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5.16.1 Environmental Setting

5.16.1.1 REGULATORY BACKGROUND

Federal

National Fire Protection Association Codes, Standards, Practices, and Guides

National Fire Protection Association codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. National Fire Protection Association standards are recommended guidelines and nationally accepted good practices in fire protection but are not laws or codes unless adopted as such or referenced as such by the California Fire Code (CFC) or the local fire agency.

Federal Wildland Fire Management Policy

The Federal Wildland Fire Management Policy was developed in 1995, updated in 2001, and again in 2009 by the National Wildfire Coordinating Group, a federal multiagency group that establishes consistent and coordinated fire management policy across multiple federal jurisdictions. An important component of the Federal Wildland Fire Management Policy is the acknowledgement of the essential role of fire in maintaining natural ecosystems. The Federal Wildland Fire Management Policy and its implementation are founded on principles found in the Guidance for Implementation of Federal Wildland Fire Management Policy:

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
- Fire management plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
- Fire management plans and activities are based upon the best available science.
- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, state, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.

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International Fire Code

Created by the International Code Council, the International Fire Code (IFC) addresses a wide array of conditions hazardous to life and property, including fire, explosions, and hazardous materials handling or usage. It is not a federal regulation, but rather the product of the International Code Council. The IFC emphasizes prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every three years, the IFC uses a hazards classification system to determine the appropriate measures to be incorporated to protect life and property (these measures often include construction standards and specialized equipment). The IFC uses a permit system (based on hazard classification) to ensure that required measures are instituted.

International Wildland-Urban Interface Code

The International Wildland-Urban Interface Code is published by the International Code Council and addresses wildfire issues in the wildland-urban interface. It is a model code that is intended to be adopted and used supplemental to the adopted building and fire codes of a jurisdiction. The International Wildland-Urban Interface Code establishes minimum special regulations for development in the wildland-urban interface to safeguard life and property from wildfire hazards.

State

California Department of Forestry and Fire Protection

The Department of Forestry and Fire Protection (CAL FIRE) is dedicated to the fire protection and stewardship of over 31 million acres of California's wildlands. The Office of the State Fire Marshal supports the CAL FIRE mission to protect life and property through fire prevention engineering programs, law and code enforcement, and education. The State Fire Marshal provides for fire prevention by enforcing fire-related laws in state-owned or -operated buildings, investigating arson fires in California, licensing those who inspect and service fire protection systems, approving fireworks as safe and sane for use in California, regulating the use of chemical flame retardants, evaluating building materials against fire safety standards, regulating hazardous liquid pipelines, and tracking incident statistics for local and state government emergency response agencies. Classification of a zone as moderate, high, or very high fire hazard is based on a combination of how a fire will behave and the probability of flames and embers threatening buildings. Each area of the map gets a score for flame length, embers, and the likelihood of the area burning. Scores are then averaged over the zone areas. Final zone class (moderate, high, and very high) is based on the average scores for the zone (CAL FIRE 2007a).

The Board of Forestry and Fire Protection (Board) is a government-appointed body within CAL FIRE. It is responsible for developing the general forest policy of the state, determining the guidance policies of CAL FIRE, and representing the state's interest in federal forestland in California. Together, the Board and CAL FIRE work to carry out the California Legislature's mandate to protect and enhance the state's unique forest and wildland resources.

The Board is charged with protecting all wildland forest resources in California that are not under federal jurisdiction. These resources include major commercial and noncommercial stands of timber, areas reserved

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for parks and recreation, woodlands, brush-range watersheds, and all private and state lands that contribute to California's forest resource wealth.

2018 Strategic Fire Plan for California

The Board has adopted strategic fire plans for California since the 1930s and periodically updates them to reflect current and anticipated needs of California's wildland. The plan is the state's road map for reducing the risk of wildfire through planning and prevention to reduce firefighting costs and property losses, increase firefighter safety, and contribute to ecosystem health. It is adopted to better respond to the changes of the environmental, social, and economic landscape of California's wildlands and to provide CAL FIRE with appropriate guidance for adequate statewide fire protection of state responsibility areas. The latest Strategic Fire Plan is dated August 22, 2018.

