved treatments). In this case, it is important to prepare a transition memo (from the planning team to the affected agency administrator(s)) with implementation recommendations, and all BAER Plan/Report file(s). These measures should help to ensure a clean, organized transition from planning to implementation. It is also important that the departing planning team conduct a close-out and transition meeting with the affected agencies to discuss the findings of the burned area assessments, treatment proposals and other mitigation measures, and approval and funding procedures. This transition meeting should include the

following key transition individuals: agency administrator, planning team leader, implementation team leader, and administrative/procurement officer. The planning team may be contacted by implementation personnel to explain specific aspects of the plan.

Treatment specifications in the Plan/Report should be sufficiently detailed that the implementers do not have to reanalyze the treatment need, extent, character and costs or to question the practicality of the treatment.

6.9 Plan Amendment

For the first year following wildfire containment, the plan/report may be amended, if the initial burned area assessment(s) were incomplete or new information shows that the BAER Plan/Report may not accomplish its objectives. Maintenance, repair or replacement of emergency stabilization treatments can occur for up to three years following wildfire containment.

6.10 Planning of Treatment Effectiveness Monitoring and Evaluation

BAER Plans/Reports must include provisions for monitoring and evaluation of treatments.

Monitoring and evaluation of post-fire treatments are critical for understanding and improving such treatments. The objective of treatment effectiveness is to determine if plan objectives were met. Effectiveness monitoring is used to evaluate whether the installed treatment had the desired effect. This information is used to adapt management treatments and activities for the current and future projects to increase effectiveness.

Monitoring intensity should be commensurate with the complexity of the emergency stabilization treatments and the level of concern or controversy associated with the emergency stabilization treatment. The effectiveness monitoring specification should document the specific monitoring objective for that project, the monitoring protocol, personnel/equipment needed, and the funding needs. Those treatments that have been identified for effectiveness monitoring, must have monitoring provisions and procedures specified. Procedures for collecting, archiving and disseminating results are also necessary, and results should be entered into the existing corporate database.

7 Emergency Stabilization Plan Implementation

7.1 Implementation

Actions to implement emergency stabilization treatments should begin immediately upon plan approval. Implementation should begin as soon as necessary to complete the treatment prior to the rainy season, onset of winter, weather, or other shutdowns. Potential delays or issues should be addressed early in the implementation process to facilitate completion of treatments at the proper time to ensure maximum probability of success. Implementation complexity increases dramatically in situations where a wildfire has burned across property boundaries.

7.2 Responsibility and Coordination

Unlike the planning effort, which is often done by a single interagency team, each affected agency identified in the BAER Plan/Report must assume the overall responsibility for the implementation of treatments on its the lands it manages. Private, state, county, and city lands are typically coordinated by the Natural Resources Conservation Service (NRCS) through the Emergency Watershed Program (EWP). Whenever possible, treatment implementation should be coordinated across agency lines by "piggy-backing" on existing contracts, sharing contracting officer's representative (COR) responsibilities, etc. Cooperation between agencies charged with the implementation of similar or identical treatments within the same wildfire perimeter is not only possible, but is highly encouraged as an opportunity for real cost savings and management efficiency.

7.3 Project Management

The agency administrator should assign an implementation leader to assure ensure all plan treatments/activities are completed on time and according to the specification. Depending on the complexity of the plan, this may be a collateral or full time duty. The project implementation leader's duties may include:

- Safety of implementation activities.
- Supervising plan and individual treatment specification preparation and implementation.
- Equipment and supply procurement.
- Ensuring contract administration by certified CORs.
- Coordination with region/state/national coordinator.
- Implementation monitoring.
- Accomplishment reports (annual, final).
- Corporate database documentation.