CAL FIRE implements and enforces the Board's policies and regulations. The 2018 Strategic Fire Plan reflects CAL FIRE's focus on (1) fire prevention and suppression activities to protect lives, property, and ecosystem services, and (2) natural resource management to maintain the state's forests as a resilient carbon sink to meet California's climate change goals and to serve as important habitat for adaptation and mitigation.

California Office of Emergency Services

The California Emergency Management Agency was incorporated into the Governor's Office on January 1, 2009, by Assembly Bill (AB) 38 (Nava), and merged the duties, powers, purposes, and responsibilities of the Governor's Office of Emergency Services (Cal OES) with those of the Governor's Office of Homeland Security. Cal OES is responsible for the coordination of overall state agency response to major disasters in support of local government. The agency is responsible for ensuring the state's readiness to respond to and recover from all hazards—natural, man-made, emergencies, and disasters—and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts.

The Cal OES Fire and Rescue Division coordinates statewide response of fire and rescue mutual aid resources to all types of emergencies, including hazardous materials. The Operations Section under the Fire and Rescue Division coordinates the California Fire and Rescue Mutual Aid System, and coordinated response through the Mutual Aid System includes responses to major fires, earthquakes, tsunamis, hazardous materials, and other disasters.

California Building Code

The State of California provides a minimum standard for building design through Title 24 of the California Code of Regulations (CCR), commonly referred to as the "California Building Code" (CBC). The CBC is updated every three years, and the current 2019 CBC went into effect in January 2020. Commercial and residential buildings are plan-checked by local City and County building officials for compliance with the CBC. Typical fire safety requirements of the CBC include: the installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

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California Fire Code

The CFC incorporates by adoption the International Fire Code with California amendments (24 CCR Part 9). The CFC is updated every three years, and the current 2019 CFC went into effect January 1, 2020. It is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the State Building Standards Commission. The CFC regulates building standards in the CBC, fire department access, fire protection systems and devices, fire and explosion hazards safety, hazardous materials storage and use, and standards for building inspection. The Orange County Fire Authority (OCFA) provides fire protection services for the City of San Juan Capistrano and therefore implements and enforces the CFC at the Project Site.

California Public Resources Code

California Public Resources Code (PRC) Sections 4291 et seq. require removal of brush, flammable vegetation, or combustible growth within 100 feet of buildings on or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land covered in flammable materials.

PRC Section 4290 requires the State Board of Forestry and Fire Protection to adopt regulations implementing minimum fire safety standards for defensible space that would be applicable to lands within state responsibility areas and lands within very high fire hazard severity zones.

Fire Hazard Severity Zones and Responsibility Areas

CAL FIRE publishes maps recommending fire hazard severity zones for every California county. The maps identify lands within one of three management areas: Local Responsibility Area (LRA), State Responsibility Area (SRA), or Federal Responsibility Area (FRA). Within each of these areas, a single agency has direct responsibility: in LRAs, local fire departments or fire protection districts are responsible; in SRAs, CAL FIRE is responsible; in FRAs, federal agencies such as the United States Forest Service, National Park Service, Bureau of Land Management, United States Department of Defense, United States Fish and Wildlife Service, and Department of the Interior are responsible.

Within the LRA, CAL FIRE designates lands as being within a very high fire hazard severity zone (VHFHSZ) or non-VHFHSZ. The LRA maps also show the VHFHSZ and non-VHFHSZ areas within the SRA and FRA, but do not differentiate lands within the SRA and FRA from each other (that is, SRA and FRA areas are mapped together).

Local

City of San Juan Capistrano Municipal Code

The 2019 CFC is adopted, with certain amendments, as Chapter 8-10, California Fire Code, of the City of San Juan Capistrano Municipal Code. The 2019 California Building Code, based on the 2018 International Building Code, is adopted as Chapter 2, Building Code, of the City of San Juan Capistrano Municipal Code.

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Municipal code section 9-3.519 requires any development where property is immediately adjacent to mature flammable vegetation to obtain a fuel modification program approval from OCEFA before it can receive a building permit.

Municipal code, Title 4, Chapter 1, Emergency Preparedness, provides for the preparation and carrying out of plans for the protection of persons and property in the event of an emergency, the direction of the emergency organization, and the coordination of emergency functions.

City of San Juan Capistrano General Plan

The General Plan Safety Element includes goals and policies aimed at protecting the community from wildfire hazards. Applicable policies include:

- **Safety Goal 1:** Reduce the risk to the community from hazards related to geologic conditions, seismic activity, wildfires, structural fires and flooding.
 - **Policy 1.3.** Reduce the risk of wildfire hazards by requiring fire retardant landscaping and project design for development located in areas of high wildfire risk.
 - **Policy 1.4.** Reduce the risk of fire to the community by coordinating with the Orange County Fire Authority.
 - **Policy 1.5.** All residential projects with more than 48 units should be required to provide a secondary access to the Project Site. The secondary access may be designated as emergency access.

5.16.1.2 EXISTING CONDITIONS

Types of Wildfire

There are three basic types of wildland fires:

- **Crown fires** burn trees to their tops; these are the most intense and dangerous wildland fires.
- **Surface fires** burn surface litter and duff. These are the easiest fires to extinguish and cause the least damage to the forest. Brush and small trees enable surface fires to reach treetops and are thus referred to as ladder fuels.
- **Ground fires** occur underground in deep accumulations of dead vegetation. These fires move very slowly but can be difficult to extinguish. (Natural Resources Canada 2019)

Wildfires burn in many types of vegetation—forest, woodland, scrub (including chaparral, sage scrub, and desert scrub), and grassland. Many species of native California plants are adapted to fire. Chaparral shrubs recover from fire in two ways: 1) woody root crowns or burls below the soil surface survive a fire and resprout; or, 2) shrubs (various species of Manzanita and Ceanothus) produce seeds requiring intense heat from a fire to germinate (Santa Barbara City College 2010). Many species of conifers have seed cones that require fire to open.

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Between 2010 and 2017, wildfires in California burned about 265,000 acres of forest land, 207,000 acres of shrub vegetation, 99,000 acres of grassland, 18,000 acres of desert vegetation, and 14,000 acres of other vegetation types (CAL FIRE 2018).

Wildfire Causes

Although the term wildfire suggests natural origins, a 2017 study evaluated 1.5 million wildfires in the United States between 1992 and 2012 and found that humans were responsible for igniting 84 percent of wildfires and accounted for 44 percent of acreage burned (Balch et al. 2017). The three most common causes are debris burning (logging slash, farm fields, trash, etc.), arson, and equipment use (NPS 2019). Lightning is a major natural cause of wildfire in the United States (Balch et al. 2017).

Wildfire season in the West has recently lengthened from an average of between five and seven months to year-round (CAL FIRE 2018), and the number of large wildfires (i.e., greater than 1,000 acres) has increased from 140 to 250 per year. At the same time, average annual temperatures in the West have risen by nearly two degrees Fahrenheit since the 1970s, and the winter snowpack has declined. Increases in acres burned can now be attributed in part to climate change (GOES 2018). Orange County experiences destructive wildland fires almost every year.

Secondary Effects

Secondary effects of wildfire include debris flows postfire and air pollution due to smoke. The following sections describe the hazards of these secondary wildfire effects.

Debris Flows

Postfire landslide hazards include fast-moving, highly destructive debris flows that can happen immediately after wildfires in response to high intensity rainfall or are generated over longer time periods by root decay and loss of soil strength. Postfire debris flows are particularly hazardous because they can occur with little warning, sweep away objects in their paths, strip vegetation, block drainage ways, damage structures, and endanger human life. Fires increase the potential for debris flows in two ways:

- Fires may bake soil into a hard crust that repels water.
- Fires destroy vegetation that would slow and absorb rainfall and whose roots would help stabilize soil. (USGS 2018)

Postfire debris flows are most common in the two years after a fire, usually triggered by heavy rainfall. It takes much less rainfall to trigger debris flows from burned basins than from unburned areas. In southern California, as little as 0.3 inch of rainfall in 30 minutes has triggered debris flows, and any storm that has intensities greater than about 0.4 inch per hour can produce debris flows (USGS 2005). The burning of vegetation and soil on slopes more than doubles the rate that water will run off into watercourses (CGS 2020).