Treatments must conform to federal procurement laws, rules and regulations and agency and Departmental manuals. The initial approved emergency stabilization spending authority is issued for the period up to one year following containment of the wildfire (monitoring and failed treatment maintenance may continue for up to three years). After submission of the final

accomplishment report or the emergency stabilization funding time limit lapses (whichever comes first), appropriate emergency stabilization obligations cease and unspent funding authority is withdrawn. Accurate actual cost accounting records of expenditures must be kept by fiscal year in the annual accomplishment report.

Complex, long-term projects on large fires may require a formal Implementation Plan. This plan may include: organizational chart, communications plan, safety plan, priority treatment implementation, responsibilities, etc.

7.4 Project Records

Accurate and up-to-date records of estimated and actual expenditures must be kept. Projects should be structured in order to reduce the local administrative unit record keeping. Project records are kept at the local administrative unit and available for review and audit.

7.5 Organization

The implementation team leader is responsible for identifying procurement needs to the administrative officer and agency administrator early in the implementation phase. The Agency Administrator is responsible for providing procurement services. The implementation team leader and local administrative staff are responsible for establishing and maintaining effective working relationships. It is recommended that in complex situations, the implementation team should be organized using Incident Command System (ICS) principles.

7.6 Contract Inspection

For every treatment/activity installed through a contract, it is necessary that a certified inspector inspect and accept the work completed. The inspection should verify that the work was completed according to the contract specifications. Contractors cannot be issued final payment until the inspection is completed and the work is acceptable and in compliance with contract specifications.

7.7 Preparation

Administrative units should anticipate (programmatic planning) and arrange for supplies, equipment, and services normally required for emergency stabilization work before the fire season. These arrangements may include blanket purchase agreements, open-end contracts, emergency equipment rental agreements, and so forth. Such arrangements may be done in conjunction with fire management activities. (See NWCG Interagency Incident Business Management Handbook).

7.8 Project Maintenance

Some treatments/activities may require periodic maintenance to ensure continuous and effective functioning and to protect the financial investment in the treatment. Adequate maintenance must

be provided until the conditions specified in the plan are met and the treatment measures are no longer needed. Structures used in emergency stabilization may be removed rather than maintained or replaced after they have outlived their design life and after the objectives in the plan are met.

Maintenance and removal of emergency stabilization structures are funded through the emergency stabilization program for up to three years after containment of the fire. If this removal occurs after the three year funding period, removal costs must be programmed and charged to the appropriate agency funding account.

7.9 Implementation of Monitoring

The annual accomplishment report contains information on monitoring progress/results and is required in order to continue to receive funding to monitor for an additional year.

Cooperative efforts in monitoring the results of emergency stabilization projects are encouraged; these efforts could be with research organizations, neighboring offices, other office programs, agencies, or universities.

Monitoring information and results should be entered and retained in an easily accessible corporate database. Information gained in monitoring is strongly encouraged to be shared through websites, professional papers, technical bulletins, symposia, workshops, training, etc.

7.10 Accomplishment Reporting

To provide for accountability for funding approved, a standardized, final accomplishment report must be filed with the approving official. The submission of the final accomplishment report effectively closes out the emergency stabilization portion of the project.

The agency administrator reports accomplishments on projects and tracks expenditures of funds under the emergency funding authority. The agency administrator is also responsible for entering data into the corporate database.

The final accomplishment report is a statement of what activities and treatments were completed. The information in the final report should include:

- The original specification and subsequent submissions.
- Descriptions of the implementation of the treatments, including final treatment maps and specifications.
- Expenditures.
- Completion date of the treatment(s).
- Projected follow-up activities and treatments.
- Treatment effectiveness.

Assessments for each of the resources affected, e.g., cultural, forestry, vegetation, fish and wildlife, soil and watershed, etc.

7.11 After Action Review

An after action review (aka lessons learned) of every BAER Plan/Report is necessary to identify information and knowledge gaps, training needs and research opportunities. It can identify what worked and what didn't from a process perspective. The appropriate timing is conditional on plan/report implementation since actual implementation will identify the strengths and weaknesses in the plan/report.

8 References

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