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Air Pollution

Smoke is made up of a complex mixture of gases and fine particles. The biggest health threat from smoke is from fine particles, which can penetrate the lungs and can cause a range of health problems, from burning eyes and a runny nose to aggravated chronic heart and lung diseases. Exposure to particulate pollution is even linked to premature death. Some populations are more sensitive than others to smoke, for instance, people with heart or lung diseases, the elderly, children, people with diabetes, and pregnant women (Airnow 2017).

Wildfire History and Potential

The Proposed Project is not in a state or local responsibility area (SRA or LRA) or land classified as a very high fire hazard severity zone, as identified in the CAL FIRE's Hazard Severity Zone Map (CAL FIRE 2011). The nearest VHFHSZ is approximately 0.5 mile to the southeast, south of Golf Club Drive.

According to Cal OES, a wildland-urban interface (WUI) is any area where structures and other human development meet or intermingle within wildland vegetation (Cal OES 2018). There are two classifications of WUI areas—interface and intermix. Interface WUIs are areas with housing in the vicinity of contiguous wildland vegetation; intermix WUIs are areas where housing and vegetation intermingle. As identified in the Wildland-Urban Interface Change 1990–2010 map, the Proposed Project is in a nonvegetated or agriculture area with medium and high housing density (University of Wisconsin-Madison 2010). Although the Project Site is not located within a VHFHSZ or WUI zone, the City's interactive map identifies that the Project Site and surrounding area are in a high fire hazard zone (San Juan Capistrano 2020).

Fire Protection Resources

OCFA provides fire protection and emergency medical services to the Project Site. The closest fire station to the Project Site is OCFA Station 7 at 31865 Del Obispo, approximately two miles (driving distance) south of the Project Site. Currently, Station 7 is staffed with 3 fire captains, 3 fire apparatus engineers, 9 firefighters, and reserve firefighters; equipment includes Engine 7, Engine 307, Medic 7, Patrol 7, and Water Tender 7 (OCFA 2020).

5.16.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if located in or near state responsibility areas or lands classified as very high fire hazard severity zones the project would:

- W-1 Substantially impair an adopted emergency response plan or emergency evacuation plan.
- W-2 Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

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- W-3 Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
- W-4 Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

The Initial Study, included as Appendix A, concluded that impacts associated with thresholds W-1 through W-4 would be less than significant. However, comment letters were received during the initial study's public review period (see Appendix B) that raised concerns associated with wildfire hazards. In response to the comment letters, Thresholds W-1 through W-4 will be discussed further in this DEIR.

5.16.3 Plans, Programs, and Policies

- PPP PS-1 New buildings are required to meet the fire regulations outlined in California Health and Safety Code Sections 13000 et seq.
- PPP PS-2 New construction is required to comply with the California Fire Code as amended by the City of San Juan Capistrano.
- PPP PS-3 New construction shall comply with San Juan Capistrano Municipal Code Section 9-3.519, which requires any development where property is immediately adjacent to mature flammable vegetation to obtain a fuel modification program approval from the Orange County Fire Authority prior to issuance of a building permit.

5.16.4 Environmental Impacts

5.16.4.1 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.16-1: The Proposed Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. [Threshold W-1]

See also Section 5.7, *Hazards and Hazardous Materials*, Impact 5.7-3.

Compliance with the Standardized Emergency Management System (SEMS) is required to “be documented in the areas of planning, training, exercise, and performance” (19 CCR Division 2 § 2443). The Unified County of Orange and Orange County Operational Area Emergency Operations Plan (EOP) was approved by the County Board of Supervisors on February 2019. The purpose of the EOP is to establish the coordinated emergency management system, including prevention, protection, response, recovery and mitigation before, during, and after an emergency. Under the EOP, the Director of Emergency Services is responsible for organizing and directing the preparedness efforts of Orange County.

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The Proposed Project would not interfere with the implementation of the EOP or any of the daily operations of the County's Emergency Operation Center, the OCFA, or the Orange County Sheriff's Department. All construction activities would be required to be performed according to the City's and OCFA's standards and regulations. For example, temporary traffic diversion and impacts to the roadway would be coordinated with the City and applicable emergency response agencies to ensure adequate access along Rancho Viejo Road during construction of the project.

The Proposed Project would also be required to go through the City's development review and permitting process and would be required to incorporate all applicable design and safety standards and regulations—as set forth by OCFA and in Section 9-3.519 of the City's municipal code—to ensure that it does not interfere with the provision of local emergency services (e.g., provision of adequate access roads to accommodate emergency response vehicles, adequate numbers/locations of fire hydrants). The Proposed Project would have two access points from the east side of Rancho Viejo Road. The primary entrance is toward the middle of Project Site's frontage with Rancho Viejo Road. The second driveway, on the south side of the Project Site, is an access easement for the adjacent parcel to the south and would also be used as a secondary access point to the Project Site.

Therefore, the Proposed Project would not impair implementation of or physically interfere with the City's or County's emergency response or evacuation plans.

Level of Significance Before Mitigation: Less than significant.

Impact 5.16-2: The Proposed Project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors exacerbating wildfire risks. [Threshold W-2]

The Project Site is developed with a vacant industrial building and surrounded by open space, industrial, and residential uses. Although there is sloped open space to the east, the Proposed Project would be constructed in compliance with the CFC and CBC and would not expose project occupants to pollutant concentrations from wildfire or the uncontrolled spread of a wildfire by exacerbating wildfire risks. Additionally, as stated in PPP PS-3, the Proposed Project would be required to comply with the City's municipal code Section 9-3.519, Fuel Modification Standards, where necessary. Section 9-3.519 requires that any development where property is immediately adjacent to mature flammable vegetation obtain approval for a fuel modification program from OCFA before a building permit is issued. Implementation of a fuel modification plan would reduce the level of risk from wildland fires by removing native flammable vegetation and replacing it with drought-tolerant, fire-resistant plants that reduce radiant and convective heat. Therefore, with the implementation of identified PPPs, impacts from wildfire would be less than significant.

Level of Significance Before Mitigation: Less than significant.

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Impact 5.16-3: Implementation of the Proposed Project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. [Threshold W-3]

The Project Site is in high fire hazard zone identified by the City; however, it is in a developed area with neighboring residential and industrial uses and served by roads, power lines, water sources, and other utilities. The Proposed Project would not require the installation or maintenance of associated infrastructure and would connect to existing systems. Therefore, implementation of the Proposed Project would not require installation of new or increased level of infrastructure maintenance that could exacerbate fire risk or result in temporary or ongoing impacts to the environment.

Level of Significance Before Mitigation: Less than significant.

Impact 5.16-4: The Proposed Project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, postfire slope instability, or drainage changes. [Threshold W-4]

According to the City's safety element, the Project Site is not in an area of potential flooding from a 100-year flood or from a dam failure. Drainage from the Proposed Project would be conveyed safely so it does not overtop slopes or channels, thereby reducing the chance for erosion. Disturbed slope areas would be vegetated with native or drought-tolerant plants. Therefore, the Proposed Project would not expose people or structures to significant downstream flooding impacts as a result of runoff or drainage changes. Additionally, the northern portion of the Project Site is identified as being in a landslide zone by the California Earthquake Hazards Zone Application (DOC 2020). However, the majority of hillsides in Southern California are within similar geologic settings and are also mapped for potential for earthquake-induced landslide. The Proposed Project would be designed and constructed to structural integrity and infrastructure against geologic hazards according to the recommendations in the geotechnical investigation prepared in accordance with CBC requirements and reviewed and approved by the City of San Juan Capistrano. Therefore, implementation of the Proposed Project would not exacerbate the existing downslope or downstream flooding or landslides.

Level of Significance Before Mitigation: Less than significant.

5.16.5 Cumulative Impacts

The Project Site is not in the VHFHSZ or in an LRA or SRA, and the area for cumulative impacts is land within the City of San Juan Capistrano that is categorized as high or VHFHSZ in LRAs and SRAs, since wildfire can spread rapidly across city and county limits. Implementation of the Proposed Project combined with other development in the City would not result in increased wildfire hazard risks or exposure to wildfire risks. Urban development projects that are constructed in compliance with the CBC and CFC would be designed with appropriate measures, including fire prevention and fuel modification features, so that the developments do not expose project occupants to increased and uncontrolled wildfire hazards. The Proposed Project is surrounded by urban development and served by existing infrastructure; therefore, its development would not contribute

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incrementally with other projects in the City to exacerbate wildfire risks. Cumulative wildfire hazard impacts would be less than significant.

5.16.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements, the following impacts would be less than significant: 5.16-1, 5.16-2, 5.16-3, and 5.16-4.

5.16.7 Mitigation Measures

No mitigation measures are required.

5.16.8 Level of Significance After Mitigation

Impacts would be less than significant.

5.16.9 References

Airnow. 2017, January. How Smoke from Fires Can Affect Your Health.

<https://airnow.gov/index.cfm?action=smoke.index>.

Balch, Jennifer, et al. 2017, March 14. "Human-Started Wildfires Expand the Fire Niche Across the United States." *Proceedings of the National Academy of Sciences* 114 (11): 2946–2951.

<https://www.pnas.org/content/pnas/114/11/2946.full.pdf>.

California Geological Survey (CGS). 2020. Post-fire Debris Flow Facts.

<https://www.conservation.ca.gov/index/Pages/Fact-sheets/Post-Fire-Debris-Flow-Facts.aspx>.

California Department of Forestry and Fire Protection (CAL FIRE). 2007a, May. Fire Hazard Severity Zone Model: A Non-technical Primer. Fact Sheet.

https://www.sccgov.org/sites/dpd/DocsForms/Documents/FireHazardZone_NonTechnical_Primer.pdf.

———. 2011, October. San Juan Capistrano, Very High Fire Hazard Severity Zones in LRA, As Recommended by CAL FIRE.

https://osfm.fire.ca.gov/media/5895/c30_sanjuancapistrano_vhfhsz.pdf.

———. 2018, August 22. 2018 Strategic Fire Plan for California.

https://osfm.fire.ca.gov/media/5590/2018-strategic-fire-plan-approved-08_22_18.pdf.

California Department of Conservation (DOC). 2020, May (accessed). California Earthquake Hazards Zone Application. <https://maps.conservation.ca.gov/cgs/EQZApp/app/>.

GEOS Institute. 2018. Open Letter to Decision Makers Concerning Wildfire in the West.

http://www.californiachaparral.com/images/scientist-letter-wildfire-signers-2018-08-27_1.pdf.

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- National Park Services (NPS). 2019. Wildfire Causes and Evaluations. <https://www.nps.gov/articles/wildfire-causes-and-evaluation.htm>.
- Natural Resources Canada. 2019. Fire Behavior. <https://www.nrcan.gc.ca/forests/fire-insects-disturbances/fire/13145>.
- Orange County Fire Authority (OCFA). 2020, March 18 (accessed). Operations Division 3. <https://www.ocfa.org/AboutUs/Departments/OperationsDirectory/Division3.aspx>.
- Santa Barbara City College. 2010. Fire in Chaparral. Biological Sciences web page. <http://www.biosbcc.net/b100plant/htm/fire.htm>.
- San Juan Capistrano, City of. 2020, May 19. City of San Juan Capistrano Interactive Map: Fire Hazard Zones (layer). <http://sanjuancap.maps.arcgis.com/apps/webappviewer/index.html?id=aa7d86db88f4454cac758f28b809c2b1>.
- University of Wisconsin-Madison. 2010. Wildland-Urban Interface (WUI) Change 1990–2010. <http://silvis.forest.wisc.edu/data/wui-change/>.
- US Geological Survey (USGS). 2005, September. Southern California: Wildfires and Debris Flows. <https://pubs.usgs.gov/fs/2005/3106/pdf/FS-3106.pdf>.
- . 2018, November 13. New Post-Wildfire Resource Guide Now Available to Help Communities Cope With Flood and Debris Flow Danger. <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/or/newsroom/releases/?cid=NRCSEPRD1430220>.